Appendix D. Biological Resources Technical Report

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Biological Technical Report for the Fanita Ranch Project City of Santee, San Diego County, California

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
ASMD	area-specific management directive
BCC	Birds of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
City	City of Santee
CNPS	California Native Plant Society
County	County of San Diego
CRPR	California Rare Plant Rank
DBH	diameter at breast height
EIR	environmental impact report
FESA	federal Endangered Species Act
FMZ	fuel modification zone
GIS	geographic information system
HCP	Habitat Conservation Plan
IA	Index of Abundance
MA	Management Area
MCAS	Marine Corps Air Station
MHPA	Multi-Habitat Planning Area
MM	Mitigation Measure
MSCP	Multiple Species Conservation Program
NCCP	Natural Community Conservation Plan
NCCPA	Natural Community Conservation Planning Act
NMFS	National Marine Fisheries Service
RWQCB	Regional Water Quality Control Board
SDG&E	San Diego Gas & Electric
SSC	Species of Special Concern
SWPPP	stormwater pollution prevention plan
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WL	Watch List

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EXECUTIVE SUMMARY

The Fanita Ranch Project (project or proposed project) totals 2,670.67 acres, including 2,638.07 acres on site and 32.60 acres off site. The project consists of a new housing development and an open space Habitat Preserve. The final acreage included in the Habitat Preserve totals 1,650.38 acres, and includes the proposed trails within the Habitat Preserve (10.52 acres), a portion of the San Diego Gas & Electric access road within the Habitat Preserve (6.88 acres), and all on-site temporary impact areas (114.47 acres) (see Table ES-1).

Table ES-1
Fanita Ranch Project Components Summary

Category	On-Site Acreage	Off-Site Acreage[1]	Total Acreage
Impact Neutral Total	77.20	—	77.20
Habitat Preserve Total	1,518.50	—	1,518.50
Temporary Impact Total	114.47	7.29	121.75
Permanent Impact Total[2]	927.90	25.32	953.22
Grand Total	**2,638.07**	**32.60**	**2,670.67**

Notes: Totals may not sum due to rounding.

1 "Off-Site" includes the impacts associated with the Cuyamaca Street and Magnolia Avenue road extensions.

2 Permanent impacts from 10.52 acres of proposed trails and 6.88 acres of the San Diego Gas & Electric access road will be included in the final Habitat Preserve.

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1 INTRODUCTION

1.1 Purpose of the Report

The purpose of this biological resources technical report is to (1) describe the existing conditions of biological resources within the Fanita Ranch Project (project or proposed project) area in terms of vegetation, jurisdictional aquatic resources, flora, wildlife, and wildlife habitats; (2) analyze the project's potential impacts to biological resources and explain their significance in view of federal, state, and local laws and policies; and (3) recommend mitigation measures for potential impacts to sensitive biological resources, if necessary. Mitigation recommendations would follow federal, state, and local rules and regulations, including the California Environmental Quality Act (CEQA), and the Draft Santee Multiple Species Conservation Program (MSCP) Subarea Plan (City of Santee 2018).

1.2 Project Background

The project area has been subject to environmental review and land use planning for the past 40 years. At the time of incorporation of the City of Santee (City) in 1980, the project area was designated in the County of San Diego Community Plan for development of approximately 14,000 dwelling units. In early 1983, the Carlton Santee Corporation filed a development application with the City for 606 single-family dwelling units, 21 open space lots, and 3 recreational vehicle storage lots on 213.2 acres of the Fanita Ranch property. An environmental impact report (EIR) (State Clearinghouse No. 83113005) was prepared for that project in October 1983, and the City Council approved the project as Units 1–4 on April 11, 1984, and Unit 5 on October 10, 1984. However, prior to the development of any approved tracts, the property was sold to Genstar Southwest Tracy LLC. Thereafter, the tracts' approval expired.

In 1984, the City adopted its first General Plan. The Santee General Plan designated Fanita Ranch for a maximum of 8,100 dwelling units (City of Santee 1984). The property owner and the City initiated preparation of a Specific Plan by forming a Fanita Ranch Task Force to review background information, tour the project area, and prepare a statement of goals and objectives for development of the property. In 1986, the task force's 17 "Essential Elements" were adopted as General Plan requirements for development of Fanita Ranch. The 17 Essential Elements were amended to 16 Essential Elements in May 1990 and were amended again in October 1995. In 2003, during the comprehensive update effort for the City's General Plan 2020, the 16 Essential Elements were revised and adopted as 16 "Guiding Principles" for the development of Fanita Ranch.

In 1987, the property was sold to American General Land Development, whose partner, American Newland, began processing a Specific Plan for approximately 3,000 units with a hotel and a golf

course, but later withdrew the application. American General Land Development was the active partner from 1993 through 1997.

In August 1997, Fanita Ranch was sold to Westbrook Communities. Westbrook Communities' local subsidiary, Westbrook Fanita Ranch LP, filed a Specific Plan application in 1997 to develop 3,000 detached single-family dwelling units, a golf course with an inn, a community park and a neighborhood park, two school sites, a neighborhood commercial center, and a "special purpose" area. The project's Final EIR was published in December 1998 and certified by the City Council on May 12, 1999, for the approved Alternative Design D for 3,000 dwelling units. The City Council subsequently adopted the Specific Plan and General Plan Amendment. In a special election in November 1999, City residents voted against the City Council's approval of the Fanita Ranch Project (Ballot Measures A and B). In this same election, the voters did not approve a potential tax increase to preserve the Fanita Ranch property as open space (Ballot Measure C).

In 2004, an initiative (Proposition X) was filed with the City Clerk that proposed to amend the Santee General Plan to restrict and limit development on the Fanita Ranch property. This initiative was defeated by voters in February 2005.

Prior to the current project (i.e., proposed project), the most recent application for development on the project area was filed in 2005 by then property owner Barratt American Inc. to submit a Vesting Tentative Map and Development Review Permit for a 1,380 single-family dwelling unit development on approximately 969 acres. The proposed development included 4 villages, 15 live-work units, commercial and mixed-use space, parks, and open space. The City Council certified the Final EIR (State Clearinghouse No. 2005061118) and approved the project in 2007.

From 2008 through 2012, the approvals were subject to litigation. Ultimately, portions of the 2007 Final EIR's analysis of the project's potential impacts related to biological resources and water supply, as well as a Revised EIR on the single issue of fire safety adopted by the City in 2009, were found inadequate (*Preserve Wild Santee, et al. v. City of Santee, et al.* [2012] 210 Cal.App.4th 260; *Preserve Wild Santee, et al. v. City of Santee, et al.*, San Diego Superior Court Case No. 37-2009-00097042-CU-TT-CTL). In 2013, the City set aside the certification of the 2007 Final EIR and 2009 Revised EIR and vacated related project approvals.

In August 2018, the current owner of the property, HomeFed Fanita Rancho LLC, and JWO Land LLC, a wholly owned subsidiary of HomeFed Fanita Rancho LLC, submitted a complete application that modified the project.

In addition to the long history of land use planning, the project area has been a key part of the City's participation in the Final MSCP Plan (MSCP Plan). The MSCP Plan calls for the preservation and management of approximately 900 square miles in the southwestern County of

San Diego (County). The MSCP Plan and EIR/Environmental Impact Statement was adopted in August 1998 (City of San Diego 1998). It outlined a comprehensive regional habitat preserve system and established minimum conservation and management requirements for identified species. The City amended its General Plan to require that future development within the City be consistent with the MSCP Plan and the Draft Santee MSCP Subarea Plan. The City is in the process of obtaining approval of its Draft Santee MSCP Subarea Plan, which is divided into six subunits, including the Fanita Ranch Subunit.

During the process of development approvals, the project has become less impactful to land, habitat, and species. The development bubbles included in the Multi-Habitat Planning Area (MHPA) map that is part of the 1998 MSCP Plan impacted approximately 1,224 acres, including 1,140 acres of habitat, 18 coastal California gnatcatcher (*Polioptila californica californica*) pairs, 22 western spadefoot (*Spea hammondii*), also known as western spadefoot toad, locations, 58 acres of Hermes copper butterfly (*Lycaena hermes*) habitat, and 53 vernal pools and road ruts, 43 of which supported San Diego fairy shrimp (*Branchinecta sandiegonensis*). The 2007 Barratt American project (approved under CEQA by the City Council) included three development bubbles and impacted approximately 1,112 acres of habitat, 17 California gnatcatcher pairs, 19 western spadefoot locations, 56 acres of Hermes copper butterfly habitat, and 58 vernal pools and road ruts, 47 of which supported San Diego fairy shrimp (this version of the project included an approximately 200-acre off-site mitigation component). The currently proposed project includes two development bubbles and impacts approximately 988.77 acres of on- and off-site sensitive habitats, 14 California gnatcatcher use areas, 14 basins occupied by western spadefoot, 53 acres of Hermes copper butterfly suitable habitat, and 111 vernal pools and road ruts (0.41 acres), 34 of which support San Diego fairy shrimp. The current project also includes fewer impacts to special-status plants, larger wildlife movement corridors, and an approximately 900-acre block of contiguous open space contained within the Habitat Preserve and connected to other preserves within the vicinity.

The Preserve Management Plan (PMP), Appendix P of this report, was prepared specifically for the proposed project and is intended to address issues raised in prior court rulings in connection with the previously approved project (2007 Barratt American Inc.). As discussed above, with regard to biology, the rulings concluded that the previous EIR did not include substantial evidence to support a conclusion that impacts to Quino checkerspot butterfly (*Euphydryas editha quino*) would be mitigated to below a level of significance. The court of appeal opinion in particular indicated that the EIR lacked:

- A description of the actions needed for active management of Quino checkerspot butterfly within the Habitat Preserve.

- Specific performance standards or other guidelines for active management without utilizing prescribed burns or grazing in the Habitat Preserve, given the City's decision not to permit prescribed burns or grazing.
- Timing and specific details for implementing Quino management activities, which were subject to the discretion of the Preserve Manager based on prevailing environmental conditions, and which consequently led to these activities not being guaranteed to occur at any particular time or in any particular manner.
- An explanation of why performance standards or providing guidelines for the active management was impractical or infeasible at the time the EIR was certified.

Although there is not yet a generally accepted management protocol for the Quino checkerspot butterfly, this Plan includes habitat management requirements and activities known to benefit the species (i.e., habitat connectivity; Argentine ant and invasive plant species removal; and reduction in off-roading activity, grazing, and fire), based on the Draft Santee MSCP Subarea Plan and the USFWS Recovery Plan for Quino checkerspot butterfly (March 2019 Draft Amendment). The PMP will implement these strategies as the key to long-term conservation success for this species. The following table compares the prior project's Quino checkerspot butterfly mitigation program addressed by the courts with the current proposed program.

Table 1-1
Comparison of Management Actions Between the 2020 Preserve Management Plan and the 2007 Draft HMP

Management Actions	2020 Preserve Management Plan (Appendix P)	2007 Draft HMP
Plans Completed	Adoption of several detailed Mitigation Plans.	Draft HMP (only). The 2007 Biological Technical Report states that the Plans will be prepared, but no other mitigation plans were included in submittal.
Vegetation Management	• Removal of non-native grasses, weedy material, and duff layers by hand-weeding, mowing, or with herbicide (See Section 4.2.3 of Appendix P). • Augmenting the annual host and nectar plant through seeding (See Section 3.7 of Appendix P). Host plant species are included in the plant pallets of the Upland Restoration Plan (See Appendix Q of this report). Figure 7a of Appendix P includes the high priority recommended areas for host plant enhancement.	• The Draft HMP include prescribed burns and grazing which are not permitted by the City: periodic fire or alternative vegetation management techniques such as managed grazing would keep the habitat open and suitable for the Quino. • Does not identify where habitat enhancement actions to promote appropriate Quino habitat would occur.
Adaptive Management	• Initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (See Section 4.2.6.2 of Appendix P). • If invasive plant species exceed 10% total vegetated cover, or have increased by 25% or more since the previous survey, implement invasive species control measures (See Section 4.2.6.2 of Appendix P). • Includes Argentine ant monitoring and control measures (See Section 4.2.7.3 of Appendix P).	• Contingency measures with performance standards for remedial actions in enhancement treatment areas are left to the discretion of the preserve manager. • Identifies Argentine ant as a threat, but does not include a measure for control.
Surveys	• Every 5 years, a qualified biologist will perform focused surveys for Quino checkerspot butterfly (See Section 4.2.5 of Appendix P). • Every 3 years, a habitat evaluation and threats assessment will be conducted (using San Diego Management and Monitoring Program protocol) focusing on the quality of host plants (invasive species, changes in vegetation type cover resulting from alteration of fire regime and/or climate change) as it pertains to the habitat needs of Quino checkerspot butterfly. If multiple populations exist, a threats assessment will be conducted for each occurrence (See Section 4.2.5 of Appendix P).	• Surveys are included but lacked threats assessment. • Annual reconnaissance survey by preserve manager with opportunistic surveys by plant and wildlife specialists every 5 years, and potential new species issues to be surveyed every 10 years. Opportunistic surveys are defined as those that take place during ideal weather conditions (i.e. good rainfall year) and would include Quino checkerspot butterfly surveys.
Access Control	If human activity (e.g., trail use) occurs in the vicinity of previously occupied habitat, evaluate the potential need for exclusionary fencing and signage for larvae locations, and implement where potential for human ingress exists (See Sections 4.2.6.2 and 4.4.2.4 of Appendix P).	Includes installation of fencing along certain trails, which will deter access to an area in the Habitat Preserve where a Quino checkerspot butterfly was once observed.

Table 1-1
Comparison of Management Actions Between the 2020 Preserve Management Plan and the 2007 Draft HMP

Management Actions	2020 Preserve Management Plan (Appendix P)	2007 Draft HMP
Establishment of the Habitat Preserve Benefits	• Implementation of the proposed project would provide an in-perpetuity managed Habitat Preserve with connectivity to current Quino checkerspot locations occurring outside the project area (see Figure 5-3b of this report). • Funding of the PMP will occur through the HOA, supported by a dormant Community Facilities District or comparable funding mechanism pursuant to the 2008 U.S. EPA Compensatory Mitigation Rule (Section 1.4.2). • Reduction of invasive species and off-roading vehicle use within the Habitat Preserve (See Sections 4.2.3 and 4.5 of Appendix P).	• Includes acquisition of off-site lands containing Quino checkerspot butterfly suitable habitat. However, no mention of management for the species on these off-site lands. • Funding was not guaranteed: Implementation of the enhanced habitat management program depends on funding from public sources. Most of those funding sources have not been identified at the time of printing, and while the enhanced management program has not yet committed to funding from any one source, it appears there will be substantial opportunities as the regional habitat management issue is resolved and leveraged regional public funds become available. • Reduction of invasive species and off-roading vehicle use within the Habitat Preserve.
Management Activities	• Currently, the Habitat Preserve contains enough suitable habitat (approximately 1,096 acres) to mitigate for impacts to suitable habitat at a 1.9:1 ratio. This alone is considered beneficial to the species (See Section 3.4 of Appendix P). • The PMP outlines the mandatory strategies and triggers for when the Preserve Manager should implement the actions listed above and their corresponding Sections in the Plan. It is infeasible to determine which activities will be required within Habitat Preserve, due to unforeseeable changes to environmental conditions; therefore, the approach taken in the Plan is to allow the Preserve Manager a degree of flexibility to implement necessary actions (Section 5).	• Preserve would include 882 acres of modeled suitable habitat, mitigation occurring at a 0.89:1 ratio. • Timing and specific details for implementing Quino management activities not articulated, and subsequent activities were subject to the discretion of the Preserve Manager based on prevailing environmental conditions.
Agency Input	• Informally met with USFWS on numerous occasions and implemented feedback where applicable into the EIR, especially with regards to trail usage and removal within the Habitat Preserve.	Included agency input into the Subarea Plan, but not the EIR.

1.3 Project Description

The project area totals approximately 2,638 acres, not including an off-site road impacts that total approximately 32.60 acres. The off-site road would extend Cuyamaca Street north into the project, adding a secondary access route. There would also be an extension of Magnolia Avenue included in the off-site road impacts. The project development area includes village development, basins, fuel modification, community farm, grading buffers, roads, water tanks, manufactured slopes, roads, and a special-use area within the open space. The remaining portion would continue to function as open space, including a 1,650-acre open space hardline Habitat Preserve, which includes all on-site temporary impact areas, a San Diego Gas & Electric (SDG&E) access road, and proposed trails and 77.20 acres of impact-neutral areas, which include a passive park, riparian areas surrounded by development, and the fuel modification zone (FMZ) adjacent to existing development.

1.3.1 Fanita Ranch Components

The proposed project would be a new community consisting of approximately 2,949 housing units with a school, or 3,008 units without a school, and up to 80,000 square feet of commercial uses, parks, open space areas, and agriculture uses. Development in the proposed project would be clustered into three villages to preserve natural open space areas, drainages, and key wildlife corridors. The three villages would be named according to their design theme: Fanita Commons, Vineyard Village, and Orchard Village. Each village would be defined by its location, unique physical characteristics, and mix of housing types and uses. The Habitat Preserve applies to open space areas outside the limits of development, but includes specific revegetated slopes at the edge of the development area. Each village/development area and key project component are summarized below.

Fanita Commons

Fanita Commons would serve as the main common village for the proposed project and would be located in the northwestern portion of the site. With the Farm (see below) as its focal point, orchards, vineyards, fields, and an event barn would serve as defining elements of this village. The Village Green, which would be adjacent to the Farm, would provide the main community gathering space. This public gathering space would serve as an extension of the Farm, allowing the Farm's activities, such as farmers markets and harvest festivals, to spill into the Village Center. Fanita Commons would feature wide sidewalks, shared parking facilities, and a large Community Park at its western end. The mixed-use Village Center would allow for commercial, residential, recreational, and civic uses, including a new fire station site, an active adult community, and a congregate care facility. The approximately 19-acre school site would accommodate up to 700 students. Fanita Commons would also consist of approximately 768 residences ranging from apartments to townhomes and condominiums to small single-family clusters. The southern section

of Fanita Commons would border a natural riparian area that would include a trail system and bridge to connect the Village Center to the Farm and Orchard Village to the south.

Orchard Village

Orchard Village, directly south of Fanita Commons, would include orchards that extend from the Farm and would serve as the village's defining design element. Orchard Village would be geographically and topographically separated from Fanita Commons by open space and a linear riparian area, but would be physically connected by roadways, trails, and a pedestrian bridge. The village would consist of approximately 855 residences of varying densities and housing types. Densities would be arranged such that the highest densities would be located at the center of Orchard Village and adjacent to two neighborhood parks. A linear park would be located along the northern boundary of Orchard Village, south of the linear riparian area. Mini-parks would be scattered throughout the low-density residential housing along the outskirts of the village. The Farm would border Orchard Village to the northeast. The extension of Fanita Parkway would serve as the southwestern entrance to this village. The extension of Cuyamaca Parkway would serve as the southeastern entrance to Orchard Village and connect to new roadways, Street A and Street W, in the village. Both roadways would function as connections between the villages and to the rest of the City.

Vineyard Village

Vineyard Village, located in the northeastern portion of the project area, would be the largest of the three villages. It would include vineyards that extend from the edge of the Habitat Preserve up the slopes along the village access roads. The rising vineyards would highlight the topographical change from Fanita Commons to the top of Vineyard Village. This village would be separated from the other two villages by a Habitat Preserve corridor, which would serve as a wildlife corridor to native species. Access to the village would be from Street V and Street W, which would connect to the other two villages. Consisting of approximately 1,326 residences, Vineyard Village would include a variety of parks and neighborhoods ranging from multifamily residences to townhomes. The highest density residences would be located adjacent to a 5-acre neighborhood park and Village Center uses, which would serve as the central point for the village. Open space with water quality basins and several mini-parks would be placed throughout the village. Many parks in Vineyard Village would serve as trailheads to the trail system within the proposed project.

Habitat Preserve

More than half of the project site (approximately 1,650 acres, or approximately 63%) would be preserved as permanent open space, known as the Habitat Preserve. The Habitat Preserve applies to open space areas outside the limits of development, including specific revegetated slopes at the

edge of the development area. The bulk of the open space area, an approximately 900-acre block, is located in the southern portion of the project area. This area currently includes a complex, approximately 35-mile system of private dirt roads and trails, many of which are subject to frequent unauthorized off-road vehicular traffic and unauthorized human activities that have been detrimental to the sensitive habitats in the Habitat Preserve. The biological areas in the Habitat Preserve would be conserved, managed in perpetuity, and protected through permanently funded management plans and funding mechanisms. Areas between and surrounding the villages were selected to be in the Habitat Preserve based on the high-quality habitat and the opportunity to provide wildlife movement corridors in these locations. Permitted uses within the Habitat Preserve would include water quality features, water reservoirs and pump stations, utilities and utility access roads, trails, and revegetated slopes. Restoration and management of the Habitat Preserve would be done as prescribed by the Natural Community Conservation Plan (NCCP) design guidelines and standards and the Draft Santee MSCP Subarea Plan (City of Santee 2018). In the event the project proceeds before the Draft Santee MSCP Subarea Plan is completed, the same Habitat Preserve and permanent management will occur.

Wildlife connectivity would be maintained by including an interior corridor that is approximately 1,200 feet wide, a northern corridor that is generally 1,400 feet wide, and a western boundary corridor that is mostly approximately 1,000 feet wide. Within the Habitat Preserve, lighting would be directed toward development and shielded away from the Habitat Preserve, trails would not be in use from dusk to dawn, pets must be on leashes, the trails would only be used for hiking and biking with the exception of the extreme northeastern trail (an approximately 1,200-foot-long section) that is already established for equestrian use, and temporary closures may be implemented to prevent adverse impacts to vegetation communities and species within the Habitat Preserve. Streets V and W, which would connect the Vineyard Village to Fanita Commons and Orchard Village, would not include permanent lighting, but instead would use temporary safety lighting along the pedestrian trail for pedestrian safety. The lighting would be button started with a timer shut-off delay such that lighting will not permanently be on at night, but only on when needed for pedestrian safety. These roads will also not have curbs and the road base will be tinted to approximate the reddish clay soils in the vicinity.

The Farm

The Farm would be designed to be a community focal point of the proposed project. The approximately 27-acre site would be along the eastern border of Fanita Commons near the center of the entire development. The Farm would include a large barn that would set the architectural theme of the community and provide a venue for special events and the Farm's operations. The Farm would be a working farm and would include terraced vegetable fields, pasture lands, limited housing for employees, raised gardens, and small-scale animal husbandry. A community-supported agriculture program, where the consumer receives produce on a regular basis, would be

offered. Food grown on the Farm would be distributed to local schools, restaurants, and other institutional facilities, such as congregate care and assisted living facilities.

Special Use

The Special Use land use designation would apply to an approximately 32-acre site located in the southwestern corner of the project area east of Fanita Parkway. The site was previously graded for a City park; however, geotechnical conditions made the site unsuitable for park development. This portion of the site falls within the notification area for Gillespie Field and has a height restriction, limiting its development potential. Retail sales and residential uses, other than one caretaker unit, would not be permitted in the Special Use area. Potential uses could include a solar farm, recreational vehicle and boat storage, aboveground agriculture without irrigation, or other similar uses not exceeding a height of 35 feet. A 1.60-acre mini-park would be located along the eastern perimeter of the Special Use area and would provide trail staging and parking areas for trail users on the project area. Buffering would be required adjacent to existing off-site residences to preserve neighbor privacy. Parking required for any proposed use would be provided on site to discourage parking on existing residential roads. Access would be provided from Carlton Hills Boulevard.

Parks and Open Space

Parks would be distributed throughout the development to provide active and passive recreational opportunities and gathering spaces within walking distance of all residences. Some of the areas designated for mini-parks would also provide trail access and serve as the primary access point to the trail system in the Habitat Preserve. Permitted building types would be limited to community buildings. Every park except the Community Park would be maintained by the homeowners association, and every City resident would have access to the parks.

Areas designated as open space include brush management areas (FMZs) at the edge of development, slopes adjacent to roads and within the villages, trailheads, water quality basins, water tanks and pump stations that would be dedicated to and maintained by the Padre Dam Municipal Water District, and two riparian areas in Fanita Commons. These areas would be maintained and managed by the homeowners association or the Habitat Preserve management entity (unless otherwise specified) and would be subject to the Fanita Ranch Fire Protection Plan. The Fanita Ranch Fire Protection Plan addresses fire safety, provides measures for fire prevention, and identifies requirements for fuel modification, building design, construction, and other pertinent development infrastructure criteria for fire protection for the proposed project.

The proposed project would implement a biological restoration and enhancement program that would offset unavoidable impacts to existing biological resources located within the development footprint and generally increase the integrity of ecological systems across the project area.

Restoration activities would occur in upland and wetland-riparian areas that increase native habitat, which would benefit sensitive species and wildlife in general. Manufactured slopes on the exterior of the development footprint would be revegetated to blend with the adjacent landscape.

Mobility

Mobility on the project area would focus on reducing the number and length of vehicle trips and providing alternatives to fossil-fuel-powered vehicle use. This would be achieved through organizing land uses to locate services and goods close to residences and optimizing circulation systems to create direct, efficient, safe, and comfortable routes for various transportation modes. The proposed project land uses would be designed to meet the daily needs of project residents to minimize trips outside of the development. Emphasis would be placed on encouraging transportation modes that generate fewer emissions, such as walking, biking, electric vehicles, transit, and ride-sharing.

Circulation Improvements

The proposed project would improve and construct new segments of three roads in the Santee General Plan Mobility Element (City of Santee 2017): Fanita Parkway, Cuyamaca Street, and Magnolia Avenue. Improvements would also occur at the terminus of Carlton Hills Boulevard and at existing dead-end roads that terminate at the project area boundary. A short description of each circulation improvement is provided below.

The proposed project would improve portions of Fanita Parkway to accommodate the increased project traffic and extend the northern limit of the road to provide a western entry onto the project area. The proposed project would improve portions of Cuyamaca Street to accommodate the increased project traffic and extend the northern limit of the road approximately 4,600 feet through a series of easterly drainage ravines to provide the eastern entrance onto the project area. Magnolia Avenue is a north–south road that currently terminates at the northern edge of existing development approximately 500 feet north of Princess Joann Road, southeast of the project area. The proposed project would improve and extend Magnolia Avenue west approximately 0.5 miles from its current northerly terminus to intersect with the extended segment of Cuyamaca Street south of the project area boundary.

Carlton Hills Boulevard is an existing public road up to a gate located just north of Swanton Drive. Public access is restricted north of the gate. The extension of Carlton Hills Boulevard to the north would provide public access to the Special Use area, the Padre Dam Municipal Water District reservoir, and a mini-park, as well as a trail staging area. The proposed project would improve 26 dead-end roads along the southern edge of the project boundary and northern development limits in the City. The improvements would include the addition of sidewalks, implementation of best management practices (BMPs), installation of chain-link fences, cleaning out of brow ditches,

installation of rolled curbs, installation of storm drains and catch basins, and inclusion of trail and emergency vehicle access.

1.4 Site Description

The project area is located in the northwest portion of the City of Santee in central San Diego County, California (Figure 1-1, Regional Map, and Figure 1-2, Vicinity Map). The project area is approximately 18 miles east of downtown San Diego and 22 miles north of the U.S./Mexico border.

The project area is bordered primarily by City residential neighborhoods to the south and the unincorporated residential communities of Lakeside and Eucalyptus Hills to the east. To the northeast, active mining operations occur in Slaughterhouse Canyon and are separated from the project area by a large hillside. To the north, Sycamore Canyon Open Space Preserve, owned by the County, and unincorporated vacant lands border the project area. Farther north lies the Goodan Ranch Regional Park, which is jointly owned by the Cities of Santee and Poway, the County, and the State of California. To the west of the project area lie the Marine Corps Air Station (MCAS) Miramar and the Santee Lakes Recreation Preserve, owned and operated by Padre Dam Municipal Water District.

The proposed project lies north of State Route 52 and west of State Route 67. The project area occupies portions of Township 15 South, Range 1 West, projected Sections 2, 3, 4, 8, 9, 10, 16, 17, 20, and 21 on the San Vicente Reservoir, El Cajon, La Mesa, and Poway West U.S. Geological Survey (USGS) 7.5-minute quadrangle maps.

The proposed project consists of the following parcels: Assessor's Parcel Nos. 374-030-02, 374-050-02, 374-060-01, 376-010-06, 376-020-03, 376-030-01, 378-020-46, 378-020-50, 378-020-54, 378-030-08, 378-381-49, 378-382-58, 378-391-59, 380-031-08, 380-031-18, 380-040-43, 380-040-44, 380-730-22, and 380-730-23. The off-site access roads include the following parcels: Assessor's Parcel Nos. 378-140-03, 378-140-22, 378-140-25, 378-210-03, 378-21-004, 378-21-012, 378-21-013, 378-21-022, 378-21-023, 378-22-004, 378-22-005, 378-22-006, 378-22-018, 378-22-019, 378-42-056, 378-42-059, 378-42-062, 378-42-063, 378-42-064, 378-42-065, and 378-42-066.

The project area consists of undeveloped lands supporting disturbed and undisturbed natural plant communities. The project area supports a complex system of dirt roads and trails, many of which have been created by ongoing unauthorized use from off-road vehicle traffic and other forms of recreation. Some of the dirt roads provide necessary access to power transmission towers. The project area is in a dry climate with monthly average temperatures near the City ranging from approximately 49°F–80°F. The City generally receives an average annual rainfall of 15.58 inches per year (Western Regional Climate Center 2018).

Topography

Elevations range from about 320 feet above mean sea level in the southern end of Fanita Parkway to approximately 1,204 feet above mean sea level in the northeastern corner of the project area. The project area contains a series of northeast- to southwest-trending hills and valleys that form a transition between the relatively low, flat Sycamore Canyon on the western end of the project area and the foothills of the Peninsular Range to the east. Numerous large rock outcrops are also present on site, particularly in the northern and northeastern portions of the property.

Slope gradients vary widely, ranging from 0% to 10% in the northwest to 11% to 25% near ridgetops, with occasional instances of 26% to 40% throughout the project area and a concentration of 41% or greater slopes in the southern and northeastern portions of the project area. Gentle and moderate slopes predominate in the valley floor in the northwest and west-central portions of the project area, with more gently sloping or relatively level terrain in the remainder of the property.

Soils

The U.S. Department of Agriculture Soil Survey mapped most of the project area as being underlain by the following soil types: Bosanko clay (BsC), Cieneba rocky coarse sandy loam (CmE2), Cieneba very rocky coarse sandy loam (CmrG), Diablo clay (DaE), Diablo-Olivenhain complex clay (DoE), Las Flores loamy fine sand (LeC), Las Posas stony fine sandy loam (LrE, LrG), Linne clay loam (LsE), Redding gravelly loam (RdC), Redding cobbly loam (ReE, RfF), Redding-Urban land complex (RhC), Salinas clay loam (SbA), Visalia gravelly sandy loam (VbB), and Wyman loam (WmC). Portions of the project area are also mapped as stony land (SvE). The following soil types were mapped only within off-site areas (including Cuyamaca Street and Magnolia Avenue): Cieneba-Fallbrook rocky sandy loams (CnE2), Greenfield sandy loam (GrC), and Ramona sandy loam (RaB) (USDA 2016a) (Table 1-2).

The most common soils on site are loams, primarily Redding series: Redding gravelly loam (2% to 9% slopes); Redding cobbly loam (9% to 30% slopes); Redding cobbly loam, dissected (15% to 30% slopes); and Redding-Urban land complex (2% to 9%). An additional common soil on site is Wyman loam (5% to 9% slopes), which occurs in the central part of the project area.

Most of the north-central part of the project area contains sandy loam or loamy sandy soils of the Cieneba series, including Cieneba rocky coarse sandy loam (9% to 30% slopes) and Cieneba very rocky coarse sandy loam (30% to 75% slopes). In addition, Las Posas stony fine sandy loam (9% to 30% slopes), Las Posas stony fine sandy loam (30% to 65% slopes), and Las Flores loamy fine sand (2% to 9% slopes) occur on the north-central part of the project area.

Visalia gravelly sandy loam (2% to 5% slopes) occurs on the western boundary of the project area. Two clay-loam soil series, Linne clay loam (9% to 30% slopes) and Salinas clay loam (0% to 2% slopes), are present primarily in the southern part of the project area. Diablo-Olivenhain complex (9% to 30% slopes), is present on 170.80 acres, primarily in the southern part of the project area adjacent to the residential development. Diablo-Olivenhain complex is approximately 50% Diablo clay, 45% Olivenhain soil, and 5% Linne clay. Bosanko clay (2% to 9% slopes) is present in the north-central and eastern north-central portions of the property. Stony land is present along the western edge of the project area, associated with the historic floodplain of the Sycamore Creek. Overall, approximately 650.74 acres on site (24.7%) contain soils that potentially provide a substrate for sensitive plant species.

Table 1-2
Soil Substrate on Fanita Ranch Project Area

Soil Substrate	On-Site Development/Habitat Preserve	Off-Site Areas (Cuyamaca Street and Magnolia Avenue)	Total Acreage
Sensitive Plant Substrate			
Bosanko clay, 2%–9% slopes (BsC)	33.58	—	33.58
Diablo clay, 15%–30% slopes (DaE)	0.14	—	0.14
Diablo-Olivenhain complex, 9%–30% slopes (DoE)	169.12	1.68	170.80
Las Flores loamy fine sand, 2%–9% slopes (LeC)	5.24	—	5.24
Las Posas stony fine sandy loam, 30%–65% slopes (LrG)	233.82	—	233.82
Las Posas stony fine sandy loam, 9%–30% slopes (LrE)	40.16	—	40.16
Redding gravelly loam, 2%–9% slopes (RdC)	168.66	—	168.66
Sensitive Plant Substrate Subtotal	*650.74*	*1.68*	*652.42*
Other Soil Substrate			
Cieneba rocky coarse sandy loam, 9%–30% slopes, eroded (CmE2)	146.20	1.62	147.82
Cieneba very rocky coarse sandy loam, 30%–75% slopes (CmrG)	1.92	—	1.92
Cieneba-Fallbrook rocky sandy loams, 9%–30% slopes, eroded (CnE2)	—	3.43	3.43
Greenfield sandy loam, 5%–9% slopes (GrC)	—	3.09	3.09
Linne clay loam, 9%–30% slopes (LsE)	51.62	—	51.62
Ramona sandy loam, 2%–5% slopes (RaB)	—	1.56	1.56
Redding cobbly loam, 9%–30% slopes (ReE)	74.04	3.71	77.75
Redding cobbly loam, dissected, 15%–50% slopes (RfF)	1,549.49	17.51	1,566.99
Redding-Urban land complex, 2%–9% slopes (RhC)	4.52	—	4.52
Salinas clay loam, 0%–2% slopes (SbA)	8.36	—	8.36
Stony land (SvE)	46.73	—	46.73
Visalia gravelly sandy loam, 2%–5% slopes (VbB)	14.73	—	14.73
Wyman loam, 5%–9% slopes (WmC)	89.72	—	89.72
Other Soil Substrate Subtotal	*1,987.33*	*30.92*	*2,018.25*
Grand Total	**2,638.06**	**32.60**	**2,670.67**

Note: Totals may not sum due to rounding.

Hydrology

The proposed project is located in the San Diego Region (9), in the San Diego Hydrologic Unit (907) in the Lower San Diego Hydrologic Area (907.1), which is in the Santee Hydrologic Subarea (907.12) (RWQCB 1995) (Figure 1-3, Hydrology). The San Diego Hydrologic Unit is a triangular-shaped area that occupies approximately 440 square miles, extending from the Laguna Mountains on the east to Pacific Ocean on the west and from the Santa Ysabel Indian Reservation on the north to the Interstate 8 on the south. This watershed includes the Cleveland National Forest and Mission Trails Regional Park. It has the highest population of the County's watersheds and includes portions of the cities of San Diego, El Cajon, La Mesa, Poway, Santee, and several unincorporated jurisdictions. The watershed is drained by the San Diego River and contains five water storage reservoirs: El Capitan, San Vicente, Cuyamaca, Jennings, and Murray Reservoirs. The Lower San Diego Hydrologic Area occurs downstream of El Capitan, San Vicente, and Cuyamaca Reservoirs and extends from the El Monte Valley through the City of Santee and into Mission Trails Regional Park and the City of San Diego. Sycamore Canyon Creek flows from north to south along the western edge of Fanita Ranch and most of the project area drains towards it. Sycamore Canyon Creek and adjacent storm drain systems discharge to the San Diego River in the western portion of the City.

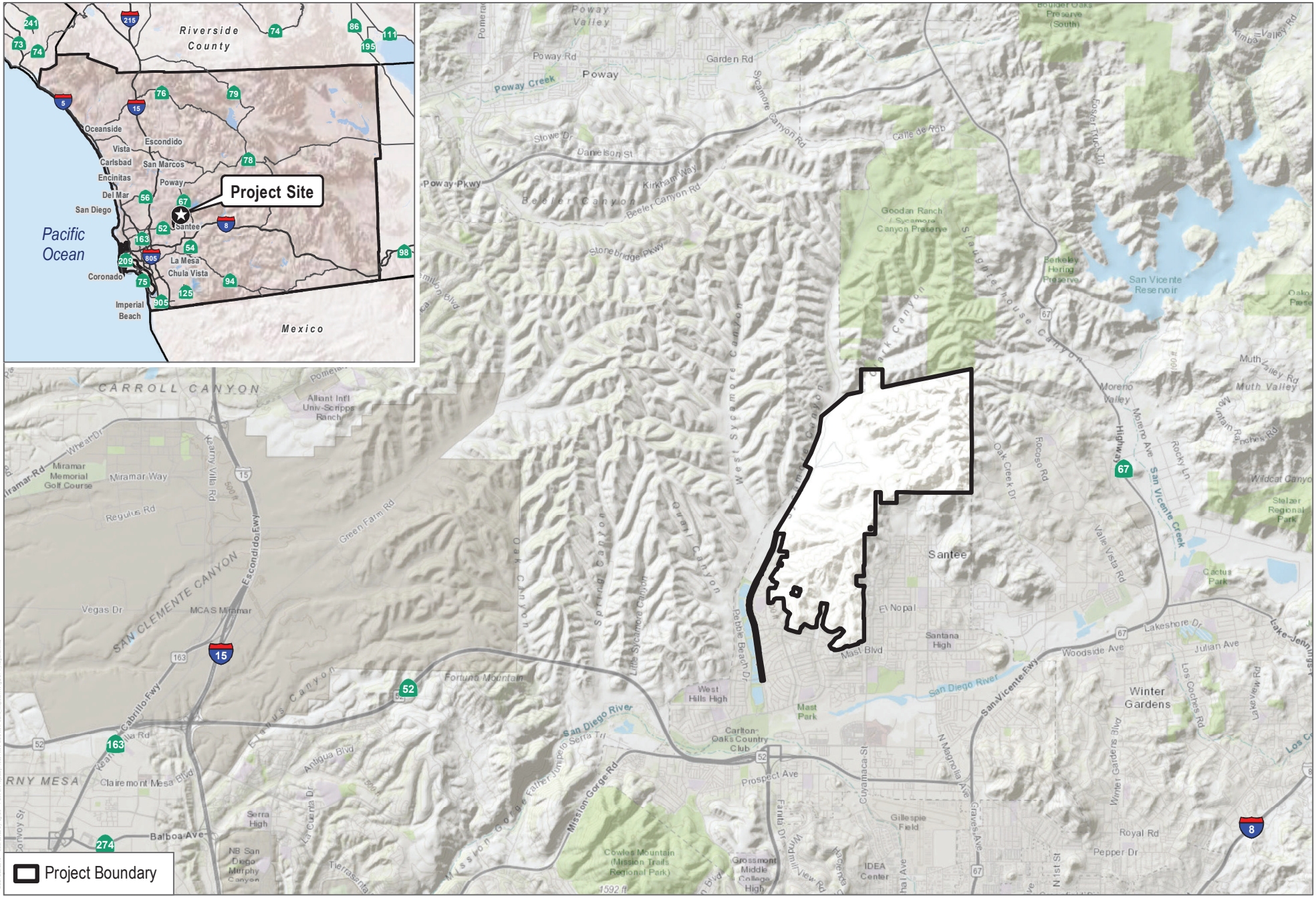
Current Land Use

The project area consists of approximately 2,638.07 acres (plus 32.60 acres of off-site roads) of undeveloped canyons, hillsides, and valleys. Portions of the project area are extremely hilly. The project area currently is open space, supporting disturbed and undisturbed natural plant communities. Several fires have burned the project area, with the most recent fire, the Cedar Fire, occurring in October 2003 (Figure 1-4, Fire History Map). The project area supports a complex system of dirt roads and pioneered trails, many of which currently receive heavy non-authorized use from off-road vehicle traffic, bikers, hikers, dog walkers, and other forms of recreation. Some of the dirt roads occur on an SDG&E easement that provides necessary access to power transmission towers. The project area is regularly used by helicopter pilots and local first responder personnel for training purposes.

History of Trails within the Project Area

The project area contains an extensive existing trail system, much of which is subject to frequent unauthorized off-road vehicular traffic and unauthorized human activities that have been detrimental to the sensitive habitats and natural resources on site. Impacts include those from unauthorized mountain bike trails, off-roading vehicles, vandalism, and refuse and vehicle dumping. Evidence of impacts from unauthorized use can be detected on aerial photographs from around the time period of the development and approval of the MSCP Plan. Figure 1-5 of this

report shows the obvious land disturbance on an aerial base map circa 1994. Figure 1-6 shows the current mapped trail-related impacts overlaid on the 1994 base map. Although, there are some areas where new trails have been recently created, the majority of the disturbance was present prior to the disturbances depicted on Figure 1-5. The reduction in disturbances has been the result of the following factors: a change in ownership, increased perimeter fencing, increased presence of law enforcement and emergency personnel, improved management practices related to trails connecting into MCAS Miramar, and post-fire vegetative growth obscuring trails.



SOURCE: SANGIS 2019; USGS Topographic World Map

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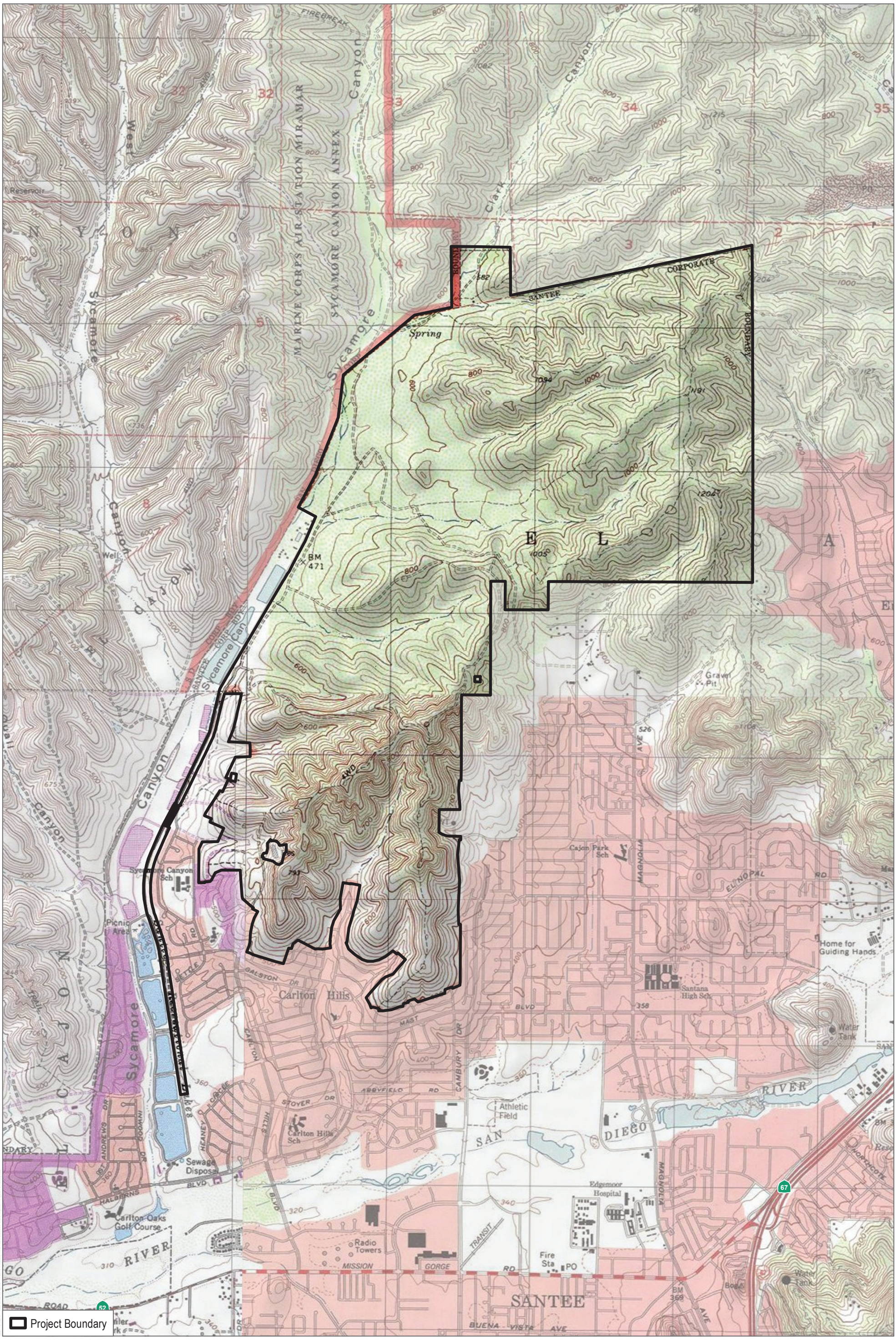
0 1 2 Miles

FIGURE 1-1

Regional Map

Fanita Ranch Biological Technical Report

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SOURCE: USGS 7.5-Minute Series El Cajon, La Mesa, Poway, San Vicente Reservoir Quadrangles

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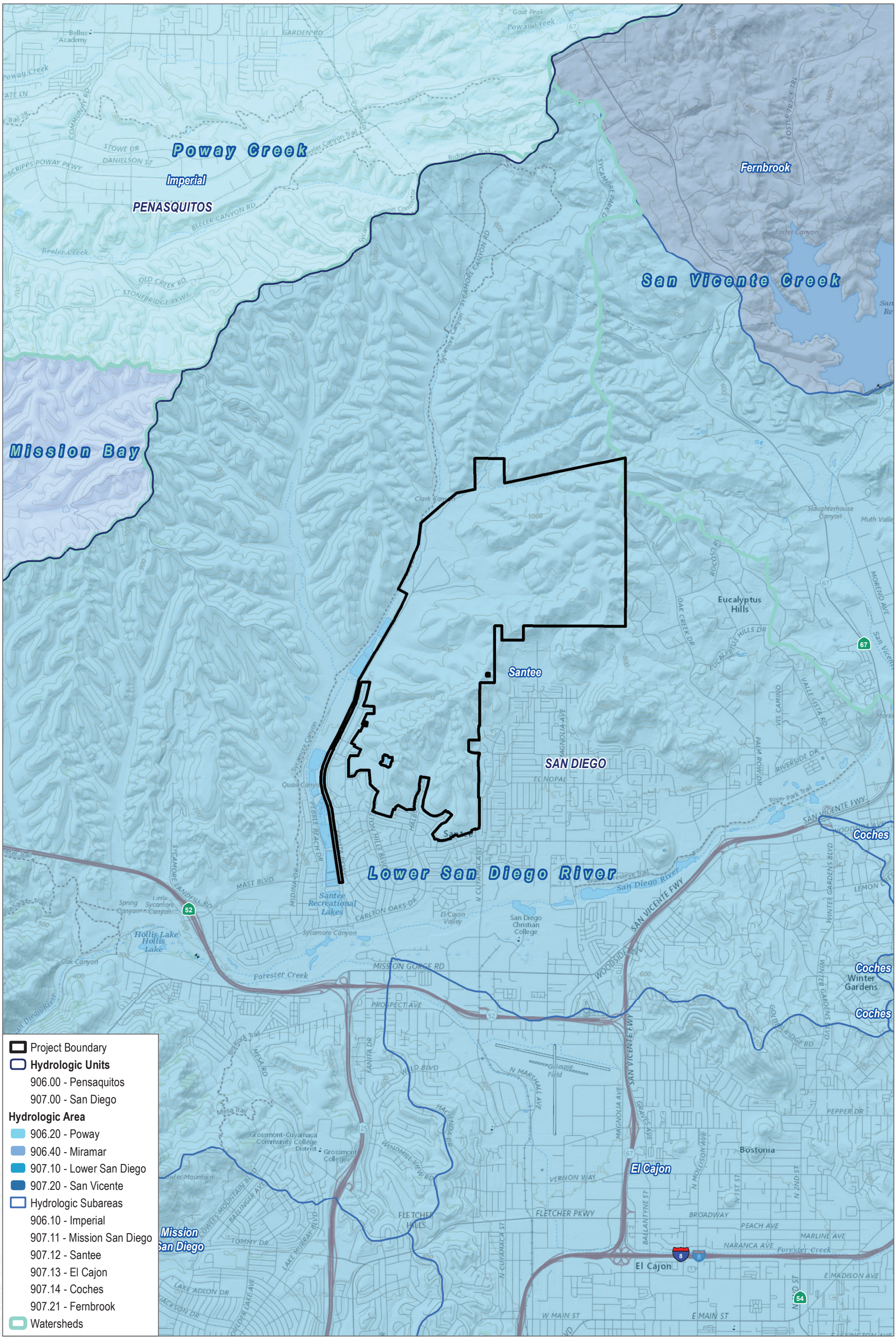
0 1,000 2,000 Feet

FIGURE 1-2

Vicinity Map

Fanita Ranch Biological Technical Report

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SOURCE: CA Department of Water Resources; SANGIS 2019; USGS Topo Map

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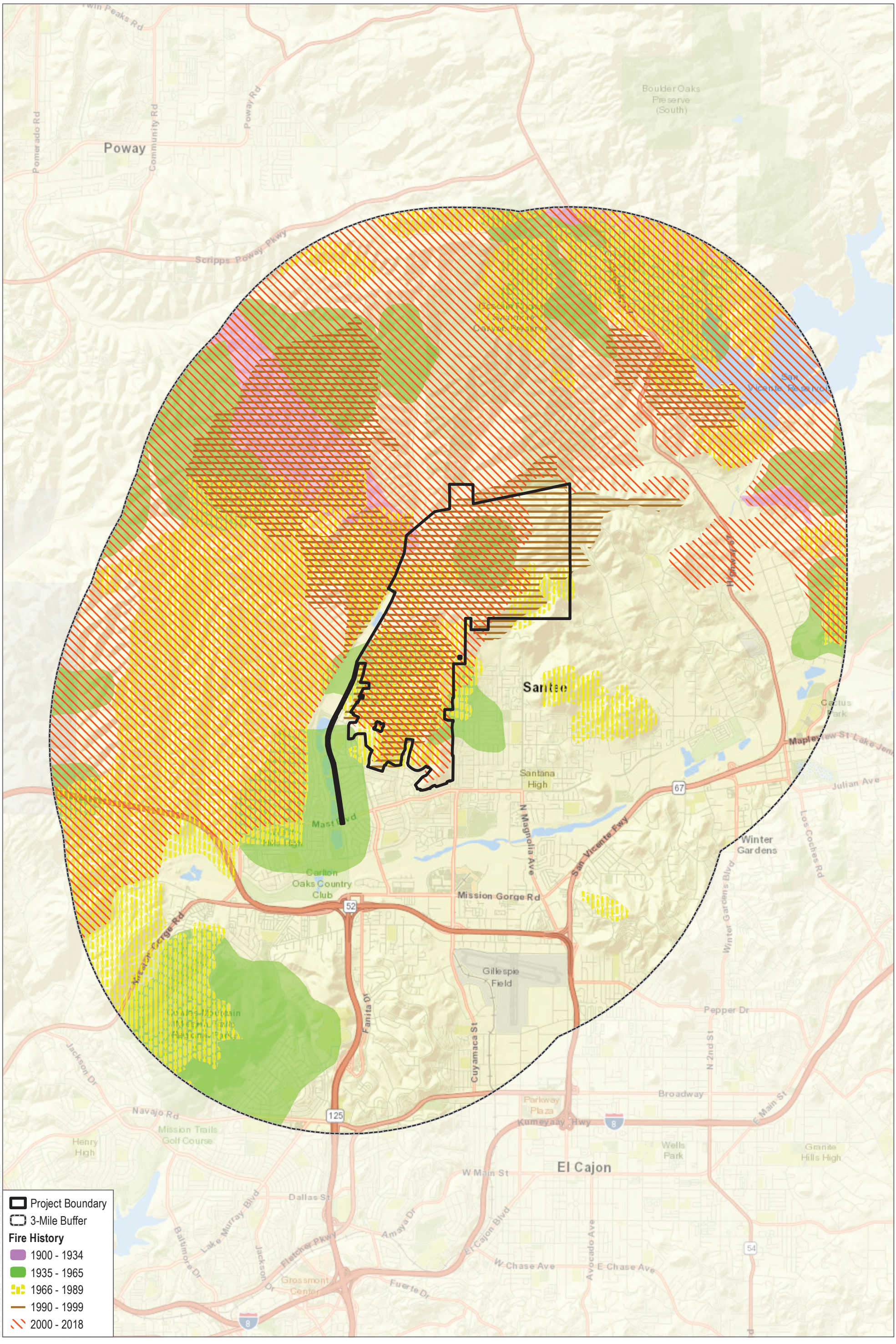
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FIGURE 1-3

Hydrology

Fanita Ranch Biological Technical Report

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SOURCE: CalFire FRAP, 2017; ESRI Basemap

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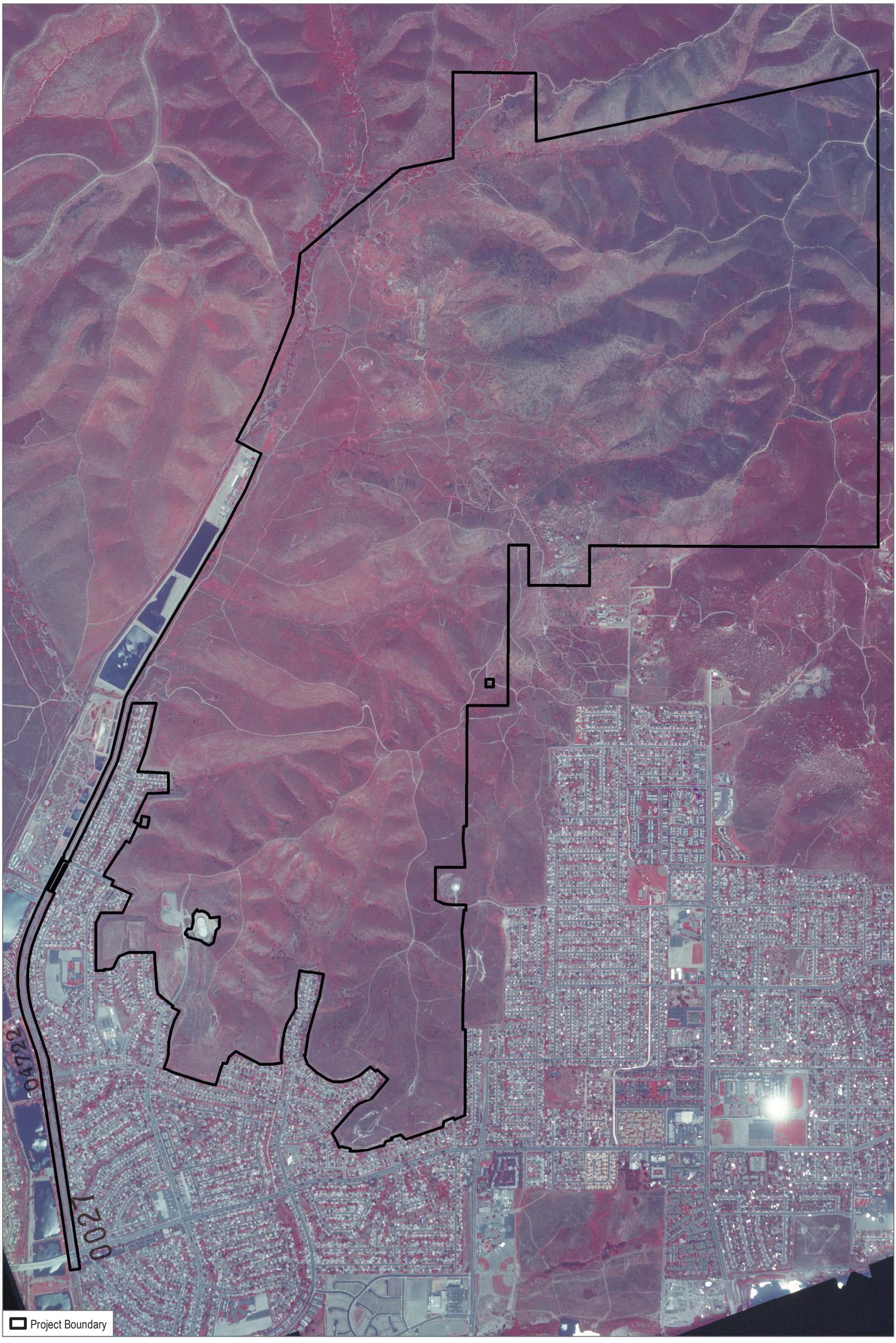
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FIGURE 1-4

Fire History Map

Fanita Ranch Biological Technical Report

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SOURCE: USGS 1994

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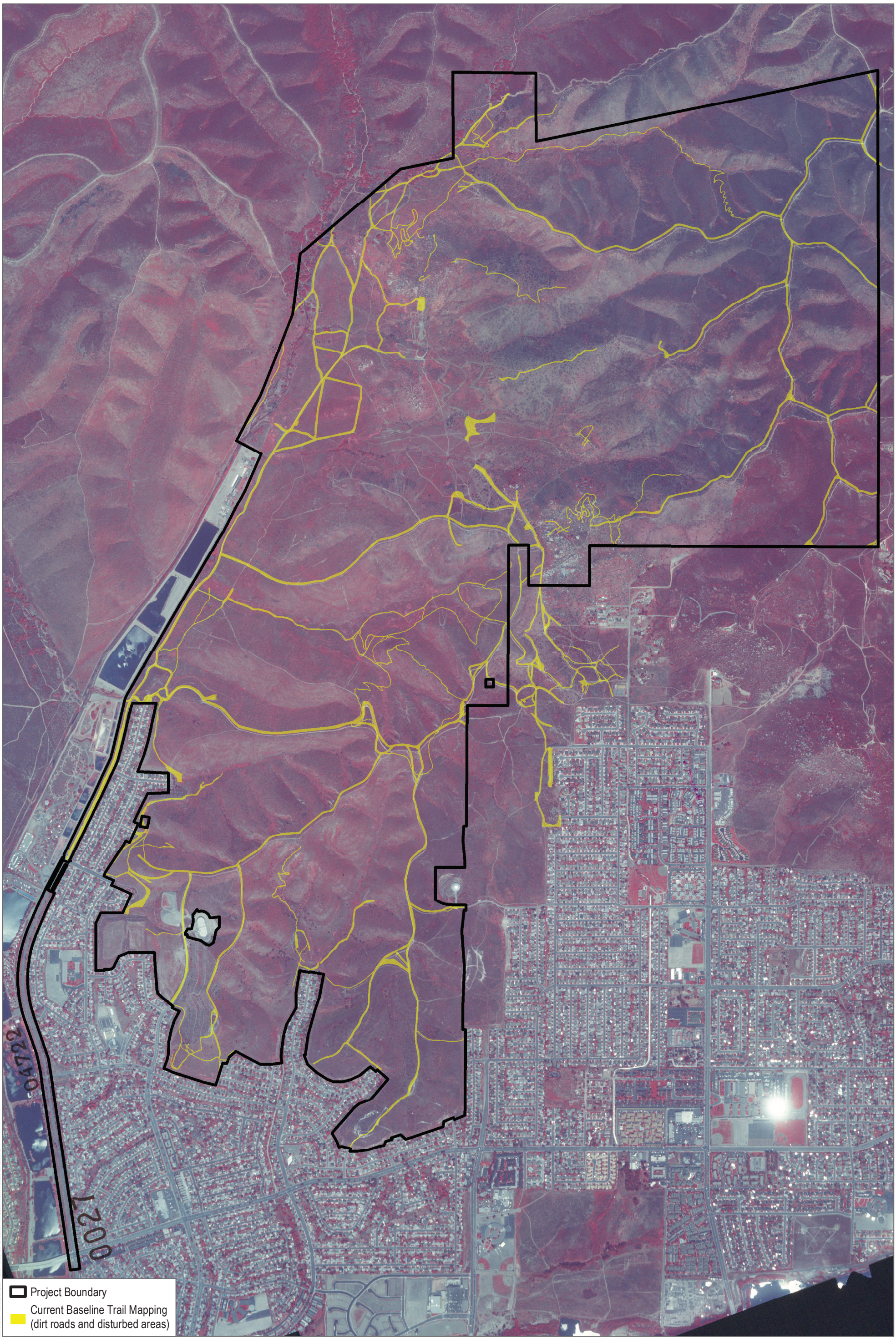
0 750 1,500 Feet

FIGURE 1-5

Historic Aerial (1994)

Fanita Ranch Biological Technical Report

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SOURCE: USGS 1994

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FIGURE 1-6

Historic Trail with Current Trail Mapping Overlay

Fanita Ranch Biological Technical Report

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2 APPLICABLE REGULATIONS

The project will process all required permits and adhere to all relevant regulatory requirements. Impacts to listed species will either be covered through the Santee MSCP Subarea Plan, or if this project precedes the Santee MSCP Subarea Plan, then take for listed species will utilize standard state and federal incidental take permit processes as applicable.

2.1 Federal

2.1.1 Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration, and National Marine Fisheries Service (NMFS). This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend, and provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. As part of this regulatory act, FESA provides for designation of Critical Habitat, defined in FESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features "essential to the conservation of the species" are found and that "may require special management considerations or protection." Critical Habitat may also include areas outside the current geographical area occupied by the species that are nonetheless "essential for the conservation of the species." Under provisions of Section 9(a)(1)(B) of FESA, it is unlawful to "take" any listed species. "Take" is defined in Section 3(19) of FESA as, "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

Section 7(a)(2) of the FESA directs federal agencies to consult with the USFWS for any actions they authorize, fund, or carry out that may jeopardize the continued existence of any listed species or result in the destruction or adverse modification of federally designated Critical Habitat. Consultation begins when the federal agency submits a written request for initiation to USFWS or NMFS, along with the agency's Biological Assessment of its proposed action (if necessary), and USFWS or NMFS accepts that sufficient information has been provided to initiate consultation. If USFWS or NMFS concludes that the action is not likely to adversely affect a listed species, the action may be conducted without further review under the FESA. Otherwise, USFWS or NMFS must prepare a written Biological Opinion describing how the agency's action will affect the listed species and its Critical Habitat. USFWS-designated and proposed Critical Habitat within the project area is shown on Figure 2-1.

In 1982, the FESA was amended to give private landowners the ability to develop habitat conservation plans (HCPs) pursuant to Section 10(a) of the FESA. Upon development of an HCP,

the USFWS can issue Incidental Take Permits for listed species where the HCP specifies, at minimum, the following: (1) the level of impact that will result from the taking, (2) steps that will minimize and mitigate the impacts, (3) funding necessary to implement the plan, (4) alternative actions to the taking considered by the applicant and the reasons why such alternatives were not chosen, and (5) such other measures that the Secretary of the Interior may require as being necessary or appropriate for the plan.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act prohibits the intentional take of any migratory bird or any part, nest, or eggs of any such bird. Under the Migratory Bird Treaty Act, "take" is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so (16 USC 703 et seq.). In December 2017, Department of the Interior Principal Deputy Solicitor Jorjani issued a memorandum (M-37050) that interprets the Migratory Bird Treaty Act's "take" prohibition to apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs. Unintentional or accidental take is not prohibited (M-37050). Additionally, Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 FR 3853–3856). The executive order requires federal agencies to work with USFWS to develop a memorandum of understanding. USFWS reviews actions that might affect these species.

2.1.3 Clean Water Act

Pursuant to Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredged and/or fill material into "waters of the United States." The term "wetlands" (a subset of waters) is defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (Title 33 of the Code of Federal Regulations [CFR] Section 328.3[b]). In the absence of wetlands, the limits of ACOE jurisdiction in non-tidal waters, such as intermittent streams, extend to the "ordinary high water mark" (33 CFR 328.3[e]).

2.1.4 Bald and Golden Eagle Protection Act

Bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are federally protected under the Bald and Golden Eagle Protection Act (BGEPA), which was passed in 1940 to protect bald eagles and amended in 1962 to include golden eagles (16 USC 668 et seq.). This act prohibits the take, possession, sale, purchase, barter, offer to sell or purchase, export or import,

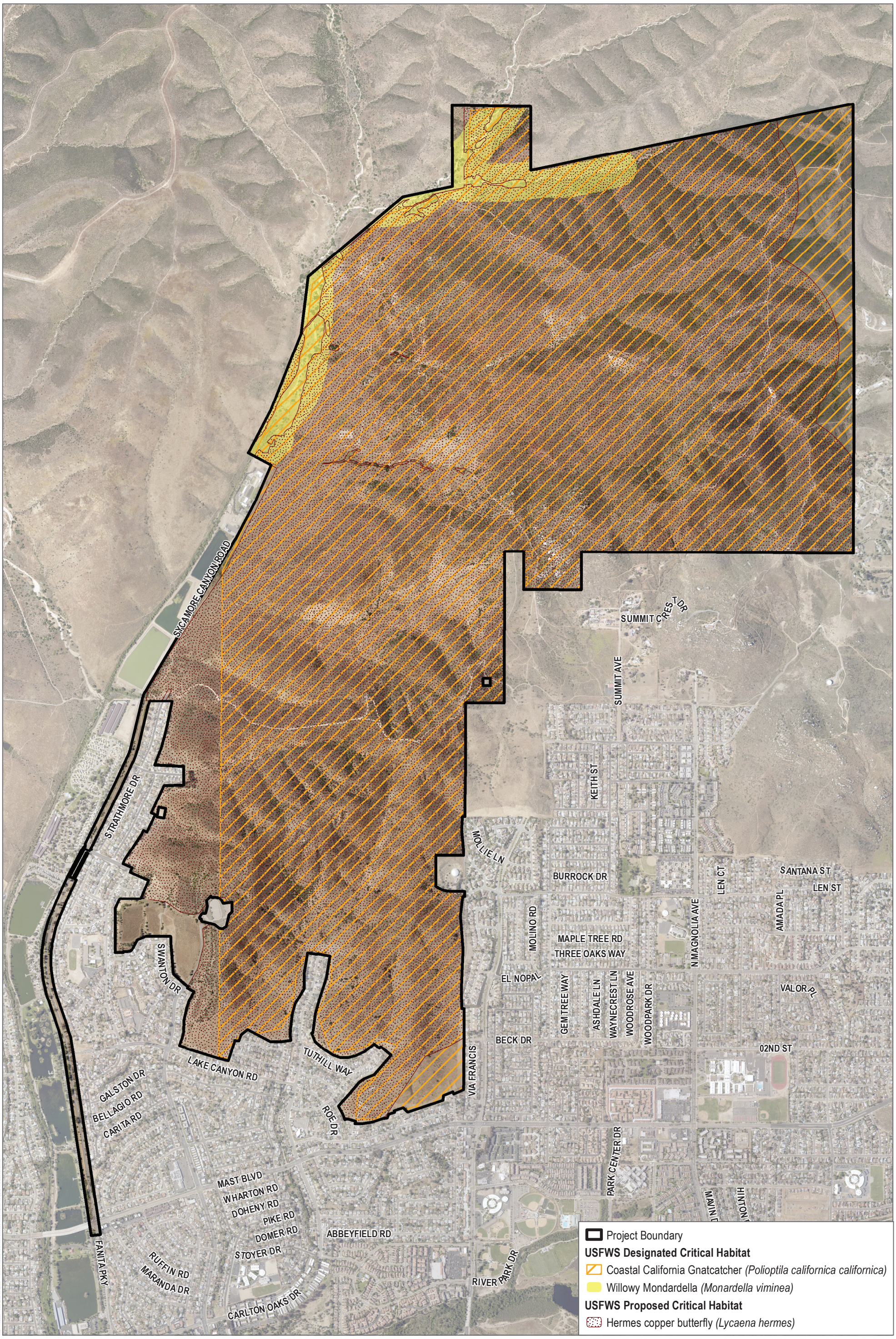
or transport of bald eagles and golden eagles or their parts, eggs, or nests without a permit issued by USFWS. The definition of "take" includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The definition of "disturb" has been further clarified by regulation as follows: "Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (50 CFR, Part 22.3).

The BGEPA prohibits any form of possession or taking of both eagle species, and the statute imposes criminal and civil sanctions, as well as an enhanced penalty provision for subsequent offenses. Further, the BGEPA provides for the forfeiture of anything used to acquire eagles in violation of the statute. The statute exempts from its prohibitions on possession the use of eagles or eagle parts for exhibition, scientific, or Native American religious uses.

In November 2009, USFWS published the Final Eagle Permit Rule (74 FR 46836–46879) providing a mechanism to permit and allow for incidental (i.e., nonpurposeful) take of bald and golden eagles pursuant to the BGEPA (16 USC 668 et seq.). The previous year, 2008, USFWS adopted 50 CFR Part 22.11(a), which provides that a permit authorizing take under FESA Section 10 applies with equal force to take of golden eagles authorized under the BGEPA. These regulations were followed by issuance of guidance documents for inventory and monitoring protocols and for avian protection plans (USFWS 2010). In January 2011, USFWS released its Draft Eagle Conservation Plan Guidance aimed at clarifying expectations for acquiring take permits by wind power projects, consistent with the 2009 rule (USFWS 2011).

On December 16, 2016, USFWS adopted additional regulations regarding incidental take of golden eagles and their nests (81 FR 91494 et seq.). Most of the new regulations address "programmatic eagle nonpurposeful take permits" such as those typically requested by members of the alternative energy industry, including wind farms. For example, the new regulations extend the duration of such permits from 5 to 30 years. In addition, the new regulations modify the definition of the BGEPA "preservation standard" to mean "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the service range of each species" (81 FR 91496–91497). This process has also resulted in standardizing mitigation options for permitted take.

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SOURCE: USFWS 2019, 2020; SANGIS 2017, 2019

DUDEK

0 750 1,500 Feet

FIGURE 2-1

USFWS - Designated Critical Habitat within the Project Area

Fanita Ranch Biological Technical Report

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2.2 State

2.2.1 California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA) (California Fish and Game Code, Section 2050 et seq.), which prohibits the "take" of plant and animal species designated by the Fish and Game Commission as endangered, candidate, or threatened in the State of California. Under CESA Section 86, take is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA Sections 2080 through 2085 address the taking of threatened, endangered, or candidate species by stating, "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act (California Fish and Game Code, Sections 1900–1913), or the California Desert Native Plants Act (Food and Agricultural Code, Section 80001)."

Sections 2081(b) and (c) of the California Fish and Game Code authorize take of endangered, threatened, or candidate species if take is incidental to otherwise lawful activity and if specific criteria are met. In certain circumstances, Section 2080.1 of CESA allows CDFW to adopt a federal incidental take statement or a 10(a) permit as its own, based on its findings that the federal permit adequately protects the species and is consistent with state law. A Section 2081(b) permit may not authorize the take of "Fully Protected" species, "specially protected mammal" species, and "specified birds" (California Fish and Game Code, Sections 3505, 3511, 4700, 4800, 5050, 5515, and 5517). If a project is planned in an area where a fully protected species, specially protected mammal, or a specified bird occurs, an applicant must design the project to avoid take.

Section 2835 of the Fish and Game Code allows CDFW to authorize incidental take in an NCCP. Take may be authorized for identified species whose conservation and management is provided for in the NCCP, whether the species is listed as threatened or endangered under FESA or CESA, provided that the NCCP complies with the conditions established in Section 2081 of the Fish and Game Code. The NCCP provides the framework for the San Diego MSCP Plan.

Natural Community Conservation Planning Act

In 1991, California's Natural Community Conservation Planning Act (NCCPA) (California Fish and Game Code, Section 2800 et seq.) was enacted to implement broad-based planning that balances appropriate development and growth with conservation of wildlife and habitat. Pursuant to the NCCPA, local, state, and federal agencies are encouraged to prepare NCCPs to provide comprehensive management and conservation of multiple species and their habitats under a single plan, rather than through preparation of numerous individual plans on a project-by-project basis. The NCCPA is broader

in its orientation and objectives than are the CESA and FESA. Additionally, preparation of an NCCP is a voluntary action. The primary objective of the NCCP program is to conserve natural communities at the ecosystem scale while accommodating compatible land use. To be approved by CDFW, an NCCP must provide for the conservation of species and protection and management of their habitat and natural communities in the plan area in perpetuity.

The 1991 NCCPA was repealed and replaced with a substantially revised and expanded NCCPA in 2002. While the revised NCCPA established new standards and guidance on many facets of the program, including scientific information, public participation, biological goals, interim project review, and approval criteria, amendments to the NCCPA enacted effective January 1, 2003 (Section 2830[b][2] expressly provide that Subarea Plans for the San Diego MSCP will be solely governed in accordance with the NCCPA as it read on December 31, 2001. The City enrolled as an NCCP participant and entered in to a Memorandum of Agreement for coordinated habitat planning on May 13, 1992 (City of Santee City Council Resolution No. 54-92).

2.2.2 California Fish and Game Code

Streambed Alteration Agreement

Pursuant to Section 1600 et seq. of the California Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. A Streambed Alteration Agreement is required if the activity may substantially adversely affect fish and wildlife resources in accordance with Section 1603 of the California Fish and Game Code.

Fully Protected Species and Resident and Migratory Birds

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code designates certain birds, mammals, reptiles and amphibians, and fish as "fully protected" species. Fully protected species may not be taken or possessed without a permit from the Fish and Game Commission. CDFW may not authorize the take of such species except (1) for necessary scientific research, (2) for the protection of livestock, and (3) when the species is a covered species under an approved NCCP.

In addition, the California Fish and Game Code prohibits the needless destruction of nests or eggs of native bird species (California Fish and Game Code, Section 3503), and it states that no birds in the orders of Falconiformes or Strigiformes (birds of prey) can be taken, possessed, or destroyed (California Fish and Game Code, Section 3503.5).

For the purposes of these state regulations, CDFW currently considers an active nest as one that is under construction or in use and includes existing nests that are being modified. For example, if a

hawk is adding to or maintaining an existing stick nest in a transmission tower, then it would be considered to be active and covered under these California Fish and Game Code Sections.

California Native Plant Protection Act

The Native Plant Protection Act of 1977 (California Fish and Game Code, Section 1900–1913) directed CDFW to carry out the legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the Fish and Game Commission the power to designate native plants as "endangered" or "rare," and prohibited take, with some exceptions, of endangered and rare plants. When CESA was amended in 1984, it expanded on the original Native Plant Protection Act, enhanced legal protection for plants, and created the categories of "threatened" and "endangered" species to parallel FESA. The 1984 amendments to CESA also made the exceptions to the take prohibition set forth in Section 1913 of the Native Plant Protection Act applicable to plant species listed as threatened or endangered under CESA. CESA categorized all rare animals as threatened species under CESA, but did not do so for rare plants, which resulted in three listing categories for plants in California: rare, threatened, and endangered. The Native Plant Protection Act remains part of the California Fish and Game Code, and mitigation measures for impacts to rare plants are specified in a formal agreement between CDFW and project proponents.

2.2.3 Porter-Cologne Water Quality Control Act

The intent of the Porter-Cologne Water Quality Control Act is to protect water quality and the beneficial uses of water, and it applies to both surface water and groundwater. Under this law, the State Water Resources Control Board develops statewide water quality plans, and the Regional Water Quality Control Boards (RWQCBs) develop basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of both statewide and basin plans. All waters of the state are regulated under the Porter-Cologne Water Quality Control Act, including isolated waters that are no longer regulated by the ACOE. Recent changes in state procedures require increased analysis and mitigation. Developments with impact to jurisdictional waters of the state must demonstrate compliance with the goals of the act by developing stormwater pollution prevention plans (SWPPPs), standard urban stormwater mitigation plans, and other measures to obtain a Clean Water Act Section 401 certification and/or Waste Discharge Requirement.

2.2.4 California Environmental Quality Act

CEQA requires identification of a project's potentially significant impacts on biological resources and feasible mitigation measures and alternatives that could avoid or reduce significant impacts. CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including

loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors" (14 CCR 15000 et seq.). A rare animal or plant is defined in Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or … [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c). CEQA also requires identification of a project's potentially significant impacts on riparian habitats (such as wetlands, bays, estuaries, and marshes) and other sensitive natural communities, including habitats occupied by endangered, rare, and threatened species.

2.3 Regional

2.3.1 Multiple Species Conservation Program Plan

The proposed project area is located within the boundaries of the MSCP Plan (City of San Diego 1998). The MSCP Plan is a multijurisdictional habitat conservation planning program that involves USFWS, CDFW, the County, the Cities of San Diego and Chula Vista, and other local jurisdictions and special districts. Local jurisdictions and special districts implement the MSCP Plan for their respective portions through subarea plans. The combination of the MSCP Plan and subarea plans serve as an HCP pursuant to Section 10(a)(1)(B) of FESA, and as an NCCP pursuant to the California NCCP Act of 1991 (City of San Diego 1998).

The MSCP Plan study area encompasses 582,243 acres within the southwestern portion of the County. As stated in the MSCP Plan, an objective of the MSCP is to conserve a connected system of biologically viable habitat lands in a manner that maximizes the protection of sensitive species and precludes the need for future listings of species as threatened or endangered. The MSCP Plan identifies a Multi-Habitat Planning Area (MHPA), which is the area within which the permanent MSCP Preserve will be assembled and managed for its biological resources. The MHPA is defined in many areas by mapped boundaries in figures in the MSCP Plan, and is also defined by quantitative targets for conservation of vegetation communities and goals and criteria for preserve design. The MSCP Plan targets 171,917 acres within the MHPA for conservation (City of San Diego 1998).

A total of 85 plant and animal species are "covered" by the MSCP Plan. The MSCP Plan Final EIR/Environmental Impact Statement identifies "Vegetation Community Conservation Target Areas" for conservation by subarea (MSCP Plan, Appendix B). A total of 2,067 acres are expected to be conserved within the Santee Subarea MHPA. With approval of each subarea plan and corresponding implementing agreement, each participating local jurisdiction receives permits and/or authorization to directly impact or take MSCP Covered Species. The Covered Species include species listed as

endangered or threatened by the FESA or CESA, as well as unlisted species. Table 3-5 in the MSCP Plan provides a list of the MSCP Covered Species, and includes specific conditions required for take authorizations (City of San Diego 1998).

2.3.2 Draft Santee MSCP Subarea Plan

The City has been preparing its subarea plan since the original approval of the MSCP Plan, and is currently in the process of completing the Santee MSCP Subarea Plan (Figure 2-2, Regional Planning Context). Although the Draft Santee MSCP Subarea Plan has not yet been approved or permitted, it is used as the guidance document for projects occurring within the City of Santee. The project would qualify as a hardline Covered Project under the Subarea Plan, and would obtain take coverage for impacts to species through authorization from the City. The current Draft Santee MSCP Subarea Plan seeks coverage for 22 species (8 plants and 14 wildlife species) and relies on a combination of hardline preserve areas and softline criteria-based protection zones to protect species and habitat. Coverage for species is dependent on a number of factors, including multijurisdictional participation, adequate building of the preserve system, adequate protection of certain populations, permanent management funding, and other factors. Not all MSCP Covered Species occur in each jurisdiction, so the number of species covered by each subarea plan may be a subset of the total list. It should be noted that if the Santee MSCP Subarea Plan is not approved, the project would seek take authorization through FESA Section 7 or an individual Section 10 permit.

The Draft Santee MSCP Subarea Plan preserve boundaries are a result of the City's efforts to refine and expand the MHPA boundaries, to better define conservation priorities within the City and to formulate an HCP under the MSCP Plan. Implementation of the Santee MSCP Subarea Plan proposes to conserve approximately 3,060 acres (67.8%) of the remaining natural habitat within the jurisdictional boundaries of the City. Since the Draft Santee MSCP Subarea Plan is still in development, portions of the subarea plan may still change, including hardline preserve areas and Covered Species. The Subarea Plan Preserve System is divided into six subunits: San Diego River Subunit, Rattlesnake Mountain Subunit, Mission Trails Subunit, Magnolia Summit Subunit, Non-Contiguous, and Fanita Ranch Subunit (City of Santee 2018). The Fanita Ranch subunit will represent over half of the Santee Subarea Plan preserve system and includes habitat for a number of Covered Species.

Within the context of the Draft Santee MSCP Subarea Plan, the current primary preserve goals for the Fanita Ranch Subunit, of which the proposed project is the primary component, are as follows:

- Protect and enhance habitat to support Covered Species by requiring conservation of chaparral, coastal sage scrub, and vernal pools.
- Maintain a north–south wildlife movement corridor (with functional wildlife crossing) through the Fanita Ranch property.

- Maintain connectivity with the Subarea Plan Preserve System in the North Magnolia Subunit, open space areas on MCAS Miramar (to the west), and in the County (to the north and east).
- Provide management and restoration of habitat to offset impacts to Covered Species and their habitats.
- Reduce edge effects and minimize disturbance during the nesting season.
- Implement a managing public access program that allows trail use within the preserve area that is consistent with the goal of species and habitat protection.
- Implement fire protection measures to reduce the potential for habitat degradation due to fire.

2.3.3 Integrated Natural Resources Management Plan

While the MCAS Miramar Integrated Natural Resources Management Plan does not directly affect the project, it does affect the management of adjacent areas to the west, and as such, has bearing on the viability of overall landscape-level resource management on the project open space.

MCAS Miramar is comprised of large swaths of open space that contain vernal pools, wetland areas, upland habitat, and the federally listed plant and wildlife species occurring in these areas. Additionally, these lands function as wildlife corridors for the movement and dispersal of wildlife. The Integrated Natural Resources Management Plan guides land use activities, natural resource management, and conservation, and ensures compliance with environmental laws and regulations on MCAS Miramar. USFWS identifies Essential Habitat as areas eligible for designation as Critical Habitat, and the Integrated Natural Resources Management Plan incorporates Essential Habitat into high-priority management areas to benefit the conservation of species. Management Areas (MAs) Level I through Level V have been developed to support the conservation and management of regulated resources occurring within MCAS Miramar. Level I MAs mainly support vernal pool habitat and their associated watersheds; Level II MAs focus on non-vernal pool, federally listed species; Level III MAs support riparian vegetation and wildlife corridors/linkages; Level IV MAs support some sensitive and protected resources; and Level V MAs are associated with developed land uses and are the first considered for new development (MCAS Miramar 2018).

Project Boundary

Project Site Plan

- Permanent Impacts
- Temporary Impacts
- Proposed Trail
- Impact Neutral
- Habitat Preserve
- MCAS Miramar

Draft Santee MSCP Subarea Plan

- City of Santee
- City of Santee MSCP Preserve

San Diego County MSCP

- Hardline Preserve
- Pre-Approved Mitigation Area
- Hardline Development Areas
- Unincorporated Land in Metro-Lakeside-Jamul Segment

City of San Diego MSCP

- City of San Diego Multiple Habitat Planning Area

SOURCE: Hunsaker 2019; ICF 2019; SANGIS 2017, 2019

DUDEK

0 0.5 1 Miles

FIGURE 2-2

Regional Planning Context

Fanita Ranch Biological Technical Report

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3 SURVEY METHODOLOGIES

Data regarding biological resources present on the project area were obtained through a review of pertinent literature, field reconnaissance, and mapping. Each method is described in detail below.

3.1 Literature Review

Special-status biological resources present or potentially present within the project area were identified through an extensive literature search using the following sources: USFWS (2017), CDFW California Natural Diversity Database (CDFW 2017a, 2017b, 2017c, 2017d), California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Vascular Plants (CNPS 2018), and San Diego Plant Atlas (SDNHM 2016). The literature review included review of the list of plant and wildlife species covered under the Draft Santee MSCP Subarea Plan (City of Santee 2018). The Soil Survey, San Diego Area, California Part 1 (USDA 2016a) was also reviewed to identify potentially occurring special-status plants based upon known soil associations. Native plant community classifications used in this report follow the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986) as modified by the Draft Vegetation Communities of San Diego County (Oberbauer et al. 2008). Modifications to these classification systems were made when conditions on site did not match the classification system exactly. The natural history and habitat requirements of bat species documented within the project area were researched through a literature review including Bat Conservation International Inc. (BCI 2015), Best et al. (1996), Bogan et al. (2003), California Department of Transportation (2003), CDFW (2015), Johnston et al. (2004), Keeley and Tuttle (1999), Loeb et al. (2015), Miller (2001), O'Shea and Bogan (2003), Pierson and Rainey (1998), Siders (2005), and Western Bat Working Group (2015). The literature review also included review of the cumulative data collected between May 2003 and September 2005 summarized in the Biological Resources and Impact Analysis Report for the Fanita Project (Dudek 2005, 2006, 2007) and the Biological Resources Report and Impact Analysis for Fanita Ranch (Dudek 1997) to describe pertinent pre-2003 conditions on the project area.

In terms of regional preserve planning efforts, the proposed project is within the City; therefore, the Draft Santee MSCP Subarea Plan is applicable to the project.

3.2 Field Reconnaissance

Surveys for Fanita Ranch date back to 1989, with updates to surveys and site conditions occurring throughout the years. Previous surveys for the project area included vegetation mapping; a formal jurisdictional delineation; rare plant surveys; small mammal trapping; focused surveys for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*), least Bell's vireo (*Vireo bellii pusillus*), San Diego fairy shrimp, and Riverside fairy shrimp (*Streptocephalus woottoni*);

focused surveys for the Draft Santee MSCP Subarea Plan Covered Species Hermes copper butterfly; and focused surveys for the federally listed threatened coastal California gnatcatcher.

In 2015 to 2016, Dudek biologists updated the vegetation mapping and jurisdictional delineation as well as focused surveys for special-status wildlife species. The 2015/2016 focused surveys included Quino checkerspot butterfly habitat assessment and protocol surveys, burrowing owl (*Athene cunicularia*) habitat assessment and protocol surveys, coastal California gnatcatcher protocol surveys, Hermes copper butterfly habitat assessment and focused surveys, least Bell's vireo and southwestern willow flycatcher (*Empidonax traillii extimus*) protocol surveys, bat surveys, focused surveys for willowy monardella (*Monardella viminea*), and listed vernal pool branchiopods habitat assessment and presence/absence surveys. In 2017, Dudek conducted focused surveys for western spadefoot toad and coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) and a wildlife corridor camera study. Also in 2017, USGS conducted western spadefoot reconnaissance surveys within the project area to provide independent scientific input as part of the Draft Santee MSCP Subarea Plan (Rochester et al. 2017).

The primary purpose of the updated field surveys conducted by Dudek was to more thoroughly examine those areas suspected, based on previous field work and post-fire habitat recovery, to support sensitive biological resources and to determine the extent of those resources within the project area. Several focused surveys also have been conducted for this project area to determine the presence/absence of special-status plant and wildlife species (see Table 3-1). The sensitive species and habitat data collected by Dudek during surveys between 2003 and 2017 is comprehensive and portrays the most up-to-date conditions within the project area. Sensitive resource information from earlier surveys is described for focused surveys that were not repeated during more recent surveys (e.g., post-fire surveys, which allowed for higher visibility and detection of special-status plant species); see Sections 3.2.1 through 3.2.15 for details.

A summary of surveys that have been conducted on the project area is provided in Table 3-1. Surveys were conducted on foot and in accordance with focused survey guidelines or protocols where applicable.

Table 3-1
Schedule of Surveys for Fanita Ranch

Date	Hours	Personnel	Focus	Conditions
Quino Checkerspot Butterfly Habitat Assessment and Focused Surveys				
3/1/2004–4/17/2004	Varied	Dudek and subconsultants	QCB Surveys	See Appendix A, 2004 Focused Quino Checkerspot Butterfly Survey Report
1/21/2005	10:00 a.m.–4:00 p.m.	BAO	QCB Reconnaissance Survey	65°F–66°F; 30%–50% cc; 0–3 mph winds

Table 3-1
Schedule of Surveys for Fanita Ranch

Date	Hours	Personnel	Focus	Conditions
3/9/2005-4/17/2005	Varied	AH, BO, KM, PML, VRJ, DWF	QCB Surveys	See Appendix B, 2005 Focused Quino Checkerspot Butterfly Survey Report
2/26/2016-4/6/2016	Varied	Dudek and subconsultants	QCB Survey Areas 1-28	See Appendix C, 2016 Focused Quino Checkerspot Butterfly Survey Report
3/9/2016-4/20/2016	Varied	ACT, DAM, JM, JW, KD, KM, KS, MP, SC, SG	Host Plant Mapping in QCB Survey Areas 1-28	See Appendix C
4/11/2017	8:24 a.m.–3:33 p.m.	PCS, EJB, JMW	Revisiting Existing QCB Host Plant Locations	54°F–83°F; 0%–10% cc; 0–5 mph winds
Burrowing Owl Habitat Assessment and Survey				
3/23/2016	6:43 a.m.–10:01 a.m.	KS	BUOW Assessment/Survey Pass 1	43°F–62°F; 0% cc; 1–3 to 1 mph wind
3/25/2016	6:30 a.m.–9:59 a.m.	KS	BUOW Assessment/Survey Pass 1	40°F–75°F; 0% cc; 1 mph wind
3/28/2016	6:45 a.m.–10:00 a.m.	SC	BUOW Assessment/Survey Pass 1	57°F–61°F; 80%–100% cc; 0–5 mph wind
3/29/2016	6:44 a.m.–9:59 a.m.	KS	BUOW Assessment/Survey Pass 1	45°F–62°F; 10%–40% cc; 2–5 mph wind
3/29/2016	5:45 a.m.–11:00 a.m.	SC	BUOW Assessment/Survey Pass 1	50°F–57°F; 50%–70% cc; 1–2 mph wind
3/31/2016	6:38 a.m.–11:30 a.m.	KS, SC	BUOW Assessment/Survey Pass 1	40°F–70°F; 0%–20% cc; 0 to 2–4 mph wind
3/31/2016	6:30 a.m.–11:45 a.m.	SV	BUOW Assessment/Survey Pass 1	48°F–74°F; 0% cc; 0–1 mph wind
4/1/2016	6:33 a.m.–9:55 a.m.	KS	BUOW Assessment/Survey Pass 1	58°F–65°F; 20%–100% cc; 0–5 mph wind
4/7/2016	6:20 a.m.–1:15 p.m.	MP	BUOW Assessment/Survey Pass 1	60°F–62°F; 100% cc; 0–1 mph wind
4/7/2016	6:19 a.m.–9:54 a.m.	KS	BUOW Assessment/Survey Pass 1	63°F–63°F; 100% cc; 1–2 mph wind
4/7/2016	6:50 a.m.–11:55 a.m.	SV	BUOW Assessment/Survey Pass 1	58°F–61°F; 100% cc; 1 mph wind
4/12/2016	6:28 a.m.–9:54 a.m.	DAM	BUOW Assessment/Survey Pass 1	55°F–68°F; 60%–100% cc; 0–2 mph wind
4/13/2016	6:30 a.m.–10:08 a.m.	DAM	BUOW Assessment/Survey Pass 1	55°F–62°F; 90%–100% cc; 0–1 mph wind
5/23/2016	7:40 a.m.–8:40 a.m.	KS	BUOW Survey Pass 2	58°F–60°F; 40%–50% cc; 1 mph wind
6/15/2016	7:11 a.m.–8:17 a.m.	KS	BUOW Survey Pass 3	66°F; 90–100% cc; 2 mph wind
7/7/2016	7:40 a.m.–8:58 a.m.	KS	BUOW Survey Pass 4	66°F–72°F; 40%–100% cc; 0–4 mph wind

Table 3-1
Schedule of Surveys for Fanita Ranch

Date	Hours	Personnel	Focus	Conditions
Vegetation Mapping and Jurisdictional Delineation				
3/3/2004	7:45 a.m.–12:00 p.m.	VRJ, DWF	Jurisdictional Delineation and Off-site Mapping Surveys	NR
3/10/2004	7:00 a.m.–9:30 a.m.	VRJ, DWF	Jurisdictional Delineation and Off-site Mapping Surveys	54°F; 100% cc; 0–1 mph winds
3/12/2004	6:30 a.m.–9:30 a.m.	VRJ, DWF	Jurisdictional Delineation and Off-site Mapping Surveys	56°F; 100% cc; 0 mph winds
6/25/2004	1:00 p.m.–NR	VRJ	Jurisdictional Delineation and Off-site Mapping Surveys	NR
6/28/2004	7:00 AM–NR	VRJ	Jurisdictional Delineation and Off-site Mapping Surveys	NR
2004	NR	NR	Vegetation and Fire Mapping	NR
9/20/2005	NR	MLB	Jurisdictional Delineation and Off-site Mapping Surveys	NR
9/22/2005	NR	MLB, DWF	Jurisdictional Delineation and Off-site Mapping Surveys	NR
5/5/2014–5/14/2014	NR	VRJ, DAM, KCD, BAO	Vegetation Mapping	NR
5/3/2016	8:45 a.m.–4:37 p.m.	CJF, JMW, MP, PCS, MOC	Jurisdictional Delineation	66°F–88°F; 0% cc; 0 mph wind
9/24/2016	NR	BAO	Magnolia Road Extension Drone Vegetation Mapping	NR
Rare Plant Survey				
4/15/2004	1:00 p.m.–4:30 p.m.	VRJ	Survey Area 16	72°F; 0% cc; 3–8 mph winds
4/19/2004	11:00 a.m.–NR	MSE	Survey Area 22	74°F; 0% cc; NR mph wind
4/19/2004	12:30 p.m.–4:00 p.m.	MLB	Survey Area 22	74°F; 0% cc; NR mph wind
4/19/2004	10:30 a.m.–5:00 p.m.	DWF	Survey Area 19	74°F; 0% cc; NR mph wind
4/20/2004	10:30 a.m.–NR	MLB, MSE	Survey Areas 22 and 25	70°F; 0% cc; 0–6 mph winds
4/26/2004	8:45 a.m.–6:00 p.m.	DWF	Survey Area 19	NR
4/27/2004	10:30 a.m.–3:30 p.m.	MSE	Survey Area 26	NR

Table 3-1
Schedule of Surveys for Fanita Ranch

Date	Hours	Personnel	Focus	Conditions
4/27/2004	NR	ACT	Survey Area 18	NR
4/28/2004	10:30 a.m.–NR	MSE	Survey Areas 20 and 26	NR
4/29/2004	7:00 AM–NR	VRJ	Survey Area 16	62°F; 80% cc; 0–1 mph winds
4/29/2004	NR	ACT	Survey Areas 11 and 18	62°F; 80% cc; 0–1 mph winds
5/2/2004	1:30 p.m.–4:30 p.m.	MLB	Survey Area 17	100°F; 0% cc; 20 mph winds
5/4/2004	8:00 a.m.–11:00 a.m.	VRJ	Survey Area 15	75°F; 0% cc; 0 mph winds
5/4/2004	8:30 a.m.–4:00 p.m.	DWF	Survey Area 21	75°F; 0% cc; 0 mph winds
5/5/2004	10:00 a.m.–NR	VRJ	Survey Area 15	77°F; 0% cc; 1–3 mph winds
5/5/2004	9:00 a.m.–1:00 p.m.; 3:00 p.m.–7:00 p.m.	DWF	Survey Area 21	77°F; 0% cc; 1–3 mph winds
5/6/2004	1:30 p.m.–6:00 p.m.	JLM	Survey Area 8	NR
5/6/2004	NR	ACT	Survey Areas 6 and 11	NR
5/6/2004	9:30 a.m.–5:30 p.m.	DWF	Survey Area 24	NR
5/7/2004	6:30 a.m.–10:30 a.m.	DWF, VRJ	Survey Area 23	60°F; 100% cc; 0 mph winds
5/10/2004	8:30 a.m.–4:40 p.m.	DWF	Survey Areas 18 and 19	NR
5/11/2004	NR	MSE	Survey Area 20	78°F; 0% cc; 3–10 mph winds
5/11/2004	12:30 p.m.–NR	VRJ	Survey Area 15	78°F; 0% cc; 3–10 mph winds
5/13/2004	NR	ACT	Survey Areas 5 and 6	NR
5/13/2004	9:30 a.m.–3:30 p.m.	JLM	Survey Area 8	NR
5/14/2004	NR	MSE	Survey Area 12	NR
5/16/2004	NR	MSE	Survey Area 38	NR
5/17/2004	NR	MLB	Survey Area 10	NR
5/17/2004	11:15 a.m.–3:30 p.m.	DWF	Survey Areas 2 and 5	NR
5/18/2004	1:30 p.m.–5:00 p.m.	MLB	Survey Area 13	72°F; 0% cc; 0–10 mph winds
5/18/2004	10:00 a.m.–4:00 p.m.	DWF	Survey Areas 1, 4, and 19	72°F; 0% cc; 0–10 mph winds
5/19/2004	11:30 a.m.–7:00 p.m.	DWF	Survey Areas 19 and 20	NR
5/20/2004	11:30 a.m.–2:30 p.m.	JLM	Survey Area 7	NR
5/27/2004	NR	MSE	Survey Area 9	68°F; 100% cc; 0–1 mph winds

Table 3-1
Schedule of Surveys for Fanita Ranch

Date	Hours	Personnel	Focus	Conditions
5/27/2004	7:30 a.m.–NR	VRJ	Survey Areas 2 and 7	68°F; 100% cc; 0–1 mph winds
6/2/2004	6:30 a.m.–NR	VRJ	Survey Areas 3 and 14	63°F; 100% cc; 0–3 mph winds
6/17/2016	7:45 a.m.–1:00 p.m.	KCD, DAM	*Monardella viminea* Focused Survey	70°F–83°F; 70%–83% cc; 0–2 mph winds
Coastal California Gnatcatcher Surveys				
8/2/2005–8/31/2005	Varied	PML	CAGN	See Appendix D, 2005 Focused Coastal California Gnatcatcher Survey Report
4/28/2016–6/29/2016	Varied	Dudek and subconsultants	CAGN	See Appendix E, 2016 Focused Coastal California Gnatcatcher Survey Report
Riparian Bird Surveys				
4/20/2016–7/7/2016	Varied	PCS, CJF, JMW, BAO, MO	LBVI/WIFL	See Appendix F, 2016 Focused Least Bell's Vireo/Southwestern Willow Flycatcher Survey Report
Hermes Copper Butterfly Habitat Assessment and Surveys				
5/15/2004	11:00 a.m.–4:00 p.m.	BAO	HECO	70°F–75°F; 0%–20% cc; 1–3 mph wind
5/23/2004	11:00 a.m.–4:00 p.m.	BAO	HECO	70°F–73°F; 0% cc; 0–5 mph wind
6/8/2004	10:00 a.m.–4:00 p.m.	BAO	HECO	67°F–74°F; 60% cc; 0–5 mph wind
6/16/2004	10:00 a.m.–4:00 p.m.	BAO	HECO	67°F–73°F; 70% cc; 0–7 mph wind
6/27/2004	12:00 p.m.–6:00 p.m.	BAO	HECO	73°F–76°F; 60% cc; 0–5 mph wind
7/4/2004	11:00 a.m.–4:00 p.m.	BAO	HECO	75°F–78°F; 0% cc; 1–3 mph wind
5/5/2014	8:00 a.m.–4:00 p.m.	VRJ	HECO Habitat Assessment, Survey and Mapping	66°F–72°F; 60%–80% cc; 3–8 mph wind
5/19/2014	9:00 a.m.–4:00 p.m.	VRJ, BAO, MLB	HECO Habitat Assessment, Survey and Mapping	65°F–75°F; 50%–70% cc; 3–5 mph wind
6/2/2014	8:00 a.m.–4:30 p.m.	VRJ, BAO, MLB	HECO Habitat Assessment, Survey and Mapping	60°F–85°F; 0%–80% cc; 3–5 mph wind
6/16/2014	8:00 a.m.–3:00 p.m.	VRJ, MLB, DAM	HECO Habitat Assessment, Survey and Mapping	62°F–81°F; 0%–50% cc; 1–3 mph wind
6/30/2014	9:00 a.m.–5:00 p.m.	VRJ, BAO, MLB	HECO Habitat Assessment, Survey and Mapping	65°F-83°F; 30%–10% cc; 0–5 mph wind
5/18/2016	11:25 a.m.–3:29 p.m.	JMW, PCS	Pass 1; Survey Areas 1 and 3	74°F–79°F; 0% cc; 1–2 mph wind

Table 3-1
Schedule of Surveys for Fanita Ranch

Date	Hours	Personnel	Focus	Conditions
5/18/2016	1:00 p.m.–4:00 p.m.	JDP	HECO Pass 1; Survey Area 5	78°F–82°F; 0% cc; 1–6 to 3–8 mph wind
5/18/2016	10:30 a.m.–4:40 p.m.	BP	HECO Pass 1; Survey Area 7	72°F–74°F; 10% cc; 0–3 mph wind
5/19/2016	11:24 a.m.–3:28 p.m.	JMW, PCS	HECO Pass 1; Survey Areas 1, 2, and 3	72°F–77°F; 0% cc; 1 to 0–3 mph wind
5/19/2016	12:00 p.m.–4:00 p.m.	JDP	HECO Pass 1; Survey Area 6	82°F–84°F; 0% cc; 3–9 to 2–8 mph wind
5/20/2016	12:32 p.m.–4:33 p.m.	EJB	HECO Pass 1; Survey Area 7	70.2°F–73.8°F; 10% cc; 0.2 mph wind
5/27/2016	10:55 a.m.–5:24 p.m.	KS	HECO Pass 1, Survey Area 1, 2, and 4	73°F; 0%–10% cc; 4–8 mph wind
5/27/2016	11:15 a.m.–6:26 p.m.	MP	HECO Pass 1, Survey Area 1, 2, and 4	73°F–75°F; 10% cc; 0–1 to 0–3 mph wind
5/27/2016	11:00 a.m.–5:30 p.m.	JMW, MOC	HECO Pass 1; Survey Areas 5 and 7	73°F–75°F; 0%–10% cc; 1 mph wind
5/27/2016	11:00 a.m.–5:15 p.m.	SCG, EAW	HECO Pass 1; Survey Area 4	73°F–75°F; 0%–10% cc; 11 mph wind
5/27/2016	10:32 a.m.–6:05 p.m.	SCG	HECO Pass 1; Survey Areas 4 and 5	73°F–76°F; 10% cc; 0–2 to 0–3 mph wind
6/6/2016	12:35 p.m.–4:53 p.m.	EJB	HECO Pass 2; Survey Area 8	76.9°F–79.8°F; 0% cc; 0.5–1.8 mph wind
6/7/2016	11:50 a.m.–4:00 p.m.	JDP	HECO Pass 2; Survey Area 18	76°F–82°F; 10%–20% cc; 1–5 to 2–6 mph wind
6/7/2016	12:01 p.m.–4:35 p.m.	EJB	HECO Pass 2; Survey Area 9	80.3°F; 0%–10% cc; 0.8–0.9 mph wind
6/8/2016	10:20 a.m.–4:48 p.m.	JM	HECO Pass 2; Survey Areas 3 and 4	70°F–79°F; 0%–20% cc; 0–1 to 1 mph wind
6/8/2016	10:21 a.m.–4:47 p.m.	JMW	HECO Pass 2; Survey Areas 3 and 4	70°F–79°F; 0%–20% cc; 1 mph wind
6/8/2016	10:19 a.m.–4:45 p.m.	KS	HECO Pass 2; Survey Areas 3 and 4	70°F–79°F; 20% cc; 6–10 mph wind
6/8/2016	12:00 p.m.–4:00 p.m.	JDP	HECO Pass 2; Survey Area 1	76°F–82°F; 0%–50% cc; 2–7 to 0–4 mph wind
6/8/2016	12:00 p.m.–3:00 p.m.	PML	HECO Pass 2; Survey Area 7	77°F–84°F; 20%–30% cc; 3–5 to 4–7 mph wind, 6–10 mph wind gusts
6/9/2016	11:51 a.m.–3:06 p.m.	JM	HECO Pass 2; Survey Areas 1, 2, 3, and 4	70°F–77°F; 10% cc; 0–2 mph wind
6/9/2016	11:51 a.m.–3:07 p.m.	JMW	HECO Pass 2; Survey Areas 1, 2, 3, and 4	70°F–77°F; 0%–10% cc; 1 mph wind
6/9/2016	12:00 p.m.–4:00 p.m.	JDP	HECO Pass 2; Survey Area 1	74°F–81°F; 0%–20% cc; 0–5 to 1–6 mph wind
6/9/2016	12:40 p.m.–3:45 p.m.	PML	HECO Pass 2; Survey Area 7	74°F–76°F; 10% cc; 3–8 to 5–10 mph wind

Table 3-1
Schedule of Surveys for Fanita Ranch

Date	Hours	Personnel	Focus	Conditions
6/10/2016	10:39 a.m.–3:17 p.m.	KS	HECO Pass 2; Survey Areas 1, 2, and 4	75°F–81°F; 10%–20% cc; 5–10 mph wind
6/10/2016	12:28 p.m.–3:15 p.m.	SCG	HECO Pass 2; Survey Area 7	79°F–81°F; 10%–20% cc; 0–4 to 0–3 mph wind
6/10/2016	10:33 a.m.–3:17 p.m.	CJF, PCS	HECO Pass 2; Survey Areas 1, 2, and 4	72°F–81°F; 10%–20% cc; 1–2 to 0–3 mph wind
6/20/2016	12:00 p.m.–3:00 p.m.	JDP	HECO Pass 3; Survey Area 2	102°F–106°F; 0% cc; 1–5 mph wind
6/20/2016	12:10 p.m.–2:30 p.m.	PML	HECO Pass 3; Survey Areas 5 and 7	94°F–95°F; 0% cc; 3–6 to 4–8 mph wind
6/21/2016	7:10 a.m.–11:50 AM	JM, JMW, KS, MP	HECO Pass 3; Survey Area 4	73°F–85°F; 70%–100% cc; 2–4 to 5–6 mph wind
6/22/2016	8:59 a.m.–3:28 p.m.	JMW	HECO Pass 3; Survey Areas 1, 3, 4, and 5	83°F–92°F; 0%–20% cc; 1–7 mph wind
6/22/2016	9:01 a.m.–3:22 p.m.	KS	HECO Pass 3; Survey Area 4	83°F–92°F; 0%–20% cc; 3–10 mph wind
6/22/2016	12:30 p.m.–4:00 p.m.	JDP	HECO Pass 3; Survey Area 8	90°F–94°F; 0%–10% cc; 3–9 mph wind
6/22/2016	1:00 p.m.–3:15 p.m.	PML	HECO Pass 3; Survey Areas 5 and 7	90°F–92°F; 10%–20% cc; 4–10 to 5–10 mph wind
6/23/2016	10:34 a.m.–3:30 p.m.	JMW	HECO Pass 3; Survey Areas 1 and 2	84°F–88°F; 0% cc; 2–3 mph wind
6/23/2016	10:35 a.m.–3:30 p.m.	KS	HECO Pass 3; Survey Area 2	84°F–88°F; 0% cc; 3–8 mph wind
6/23/2016	8:30 a.m.–3:00 p.m.	JDP	HECO Pass 3; Survey Areas 6 and 7	72°F–88°F; 0% cc; 0–1 to 2–6 mph wind
6/23/2016	11:29 a.m.–8:07 AM	EJB	HECO Pass 3; Survey Area 9	72.5–86.7°F; 0% cc; 0.4-0.7 mph wind
6/23/2016	12:00 p.m.–2:40 p.m.	PML	HECO Pass 3; Survey Areas 5 and 7	86°F–89°F; 0% cc; 2–4 to 3–5 mph wind
6/24/2016	12:10 p.m.–5:34 p.m.	EJB	HECO Pass 3; Survey Area 11	80.6°F–85.9°F; 0% cc; 0.3 mph wind
7/5/2016	9:08 a.m.–5:48 p.m.	EJB	HECO Pass 4; Survey Area 7	73.3°F–79.7°F; 0%–10% cc; 0.8–0.9 mph wind
7/5/2016	8:45 a.m.–3:00 p.m.	JDP	HECO Pass 4; Survey Areas 14 and 15	74°F–86°F; 0%–10% cc; 1–3 to 4–9 mph wind
7/6/2016	9:46 a.m.–2:36 p.m.	KS	HECO Pass 4; Survey Areas 1,2,3, and 4	75°F–85°F; 0% cc; 0–7 mph wind
7/6/2016	8:30 a.m.–4:00 p.m.	JDP	HECO Pass 4; Survey Areas 10, 11, 13, and 14	73°F–84°F; 0%–10% cc; 0–2 to 3–7 mph wind
7/6/2016	9:01 a.m.–6:04 p.m.	EJB	HECO Pass 4; Survey Area 5	72.9°F–78.9°F; 0% cc; 0.4–1.2 mph wind
7/7/2016	12:00 p.m.–4:00 p.m.	JDP	HECO Pass 4; Survey Area 18	88°F–89°F; 0% cc; 1–5 to 3–8 mph wind

Table 3-1
Schedule of Surveys for Fanita Ranch

Date	Hours	Personnel	Focus	Conditions
7/7/2016	9:05 a.m.–6:49 p.m.	EJB	HECO Pass 4; Survey Area 5	72.9°F–78.1°F; 0%–10% cc; 0.5–0.9 mph wind
7/8/2016	8:50 a.m.–3:00 p.m.	JDP	HECO Pass 4; Survey Areas 17 and 19	74°F–90°F; 0% cc; 1–3 to 4–8 mph wind
7/8/2016	9:27 a.m.–6:58 p.m.	EJB	HECO Pass 4; Survey Areas 3, 5, and 6	75.3°F–78.1°F; 0% cc; 0.2–1.2 mph wind
Listed Large Branchiopods (Fairy Shrimp) Habitat Assessments and Surveys				
1/28/2004-3/30/2004	Varied	VRJ	2003–2004 Fairy Shrimp Survey/WESP Focused Surveys	See Appendix G, 2003/2004 Focused Fairy Shrimp Survey Report
11/2/2004-5/4/2005	Varied	VRJ	2004–2005 Fairy Shrimp Survey/WESP Focused Surveys	See Appendix H, 2004/2005 Focused Fairy Shrimp Survey Report
4/26/2005	12:00 p.m.–4:00 p.m.	VRJ	Vernal Pool/Road Rut Floral Inventory Surveys/WESP Focused Surveys	68°F; 0% cc; 0–5 mph winds
4/27/2005	10:00 a.m.–2:00 p.m.	VRJ	Vernal Pool/Road Rut Floral Inventory Surveys/WESP Focused Surveys	72°F; 0% cc; 0–5 mph winds
5/3/2005	10:30 a.m.–NR	VRJ	Vernal Pool/Road Rut Floral Inventory Surveys/WESP Focused Surveys	70°F; 0% cc; 0–3 mph winds
5/4/2005	10:30 a.m.–12:30 p.m.	VRJ	Vernal Pool/Road Rut Floral Inventory Surveys/WESP Focused Surveys	64°F; 100% cc; 0–3 mph winds
11/5/2015-5/8/2016	Varied	DAM, PML	2015–2016 Fairy Shrimp Survey/WESP Focused Surveys	See Appendix I, 2015/2016 Focused Fairy Shrimp Survey Report
Western Spadefoot Focused Surveys				
3/13/2017	NR	USGS (K. Neal)	WESP Sampling for Genetic Testing (10 pools)	NR
3/14/2017	10:00 a.m.–3:00 p.m.	PML	WESP	70°F–75°F; 0% cc; 1–8 mph wind
3/15/2017	9:27 a.m.–4:10 p.m.	TSL, PCS	WESP	70°F–85°F; 0%–20% cc; 0–3 mph wind
3/16/2017	10:45 a.m.–4:24 p.m.	KJM	WESP	72°F–82°F; 0% cc; 2 mph wind
Bat Surveys				
5/10/2016	10:00 a.m.–3:00 p.m.	KM, NOR	Habitat Assessment and Active Acoustic Survey	62°F–75°F; 0% cc; 0–2 mph winds

Table 3-1
Schedule of Surveys for Fanita Ranch

Date	Hours	Personnel	Focus	Conditions
7/25/2016	10:00 a.m.–4:00 p.m.	KM, PML	Passive Acoustic Survey – Deployment	80°F–88°F; 0%–10% cc; 0–2 mph winds
8/09/2016	8:00 a.m.–5:00 p.m.	PML	Passive Acoustic Survey – Deployment and Collection	NR
8/23/2016	10:00 a.m.–3:00 p.m.	PML	Passive Acoustic Survey – Collection	NR
Coastal Cactus Wren Focused Surveys and Cactus Mapping				
6/10/2017	8:00 a.m.–11:45 AM	SC	CACW	71°F–83°F; 90% cc; 1–4 to 2–6 mph winds
Wildlife Corridor Survey				
12/20/2016	9:00 a.m.–4:00 p.m.	BAO/SC	Habitat Assessment Survey	55°F–72°F; 0% cc; 0–2 mph winds
12/21/2016	9:00 a.m.–2:00 p.m.	SC	Habitat Assessment Survey	59°F–75°F; 10% cc; 0–2 mph winds
01/04/2017	8:00 a.m.–4:00 p.m.	SC	Habitat Assessment Survey	54°F–68°F; 85% cc; 0–4 mph winds
01/06/2017	10:00 a.m.–3:00 p.m.	SC	Habitat Assessment Survey	60°F–65°F; 15% cc; 0–3 mph winds
01/31/2017	8:00 a.m.–3:00 p.m.	KS/SC	Habitat Assessment Survey	55°F–71°F; 0% cc; 0–2 mph winds

Notes: cc = cloud cover; NR = not recorded.
Hours and weather conditions for the jurisdictional wetland delineation, vegetation mapping, rare plant surveys, and fairy shrimp may be reported as NR (not recorded) because they are not relevant to the outcome of those surveys.
Personnel: KCD = Kathleen Dayton; KM = Kyle Mathews; DAM = Danielle Mullen; EAW = Emily Wier; SCG = Scott Gressard; MP = Marshall Paymard; CJF = Callie Ford; PCS = Patricia Schuyler; EJB = Erin Bergman; TSL = Thomas Liddicoat; JDP = Jeff Priest; PML = Paul Lemons; AMH = Anita Hayworth, PhD; BAO = Brock Ortega; TWP = Tricia Wotipka; MO = Madison Ortega; JMW = Janice Wondolleck; JM = Jake Marcon; ACT = Andrew C. Thomson; KS = Kevin Shaw; SC = Shana Carey; MOC = Monique O'Conner; SV = Shane Valiere; VRJ = Vipul R. Joshi; KJM = Kam Johari Muri; MLB = Michelle L. Balk; DWF = David W. Flietner; MSE = Megan S. Enright; JLM = John L. Minchin; BP = Bonnie Peterson; KAM = Karen Mullen; NOR = Noelle Ronan; USGS = U.S. Geological Survey.
Survey Designations/Focus: QCB = habitat assessment for Quino checkerspot butterfly; BUOW = focused survey for burrowing owl; ARTO = arroyo toad habitat assessment; RP = rare plant survey; VEG = vegetation mapping; JD = jurisdictional delineation; CAGN = focused survey for coastal California gnatcatcher.

3.2.1 Resource Mapping

Initial mapping for the project area was conducted by Dudek in the early 1990s and finalized in 1996, with some modifications in 1997. Approximately 60% of this mapping was field checked in May 2003 and conditions were found to be generally consistent. Modifications to the remaining mapping consisted primarily of updating previous vegetation classification to reflect on-site succession since the initial mapping. The project area was assessed again in spring 2004 to address potential changes in vegetation resulting from the October 2003 Cedar Fire that burned nearly all of the project area. The exact status of the vegetation communities could not be accurately determined, due to the early successional stage of the recently burned vegetation. Consequently, no updates to the resource mapping were completed during the 2004 field check, with the exception

of modifications to jurisdictional aquatic resources (i.e., waters and wetlands). Dudek revisited the project area in 2014 to verify and update the vegetation mapping.

Vegetation communities and land uses within the project area, including the Cuyamaca Street extension, were mapped in the field directly onto a 200-foot-scale (1 inch = 200 feet), aerial photograph-based field map of the project area. Following completion of the fieldwork, all vegetation polygons were transferred to a topographic base and digitized using ArcGIS and a geographic information system (GIS) coverage was created. Once in ArcGIS, the acreage of each vegetation community and land cover present within the project area was determined. Vegetation community classifications originally followed Holland (1986) and were updated to Oberbauer et al. (2008), where feasible, with modifications to accommodate the lack of conformity of the observed communities to those of Holland (1986) or Oberbauer et al. (2008).

Because of past and current land disturbances (i.e., fire and unauthorized vehicles), portions of native plant communities within the project area are in a disturbed state. As such, visual estimations of vegetative cover were used to distinguish vegetation communities, based on Oberbauer et al. (2008). Areas that supported less than 20% native shrubs are mapped as non-native grasslands (if dominated by non-native grasses), or disturbed land (if dominated by non-native herbs or lacking vegetation). Native shrub communities are mapped based on constituent species (as described per community below). Where shrub cover is between 30% and 50%, the community is designated as disturbed. Where native grass cover is between 10% and 30%, the community is designated as disturbed. Native grasslands are mapped where native grass species occupy at least 10% of the total cover. Dual communities are mapped as areas that supported more than 20% native grasses within shrubs. Additional combinations of vegetation communities were mapped as artifacts of post-2003 fire mapping.

Dudek used its unmanned aerial drone to fly over the proposed Magnolia Avenue road extension area in 2017. This flight captured images of the entire area (outside of neighborhoods) that were stitched together to form a single, high-resolution image by which to map vegetation communities. This image provided resolution of 1 inch per pixel. Vegetation mapping was completed based on a desktop review of the image provided by the unmanned aerial drone and vegetation signatures were compared to on-the-ground mapped portions of the project area.

3.2.2 Flora

All plant species encountered during the field surveys were identified and recorded. Latin and common names for plant species with a California Rare Plant Rank (CRPR) (formerly CNPS List) follow the California Native Plant Society Online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2018). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2016), and common names follow the U.S. Department of Agriculture Natural Resources

Conservation Service Plants Database (USDA 2016b). The list of plant species observed on site is presented in Appendix J, Plant Species Observed within the Project Area.

Because of the unprecedented post-fire visual access to the project area and above normal rainfall during the 2004 botanical survey growing season, years of post-fire recovery and attendant dense non-native grass growth and thatch, and drought, it was determined that the previous sensitive plant survey efforts provided an appropriate survey baseline. It was determined that a better understanding of the relative distribution and densities of special-status plants would not be gained through repeating the surveys in 2014, 2016, or 2017. The only exception was regarding willowy monardella, which was readily visible, and the opportunity to fine-tune mapping for this species was taken.

3.2.3 Fauna

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other signs were recorded. Wildlife surveys were conducted as summarized in Table 3-1. Binoculars (8 millimeter × 32 millimeter to 10 millimeter × 50 millimeter power) were used to identify observed wildlife. In addition to species actually observed, expected wildlife use of the project area was determined by known habitat preferences of local species and knowledge of their range and relative distributions in the area. A list of wildlife species observed or detected on site is presented in Appendix K, Wildlife Species Observed within the Project Area.

Latin and common names of animals follow Crother (2012) for reptiles and amphibians, American Ornithologists' Union (AOU 2016) for birds, Wilson and Reeder (2005) for mammals, and North American Butterfly Association (NABA 2016) or San Diego Natural History Museum (SDNHM 2002) for butterflies.

Because of the project area fire history and long survey history, species data must sometimes be analyzed with caution. Depending on the recovery stage of the habitat and the date of the focused species survey, some species data points may appear in typically unsuitable habitat. For example, historic grasshopper sparrow data points appearing in current scrub habitats would provide an erroneous picture of their current presence on site. In addition, for some species, there are multiple years of data points, which if reviewed without context could lead to erroneously high population numbers (e.g., duplicate coastal California gnatcatcher points from multiple years). In these cases, data had to be carefully analyzed to ensure that it was assessed based on the current condition where appropriate and the potential eventual suitability where appropriate. For these purposes, it was determined that using a combination of historical and current data for least Bell's vireo, fairy shrimp, and western spadefoot was appropriate, but using only current data for coastal California gnatcatcher and coastal cactus wren was most appropriate.

3.2.4 Jurisdictional Delineation

In May 2016, Dudek biologists updated the previous jurisdictional delineation conducted in March and June 2004. The 2016 delineation focused on spot checking wetland/riparian habitat previously delineated to determine if there were changes in field conditions since the 2004 delineation and, if present, to map the extent of those changes. In addition, the majority of the non-wetland waters/streambeds within the project area were reviewed to confirm the previously mapped extent of the features. The delineations defined areas under the jurisdiction of CDFW pursuant to Sections 1600–1603 of the California Fish and Game Code, under the jurisdiction of ACOE pursuant to Section 404 of the federal Clean Water Act, and under the jurisdiction of the RWQCB pursuant to Clean Water Act Section 401 and the Porter-Cologne Water Quality Protection Act.

The updated delineation was conducted in accordance with the methods prescribed in the 1987 Wetland Delineation Manual (ACOE 1987), the 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (ACOE 2008a), and A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (ACOE 2008b). The information required to process an approved jurisdictional determination in accordance with the ACOE/U.S. Environmental Protection Agency Rapanos Guidance (ACOE and EPA 2008) was gathered for the project area. During the jurisdictional delineation surveys, the majority of the project area was walked and evaluated for evidence of an ordinary high water mark, surface water, saturation, wetland vegetation, and nexus to a traditional navigable water of the United States. The extent of any identified jurisdictional areas was determined by mapping the areas with similar vegetation and topography to the sampled locations.

Pursuant to the federal Clean Water Act, ACOE and RWQCB wetland waters include those supporting all three wetlands criteria described in the ACOE manual: (1) hydric soils, (2) hydrology, and (3) hydrophytic vegetation. Areas regulated by the RWQCB are generally coincident with the ACOE, but can also include isolated features that have evidence of surface water inundation pursuant to the Porter-Cologne Water Quality Protection Act. These areas generally support at least one of the three ACOE wetlands indicators, but are considered isolated through the lack of surface water hydrology/connectivity downstream.

A predominance of hydrophytic vegetation, where associated with a stream channel, was used to determine CDFW-regulated riparian areas. Streambeds under the jurisdiction of CDFW were delineated using the Cowardin method of waters classification, which defines waters boundaries by a single parameter (i.e., hydric soils, hydrophytic vegetation, or hydrology) (Cowardin et al. 1979).

To assist in the determination of jurisdictional areas within the project area, data were collected at eight sampling points (Appendix L, Jurisdictional Delineation Wetland Sampling Point Forms).

Hydrology, vegetation, and soils were assessed and sampling data were collected on approved ACOE forms. The project area was evaluated for evidence of an ordinary high water mark, surface water, saturation, wetland vegetation, and nexus to a traditional navigable water. The extent of jurisdictional aquatic resources was determined by mapping the areas with similar vegetation and topography to sampled locations.

Features that convey or hold water are regulated by multiple agencies. Federal, state, and local agencies have different definitions and terminology for these types of features. Water-dependent resources regulated by ACOE, RWQCB, and CDFW are collectively referred to as jurisdictional aquatic resources herein. Terminology used in this document to distinguish each jurisdictional aquatic resource according to the agency that regulates the resource is as follows:

- **ACOE and RWQCB:** "Wetland" and "non-wetland waters." Wetland waters of the United States and non-wetland waters of the United States are subject to regulation by ACOE and RWQCB, pursuant to the Clean Water Act. Within the project area, ACOE waters of the United States and wetlands and RWQCB waters of the United States and wetlands overlap, and therefore are combined under the terms "non-wetland waters" and "wetlands."
- **CDFW:** "Riparian areas" and "streambeds." Lakes, rivers, and streams, including any associated riparian habitat, are subject to regulation by CDFW pursuant to the California Fish and Game Code. Within the project area, CDFW streambeds often overlap with ACOE and RWQCB non-wetland waters, and CDFW riparian areas often overlap with ACOE and RWQCB wetlands.

3.2.5 Special-Status Plant Species

Focused surveys for special-status plant species were conducted in 2004 at the appropriate phenological stage (blooming and fruiting) to detect and identify the target species. Surveys were conducted within suitable habitat areas within the project area, including along the proposed off-site Cuyamaca Street extension. The previous fire in 2003 and adequate rainfall provided substantial plant growth during the 2004 survey season. Following the survey effort in 2004, the climatic conditions worsened (i.e., drought) and led to years of recovery, non-native grass growth, non-native species competition, and reduced visibility to detect plants. Therefore, the 2004 survey effort provided the most comprehensive data set regarding special-status plant species. The entire project area was surveyed at a rate of 100 acres per person/day. Field survey methods and mapping of rare plants generally conformed to CNPS Botanical Survey Guidelines (CNPS 2001), Protocols for Surveying and Evaluating Impacts to Special Status Native Populations and Natural Communities (CDFG 2009), and General Rare Plant Survey Guidelines (Cypher 2002). Special-status plant observations were mapped in the field using a GPS receiver or were mapped directly onto an aerial field map to record the location of special-status plant

populations. The special-status plant observations were then digitized into the geodatabase by a Dudek GIS technician using ArcGIS software.

A focused survey for willowy monardella within the project area was conducted in June 2016 by Dudek biologists Katie Dayton and Danielle Mullen (Table 3-1). Willowy monardella was included in 2016 survey efforts due to its high sensitivity and surveyors' ability to detect the species during the survey timeframe.

3.2.6 Vernal Pool Branchiopods

Vernal pool branchiopods at Fanita Ranch were surveyed during the 2004 and 2004/2005 wet survey seasons and then again during the 2015/2016 wet survey season. A total of 242 unique features were surveyed (excluding one feature occurring outside the project area) during all survey years (Figures 3-1a through 3-1o, Vernal Pool Branchiopods). A summary of each survey effort is provided below and the survey reports are included as Appendices G, H, and I. All surveys were conducted by biologists holding Section 10(a)(1)(A) recovery permits for vernal pool branchiopods (see Appendices G, H, and I for more information).

2004 and 2004/2005 Wet Season Protocol Surveys

Surveys were conducted in accordance with the USFWS interim survey protocol for listed fairy shrimp species (USFWS 1996). Dirt roads on relatively flat ground and mima mound complexes were surveyed every 1 to 2 weeks for the duration of each rainy season. During each visit, a dip-net was used to collect fauna where ponded water of a sufficient depth to allow surveying (approximately 1 inch) was present. Each basin was staked, numbered, and mapped in the field utilizing a portable GPS unit with submeter accuracy according to the maximum observed inundation perimeter. Each fairy shrimp collected was identified in the laboratory by the permitted biologists (see Appendices G and H for more details on survey methods).

The 2004 survey consisted of inspection of 71 features. In 2005, a near-record rainfall year, 44 features were resurveyed and 158 new features were observed and surveyed, with one of the new features occurring immediately outside the project boundary. Over the 2 years of surveys, 229 features were identified and surveyed to determine presence or absence of all listed vernal pool branchiopod species. Features were numbered during the 2004 season in three categories: vernal pools, road ruts, and wetland basins. All project features were classified using the ACOE (1997) Los Angeles District Special Public Notice list of potential vernal pool indicator species and a definition of a vernal pool. The features were inventoried for indicator plant species occurrences in April 2005. Due to the near-record rainfall in 2005, it is expected that all potential seasonal basins on the project area have been identified.

2015/2016 Wet Season Protocol Surveys

The intent of the 2015/2016 surveys was to look for new features not previously identified and surveyed during the previous efforts and to review previously identified features that were not documented to support listed fairy shrimp. The 2015/2016 survey methods followed the current USFWS survey guidelines protocol (USFWS 2015) for wet-season surveys. In accordance with the survey protocol, the rain event occurring between December 10 and December 13, 2015 (approximately 0.52 inches recorded), initiated the first survey of the 2015/2016 wet season. The protocol states that sampling must be initiated within 7 days of inundation, surveys must be done at approximately 1-week intervals, and surveys must continue until dried up. All suitable habitat features on site that met the USFWS inundation criteria (i.e., depth of 1.2 inches [3 centimeters] or greater 24 hours after a rain event) to initiate protocol-level surveys were sampled, and USFWS survey forms were completed. With approval from the USFWS, the 2015/2016 survey efforts only included surveying previously identified features that were documented as unoccupied features during the 2004/2005 efforts, and new identified features not previously surveyed.

During the 2015/16 wet season survey, the project area was surveyed on 13 occasions. The location of each feature sampled was recorded using a GPS unit with submeter accuracy. GPS data were downloaded into an ArcGIS file by Dudek GIS Specialist Randy Deodat (Appendix I).

During each survey, surveyors inspected the individual features for depth, surface area of water, air and water temperature, level of disturbance, and presence of aquatic wildlife. An aquarium dip net was passed through every feature that met the USFWS inundation requirement. All portions of ponded water were surveyed from the bottom to the surface by moving the dip net in a mild zigzag pattern through the feature as directed by the sampling protocol (USFWS 2015). Dip net contents were frequently viewed and algae, plants, and other debris material were discarded when occurring at high concentrations (USFWS 2015). Samples were collected, when needed, using the aquarium net and a 40-milliliter (1.4-ounce) glass vial. Specimens were stored in the vial with water collected from where the specimen was found. Specimens were taken to the laboratory within 24 hours of collection and placed in a non-denatured ethyl alcohol (200 proof) solution for preservation. Each specimen was inspected thoroughly using a dissecting microscope and soft-tip forceps. Eriksen and Belk (1999) was used to verify the species of each specimen collected. The USFWS was notified within 10 days of occupied features as stated in the protocol. Throughout the 2015/2016 season, daily precipitation was monitored from weather station KCASANTE18 in Santee, California (Weather Underground Inc. 2015–2016); these data are included in Appendix I.

A total of 35 features were identified as suitable habitat for vernal pool branchiopods and were surveyed during the 2015/2016 wet survey season. Of the 35 features that were surveyed in 2015 and 2016, 21 features were identified during previous surveys conducted in 2004 and 2005, and 14 features were identified as new in 2015 and 2016.



SOURCE: SANGIS 2017, 2019

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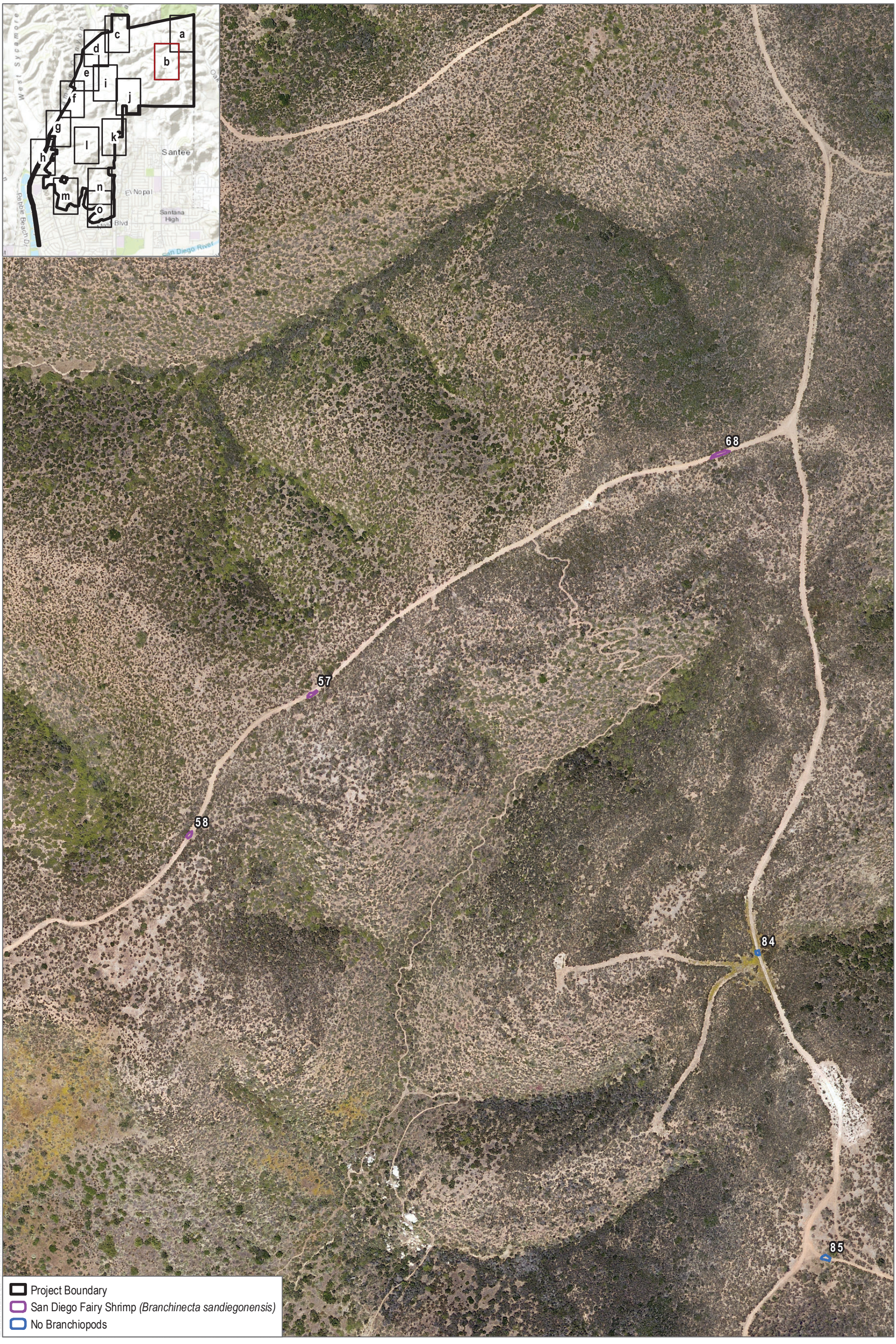
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FIGURE 3-1a

Vernal Pool Branchipods

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SOURCE: SANGIS 2017, 2019

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FIGURE 3-1b

Vernal Pool Branchipods

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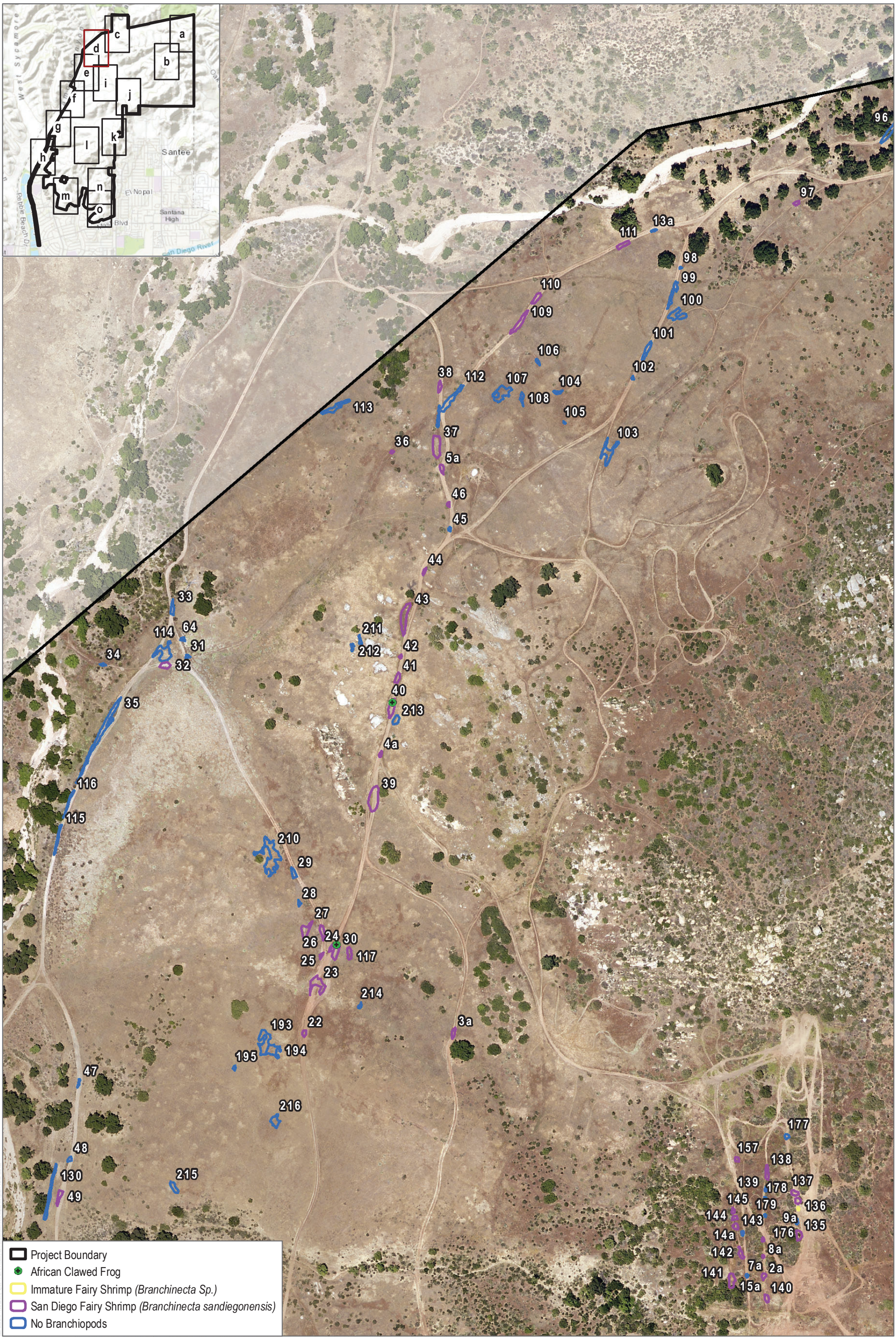
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FIGURE 3-1c

Vernal Pool Branchipods

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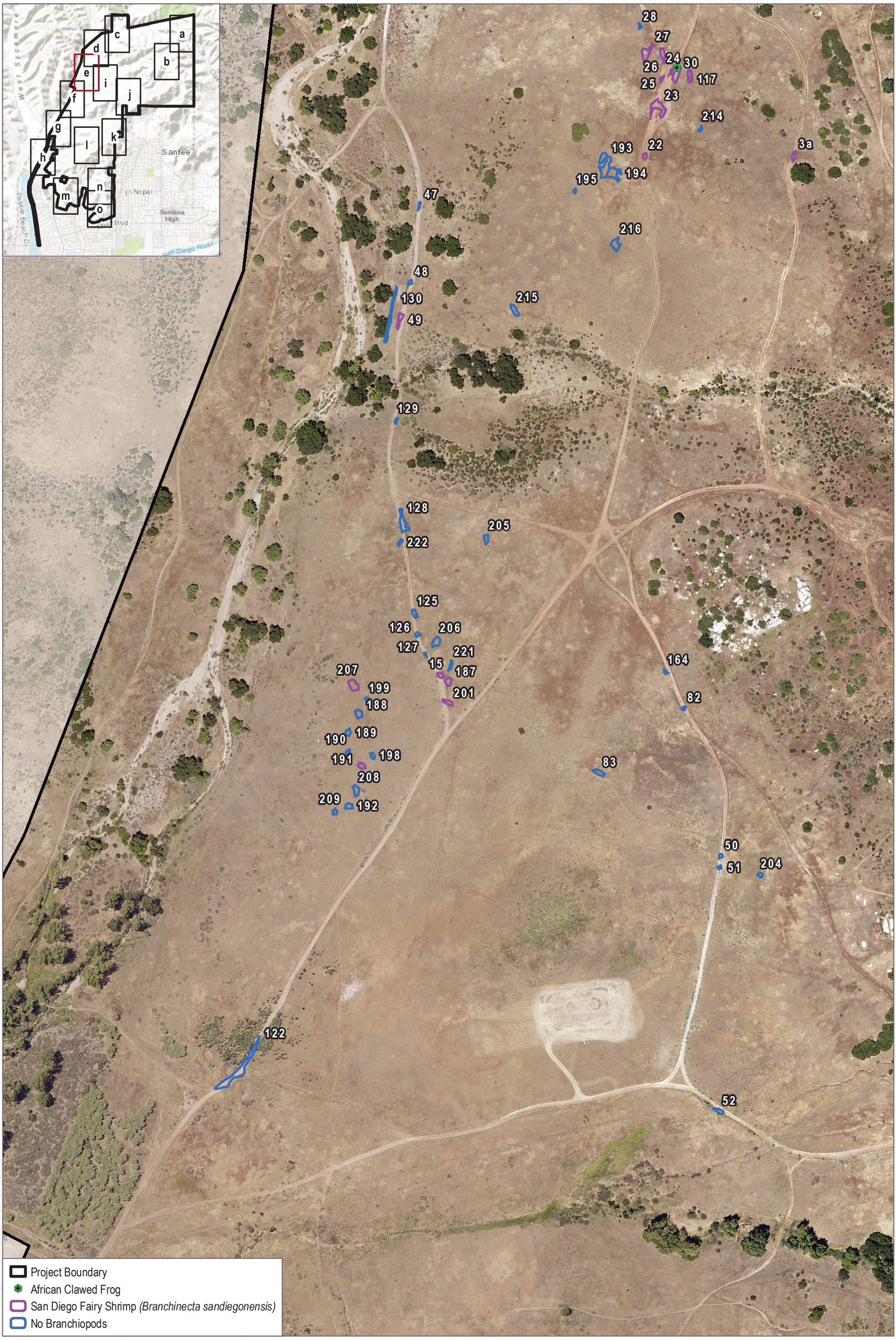
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FIGURE 3-1d

Vernal Pool Branchipods

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FIGURE 3-1e

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Vernal Pool Branchipods

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Vernal Pool Branchipods

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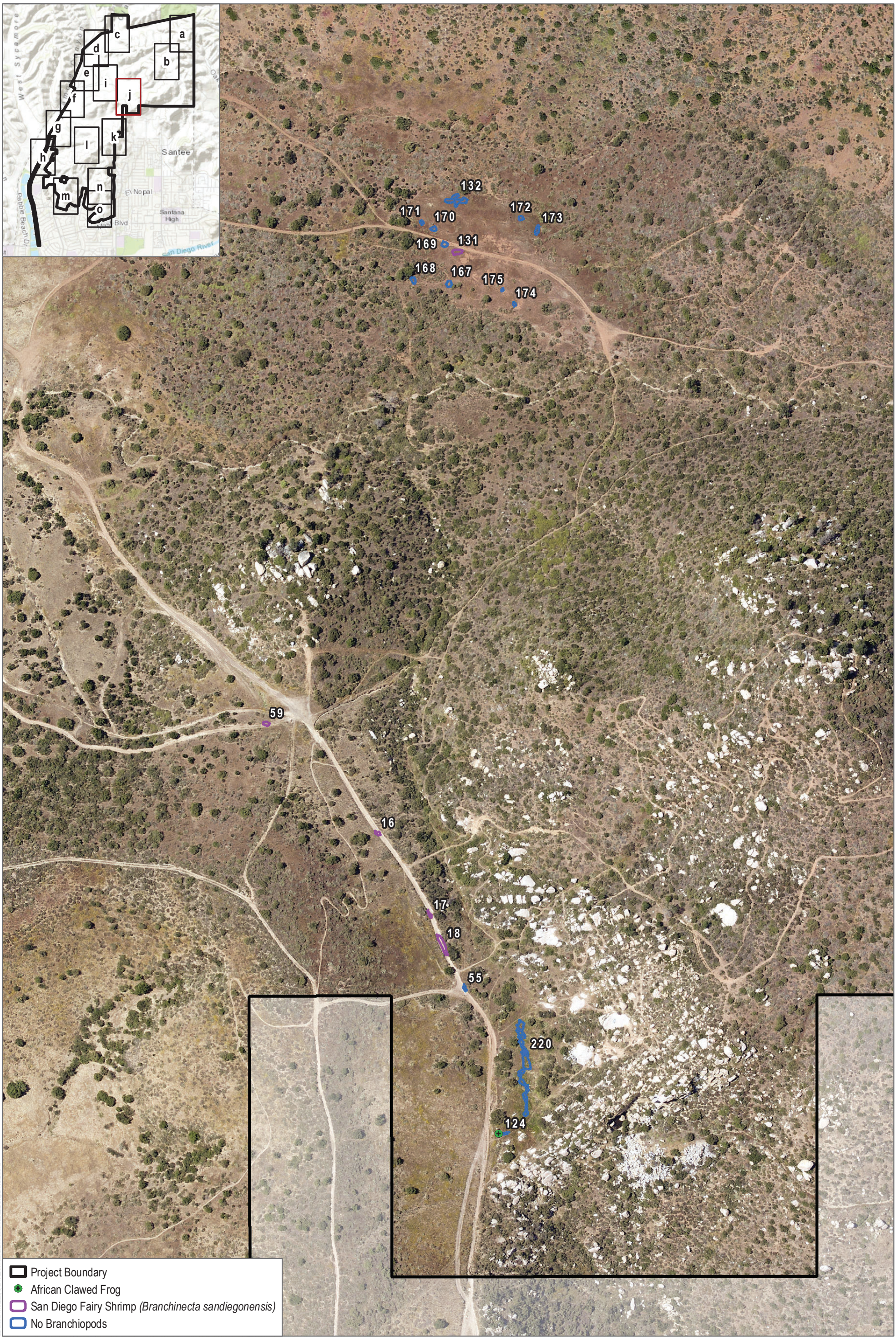
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FIGURE 3-1i

Vernal Pool Branchipods

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FIGURE 3-1k

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Vernal Pool Branchipods

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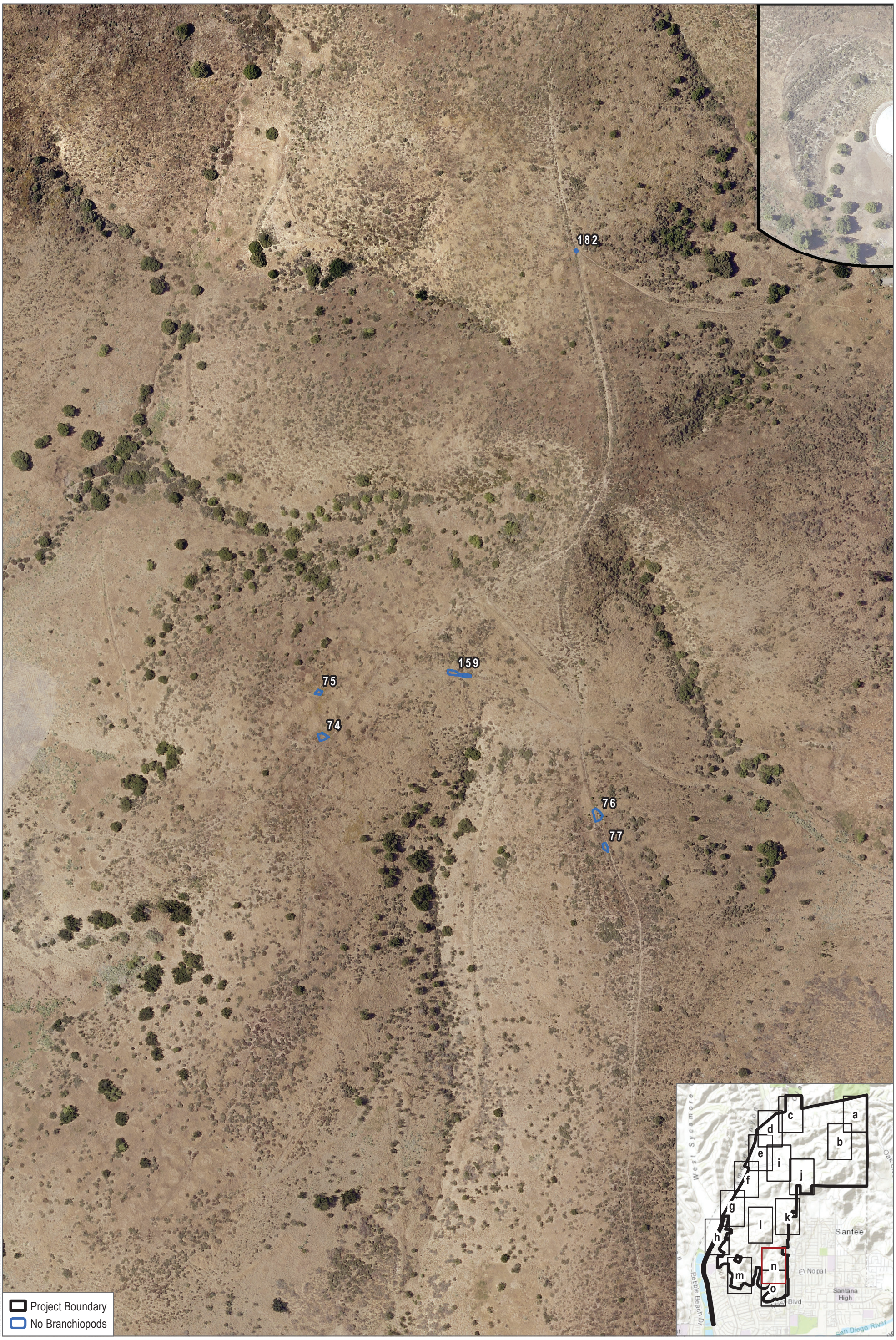
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FIGURE 3-1m

Vernal Pool Branchipods

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Vernal Pool Branchipods

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Vernal Pool Branchipods

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3.2.7 Quino Checkerspot Butterfly

Quino checkerspot butterfly focused surveys were conducted in 2004, 2005, and 2016. This report relies on the previous survey results from 2004 and 2005, as well the 2016 host plant mapping; therefore, additional information regarding all surveys is provided here and shown on Figure 3-2, Quino Checkerspot Butterfly Survey Area and Results.

2004 Protocol Surveys

The 2004 protocol-level Quino checkerspot butterfly surveys were conducted over 156 weekly visits over 7 weeks from March 8 to April 11, 2004, with two additional surveys on April 25 and May 2, 2004. The two additional surveys were conducted in order to check the highest quality portions of the project area. All potentially suitable habitat was covered each week during the survey period (Appendix A). The 26 distinct survey areas included approximately 2,421 acres. Surveys were conducted according to current USFWS protocol (USFWS 2002).

A habitat assessment over the entire project area was conducted concurrently with the initial adult flight survey to determine the extent of suitable habitat within the project area. Initially, in 2004, Dudek intended to survey only portions of the site that previously would have supported Quino checkerspot butterfly (i.e., open habitats, dirt roads, areas that were not covered completely by chaparral or grasses). After the October 2003 Cedar Fire burned nearly the entire site, Dudek expanded its survey area to include burned areas that formerly would have been considered unsuitable due to dense chaparral, coastal sage scrub, and grasslands. In an effort to cover all open areas, these areas were surveyed, but less rigorously because they would have previously been considered to be unsuitable. Within areas that were too densely vegetated to be suitable Quino checkerspot butterfly habitat, Dudek surveyed internal ridges and hilltops only.

2005 Protocol Surveys

The 2005 protocol-level Quino checkerspot butterfly surveys were conducted over 57 visits over 5 weeks between March 9 and April 17, 2005, with additional habitat assessments on adjacent lands conducted in July 2005. On January 21, 2005, shortly after Quino checkerspot butterfly larvae had been observed elsewhere, Dudek biologist Brock Ortega (Permit No. TE-813545-4), conducted a habitat assessment for Quino checkerspot butterfly larval host and adult nectar plants and selected the Quino checkerspot butterfly survey areas. The 2005 survey concentrated on the highest quality habitat in the project area. Areas that were dense chaparral, coastal sage scrub, or grasslands prior to the 2003 Cedar Fire were excluded, and only those areas that supported the best Quino checkerspot butterfly habitat were surveyed. These areas included hilltops, ridges, dirt roads, historical host plant patches, large nectar patches, seasonal basin areas, and open habitats.

Given these parameters, the surveys areas were reduced to eight areas, covering approximately 796 acres. Surveys were conducted according to current USFWS protocol (USFWS 2002).

2016 Protocol Surveys

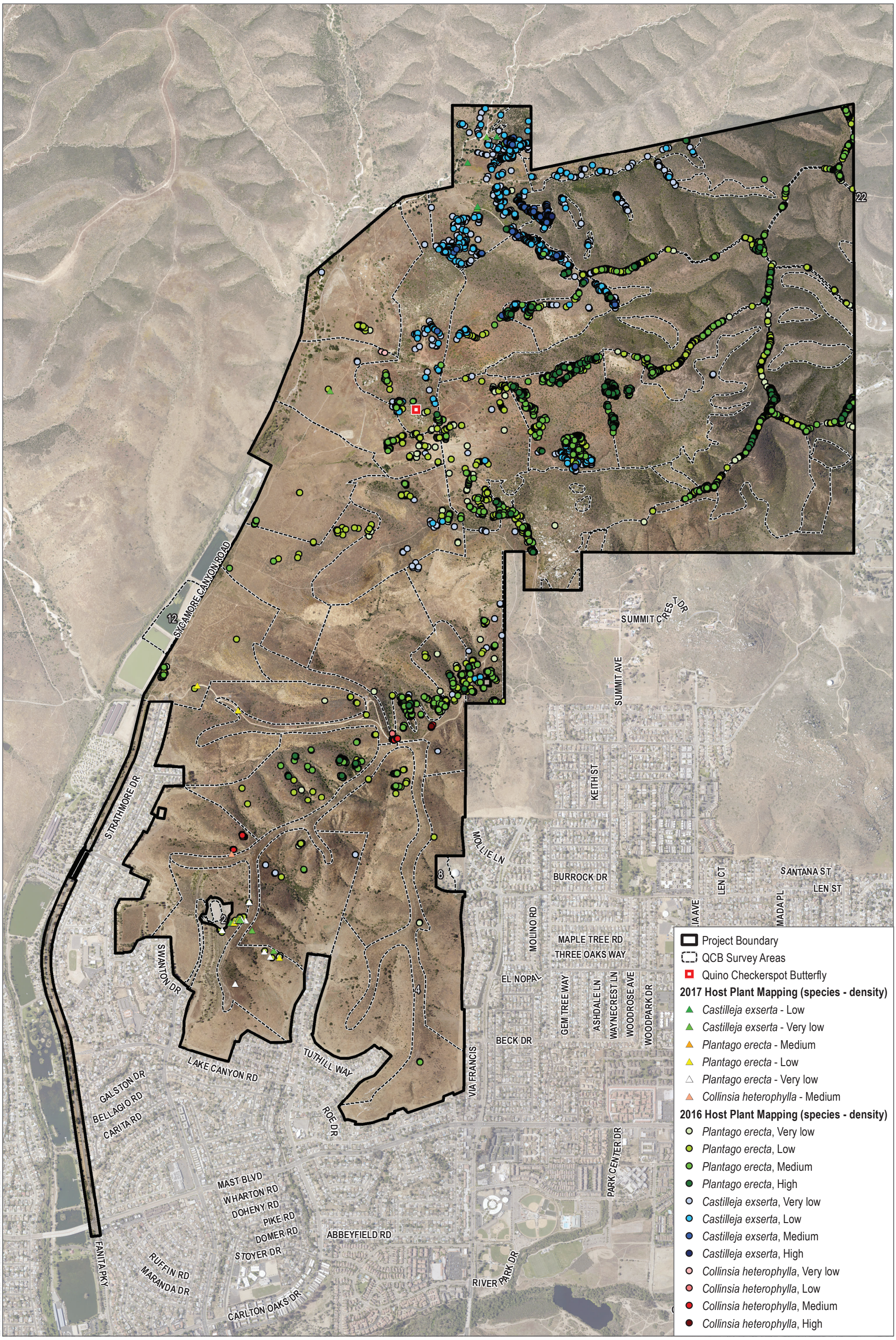
Focused surveys in 2016 were conducted in accordance with the Proposed 2016 Quino Checkerspot Butterfly Survey Protocol that was developed in coordination with USFWS, the County, and the Building Industry Association (USFWS 2016) (Appendix C). The 2016 protocol Quino checkerspot butterfly surveys were conducted over 196 surveys within a 7-week period between February 23 and April 7, 2016.

The project area was divided into 28 survey areas. The survey methods consisted of slowly walking roughly parallel transects spaced approximately 30 feet (10 meters) apart throughout all habitats within the approximately 1,995-acre survey area (USFWS 2016). Survey routes were arranged to thoroughly cover the survey area at a rate of approximately 5 to 10 acres per person hour (i.e., in accordance with USFWS-approved protocol deviation) resulting in 170 person days of effort. These survey areas were numbered and assigned to Dudek's permitted biologists and independent investigators. The biologists were provided with 200-scale (1 inch = 200 feet) aerial photographs of each survey polygon. These photographs were used for mapping host plant populations and Quino checkerspot butterfly, if observed. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species. GPS units also were available for recording locations of host plant populations.

2016 and 2017 Host Plant Mapping

Quino host plant mapping surveys were conducted within a 6-week period between March 9 and April 20, 2016, in accordance with the schedule provided in Table 3-1. Host plant areas were revisited in 2017 to confirm presence in support of the Draft Santee MSCP Subarea Plan and associated habitat modeling. All surveys were conducted on foot. Approximately 24 person days were spent conducting host plant mapping within the project area.

Biologists were able to observe reference populations of dot-seed plantain (*Plantago erecta*), which was one of the two host plants previously observed on site in 2004 and 2005, to develop a search-image before conducting surveys of the site. Host plant mapping surveys focused on the identification and location of all seven recognized host plants for Quino: dot-seed plantain, woolly plantain (*Plantago patagonica*), Coulter's snapdragon (*Antirrhinum coulterianum*), rigid bird's beak (*Cordylanthus rigidus*), purple owl's-clover (*Castilleja exserta*), Chinese houses (*Collinsia concolor*), and purple Chinese houses (*Collinsia heterophylla*) (USFWS 2014). All host plants were included in the survey; however, woolly plantain and Chinese houses do not have a western San Diego County distribution.



SOURCE: SANGIS 2017, 2019

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FIGURE 3-2

Quino Checkerspot Butterfly Survey Area and Results

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Dudek biologists recorded locations of Quino host plants using a mobile application. Data collected included the surveyor(s), date, species of host plant, and density of the host plant at the point at which the host plant was found. All host plant occurrences were mapped as points. Density was assessed per square meter and was collected using the following classes:

- Very Low: 1–19 plants per square meter
- Low: 20–100 plants per square meter
- Medium: 100–1,000 plants per square meter
- High: 1,000–10,000+ plants per square meter

Points were collected within patches of host plant at least as close as every 10 feet (3 meters). At each host plant point, surveyors recorded nectar plants observed at the host plant location, including *Allium* spp., *Asteraceae* spp., *Cryptantha* spp., *Ericameria* spp., *Lasthenia* spp., and *Layia* spp. In addition, all blooming nectar plants were recorded for the entire survey area.

At the conclusion of surveys, Dudek GIS analysts created a GIS coverage for host plants. After review by a biologist, a geodatabase was created to ensure these data are topologically correct and meet final quality control and assurance procedures.

3.2.8 Burrowing Owl

Burrowing owl is a covered species under the Draft Santee MSCP Subarea Plan and a CDFW SSC. Qualified Dudek biologists conducted a habitat assessment, followed by focused surveys in suitable habitat (e.g., grasslands, disturbed lands, and other open habitats where suitable burrow resources exist and are relatively flat or have low slopes) within the project area (Figure 3-3, Burrowing Owl Survey Areas). According to CDFW's Staff Report on Burrowing Owl Mitigation guidelines, "essential habitat for the burrowing owl in California must include suitable year-round habitat, primarily for breeding, foraging, wintering and dispersal habitat consisting of short or sparse vegetation (at least at some time of year), presence of burrows, burrow surrogates or presence of fossorial mammal dens, well-drained soils, and abundant and available prey within close proximity to the burrow" (CDFG 2012). Dudek biologists conducted surveys pursuant to the survey guidelines outlined in Appendix D of the CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012). The habitat assessment was conducted concurrently with the first survey pass and consisted of the biologist walking 15-meter transects and documenting the presence of suitable burrows and/or burrow surrogates (e.g., rock cavities, pipes, culverts, debris piles); in order for habitat to be considered suitable the location needed to be 11 centimeters or greater in diameter and greater than 150 centimeters in depth.

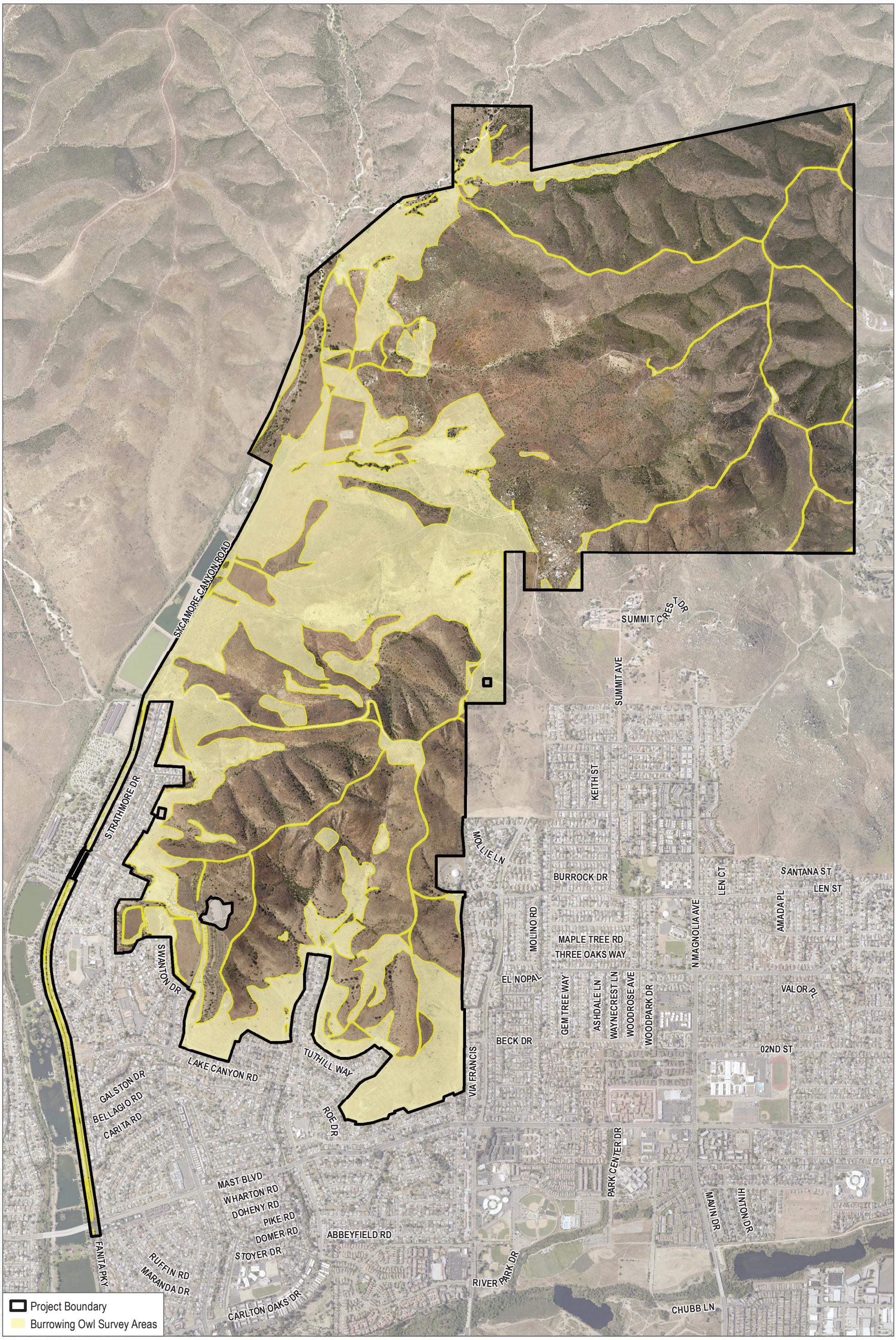
Following the habitat assessment, three focused surveys for burrowing owl and sign (i.e., owl pellets, molted feathers, abundant insect remains, and white wash) were conducted within suitable habitat. Four survey passes were conducted between March and July 2016 during daylight hours (see Table 3-1). The first visit was conducted in March 2016 and the last three visits were timed to occur at least 3 weeks apart, May through July 2016, during the peak of the breeding season.[1] All potential burrows were examined for sign and recorded using a GPS unit. Climatic conditions at the time of the survey were within protocol guidelines and surveys were conducted under good weather conditions that would permit clear detection of individuals should they occur on site.

3.2.9 Coastal California Gnatcatcher

Previous focused coastal California gnatcatcher surveys were conducted in 2005; however, all impact analysis is based on the focused surveys conducted in 2016 and therefore the 2005 surveys are not discussed in this report. For reference, the 2005 focused survey report is provided as Appendix D. Focused surveys for coastal California gnatcatcher were performed within the project area between April 25 and June 29, 2016, by coastal California gnatcatcher-permitted biologists (Figure 3-4, Coastal California Gnatcatcher Survey Area and Results). The 2016 survey report is provided in Appendix E. The surveys were conducted following USFWS's Coastal California Gnatcatcher (*Polioptila californica californica*) Presence/Absence Survey Protocol (USFWS 1997), using the breeding season survey methods. The City is no longer a participant in the NCCP interim 4(d) process because they have already permitted disturbance of all of their allotted coastal sage scrub interim loss acres; therefore, surveys included six visits (during the coastal California gnatcatcher breeding season) at a minimum of 7-day intervals.

During the 2016 survey, the project area was divided into 19 survey polygons, each representing a single-day survey effort of approximately 80 acres (i.e., in accordance with USFWS protocol for non-NCCP enrolled areas) resulting in 114 person days of effort. These survey areas were numbered and assigned to Dudek's permitted biologists and independent investigators. The biologists were provided with 200-scale (1 inch = 200 feet) aerial photographs of each survey polygon. These photographs were used for mapping coastal California gnatcatcher individuals, pairs, nests, and family groups, if observed. Binoculars were used to aid in detecting and identifying birds and other wildlife species. Appropriate birding binoculars (8 millimeters × 32 millimeters to 10 millimeters × 50 millimeters power) were used by each permitted biologist to aid in detecting and identifying bird species. A recording of vocalizations was used frequently to elicit a response from the species. The recording was played approximately every 50 to 100 feet, and when a coastal California gnatcatcher was detected, the playing of the recording ceased to avoid harassment.

[1] In California the burrowing owl breeding season extends from February 1 through August 31 (CDFG 2012). However, visits were timed to occur within the commonly accepted breeding season (April 15 through July 15) (CBOC 1997, as cited in CDFG 2012).



SOURCE: SANGIS 2017, 2019

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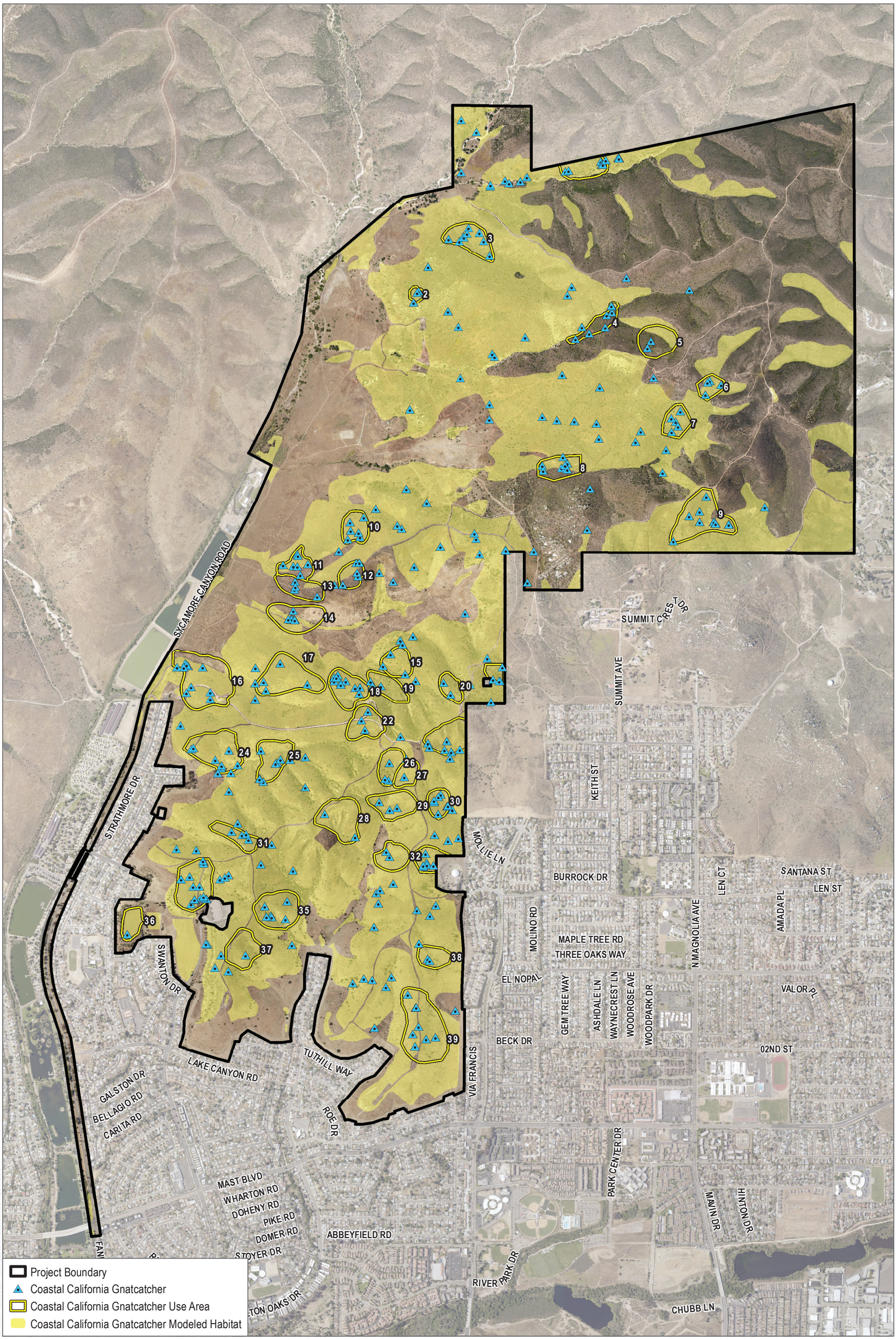
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FIGURE 3-3

Burrowing Owl Survey Areas

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SOURCE: SANGIS 2017, 2019

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FIGURE 3-4

Coastal California Gnatcatcher Survey Area and Results

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3.2.10 Riparian Birds

Suitable habitat areas within the project area were surveyed eight times for least Bell's vireo and five times for southwestern willow flycatcher (Figure 3-5, Riparian Birds Survey Area and Results). Focused surveys for these species were initiated on April 20, 2016, and continued through July 7, 2016. The survey report is provided in Appendix F.

As directed by Stacey Love, the USFWS Recovery Permit Coordinator, surveys for least Bell's vireo and southwestern willow flycatcher were not conducted concurrently. Due to differences in detectability, surveys were conducted sequentially, with surveys for the southwestern willow flycatcher first (i.e., first thing in the morning) and surveys for the least Bell's vireo conducted afterwards. Additionally, for linear survey routes within a riparian corridor, southwestern willow flycatcher were surveyed from the starting point to the end, and least Bell's vireo were surveyed on the way back.

Areas surveyed in 2016 included suitable habitat within the northeastern portion of Fanita Ranch (Figure 3-5). All surveys consisted of slowly walking a methodical, meandering transect within and adjacent to all riparian habitat on site. The perimeter also was surveyed. This route was arranged to cover all suitable habitat on site. A vegetation map (1:2,400 scale; 1 inch = 200 feet) of the project area was available to record any detected vireo or flycatcher. Binoculars (8 millimeters × 32 millimeters to 10 millimeters × 50 millimeters power) were used to aid in detecting and identifying wildlife species.

The five surveys conducted for southwestern willow flycatcher followed the currently accepted protocol (A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher [Sogge et al. 2010]), which states that a minimum of five survey visits is needed to evaluate project effects on southwestern willow flycatcher. The protocol recommends one survey between May 15 and 31, two surveys between June 1 and June 24, and two surveys between June 25 and July 17. Consistent with the protocol, surveys during the final period (June 25 and July 17) were separated by at least 5 days. A tape of recorded southwestern willow flycatcher vocalizations was used, approximately every 50 to 100 feet within suitable habitat, to induce southwestern willow flycatcher responses. If southwestern willow flycatcher were detected, tape playback ceased immediately to avoid harassment.

A Section 10(a)(1)(A) permit is not required to conduct presence/absence surveys for least Bell's vireo. The eight surveys for least Bell's vireo followed the currently accepted Least Bell's Vireo Survey Guidelines (USFWS 2001), which states that a minimum of eight survey visits should be made to all riparian areas and any other potential least Bell's vireo habitats between April 10 and July 31. The site visits are required to be conducted at least 10 days apart to maximize the detection of early and late arrivals, females, non-vocal birds, and nesting pairs. Taped playback of least Bell's vireo vocalizations was not used during the surveys per USFWS 2001 protocol. Surveys

were conducted between dawn and noon and were not conducted during periods of excessive or abnormal cold, heat, wind, rain, or other inclement weather.

3.2.11 Coastal Cactus Wren

Coastal cactus wren were observed incidentally during previous surveys in 1997, 2004, and 2016. However, habitat supporting the historical coastal cactus wren observations (i.e., cactus scrub) burned after the 2004 site review; therefore, focused surveys for this species became necessary to determine the current extent of habitat and population. Focused surveys were conducted in 2017 concurrently with cactus patch mapping (Figure 3-6, Coastal Cactus Wren Survey Areas and Results). Dudek biologists recorded locations of cactus patches using a mobile application. Data collected included the surveyor(s), date, cactus patch, and coastal cactus wren individuals. All cactus patches were mapped as polygons.

The 2017 survey was conducted by meandering through areas where previously observed individuals were known to occur and visually and acoustically identifying individuals and visually detecting active nests. All cactus patches encountered with *Opuntia* and *Cylindropuntia* species were mapped (Figure 3-6). Small patches with single cactus individuals were recorded since the cactus habitat is still recovering from the Cedar fire.

Additionally, the USGS has been performing a genetic and banding study throughout the range of the coastal cactus wren and Fanita Ranch is included in their study. A report of those efforts has not yet been published.

3.2.12 Hermes Copper Butterfly

Hermes copper butterfly focused surveys were conducted in 2004 and 2016. This report relies on the previous survey results from 2004, as well as the 2014 and 2016 host plant mapping; therefore, additional information regarding all surveys is provided here (Figure 3-7, Hermes Copper Butterfly Survey Area and Results). It should be noted that this species was incidentally observed during a reconnaissance survey conducted in May 2003 and again in 2005. The intent of the reconnaissance survey was to conduct an assessment in a very brief manner; therefore, the survey was neither all-inclusive nor thorough.

2004 Protocol Surveys

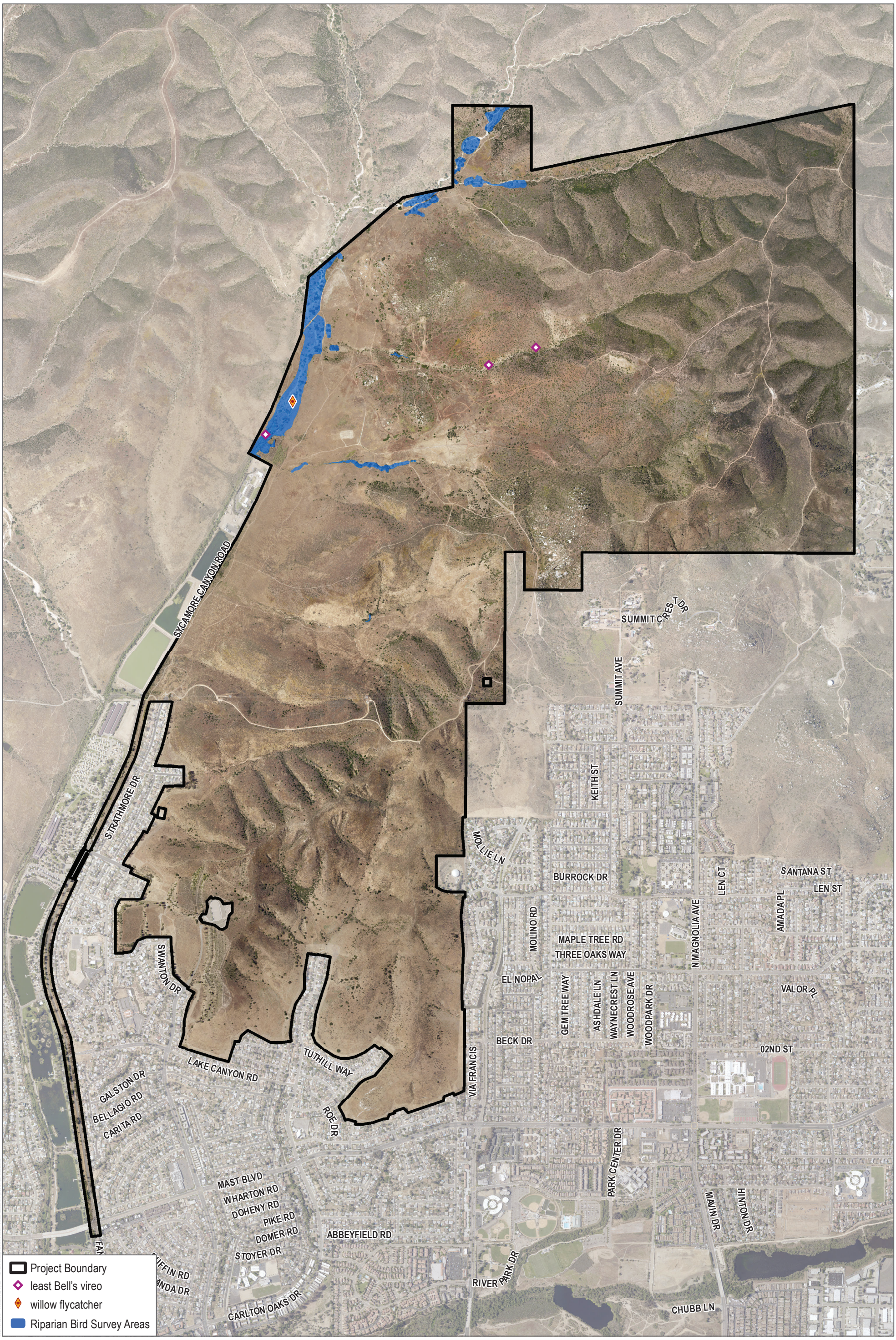
Focused surveys for Hermes copper butterfly were conducted in 2004 within portions of the site that had not burned during the 2003 Cedar Fire. These areas primarily were located in the northern portions of the project area. Only portions of these areas that supported redberry buckthorn (*Rhamnus crocea*) were surveyed. Surveys were conducted by wildlife biologist Brock A. Ortega between May 15 and July 4, 2004. Surveys consisted of meandering transects through intact (i.e., unburned) suitable habitat that supported redberry buckthorn while searching

for flying adults. Adjacent patches of California buckwheat (*Eriogonum fasciculatum*) were also searched for nectaring adults. Where readily apparent, post-fire redberry buckthorn regrowth was also reviewed for butterflies, particularly in the vicinity of previous and historical occurrences on site. However, these areas are unlikely to support Hermes copper butterfly, as they typically cannot withstand large fires and require more mature redberry buckthorn growth to persist (Faulkner and Klein 2003).

2014 and 2016 Habitat Mapping and Protocol Surveys

In 2014, Dudek mapped Hermes copper butterfly habitat in accordance with the County of San Diego Guidelines for Hermes Copper Butterfly (*Lycaena hermes*) (County of San Diego 2010). Within the project boundaries, all redberry buckthorn within 15 feet of California buckwheat was mapped as potential habitat and surveyed (Figure 3-7). Based on the habitat assessment, approximately 148 acres of the project area were determined to contain potential habitat and were surveyed. However, due to discussion with USFWS staff regarding drought conditions, and the general lack of a 2014 butterfly flight season, protocol-level adult surveys were not conducted. No Hermes copper butterflies were observed by Dudek biologists during the habitat assessment and initial survey attempt in 2014. Surveys were conducted in 2016 and consisted of four rounds of surveys from May to July, conducted per the County guidelines. To increase the likelihood of observing Hermes copper butterfly, surveys were conducted when perennial species were showing new growth (i.e., redberry buckthorn) and in bloom (i.e., California buckwheat). Suitable potential habitat for Hermes copper butterfly was confirmed during the 2016 protocol surveys. Due to unsuitable weather, as identified in the County guidelines, adjustments to the survey schedule were required. Therefore, surveys were not always conducted 8 to 14 days apart.

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SOURCE: SANGIS 2017, 2019

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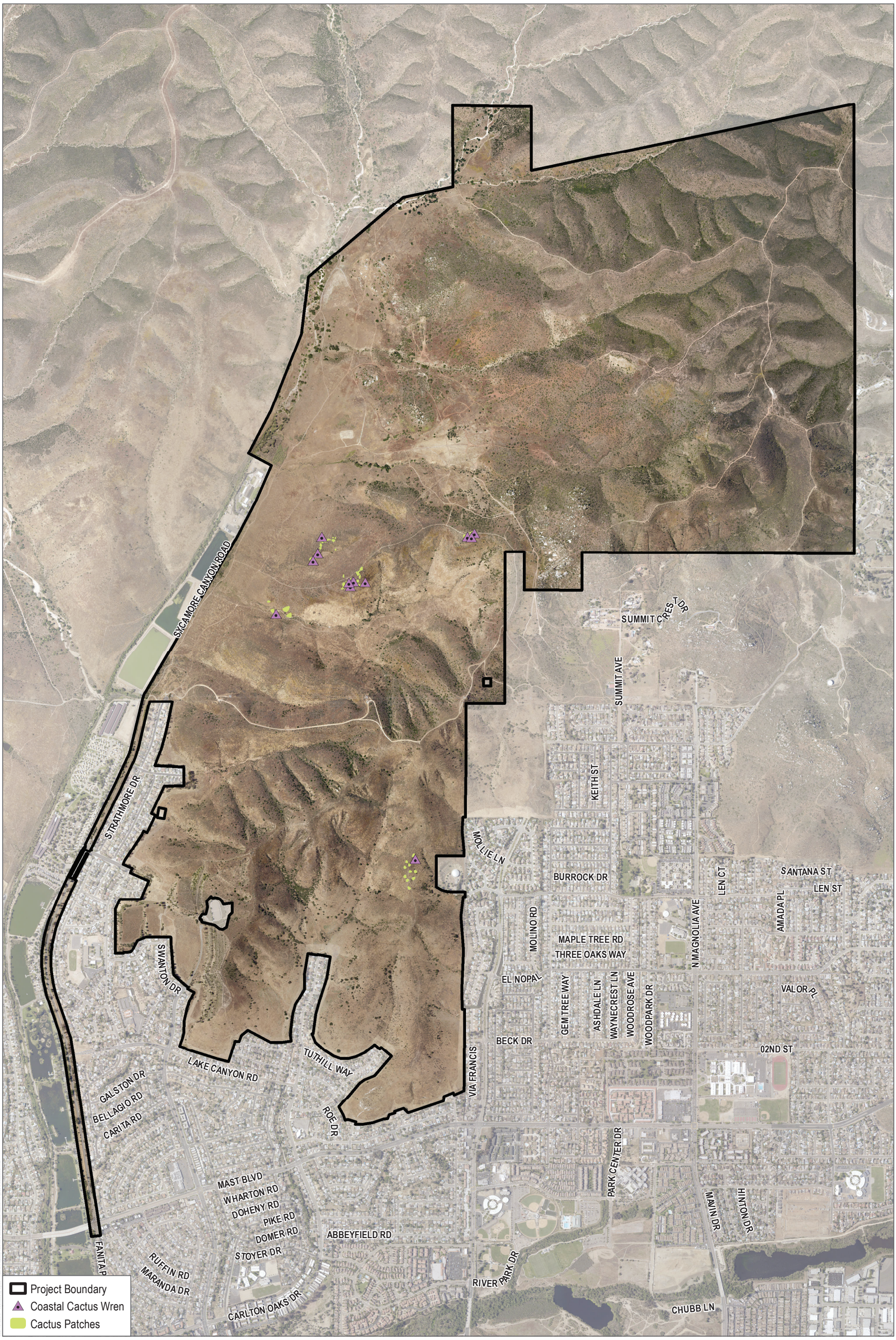
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FIGURE 3-5

Riparian Birds Survey Area and Results

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SOURCE: SANGIS 2017, 2019

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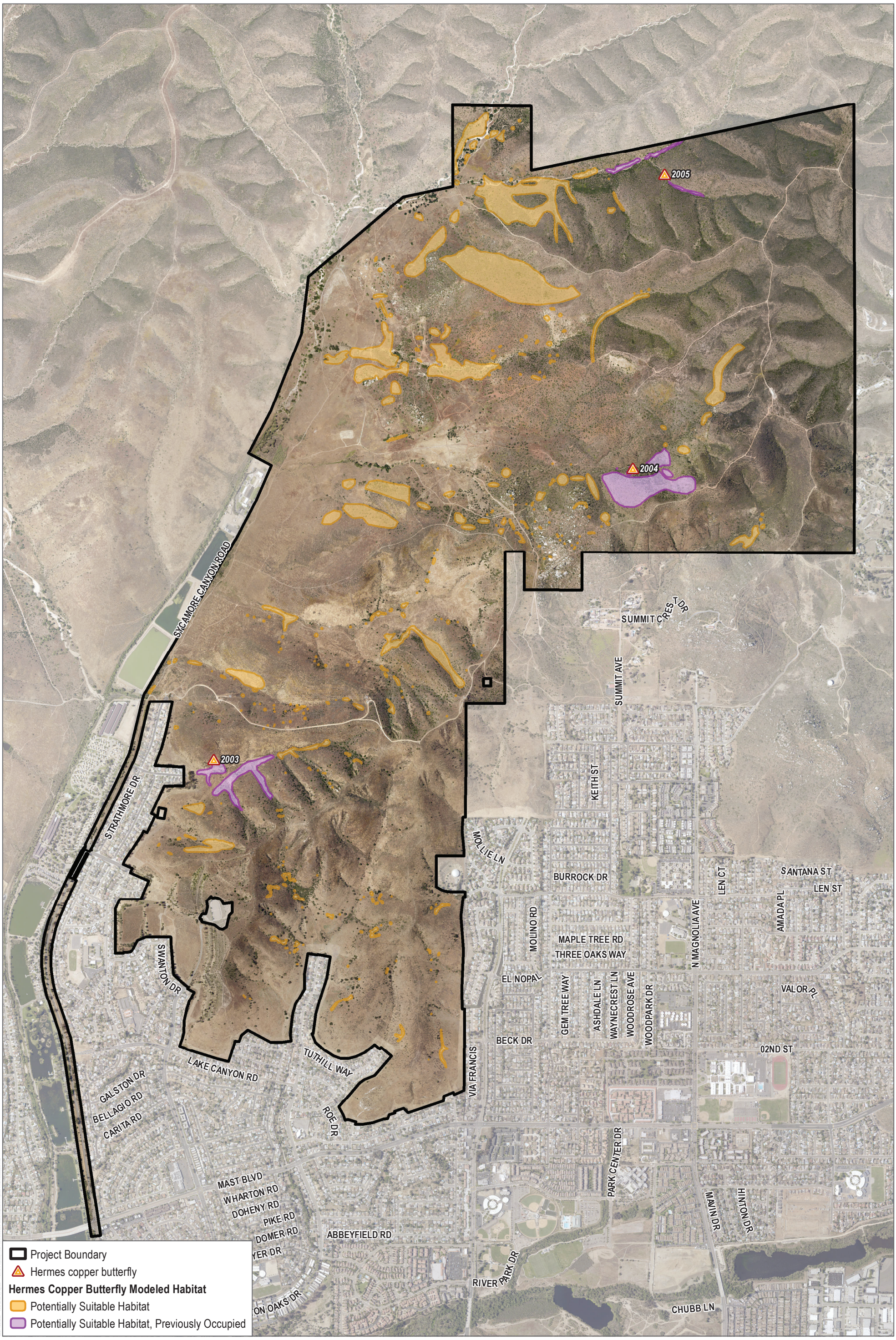
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FIGURE 3-6

Coastal Cactus Wren Survey Areas and Results

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SOURCE: SANGIS 2017, 2019

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FIGURE 3-7

Hermes Copper Butterfly Survey Areas and Resuls

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3.2.13 Western Spadefoot

The western spadefoot, also known as western spadefoot toad, is unique in that it spends the majority of the year underground in a state of torpor. The spadefoot digs a long and narrow tunnel and encapsulates itself several feet belowground. After substantial winter rainfall results in areas of pooling or ponding, spadefoots emerge at night to forage and mate at vernal pools, pond edges, and along slow-moving stream courses. Therefore, in order to identify areas of suitable habitat within a project area (i.e., ephemeral pooling or ponding) habitat assessments and focused surveys to detect western spadefoot should begin early in the rainy season after adequate rainfall.

Western spadefoot egg masses, tadpoles, and metamorphs were observed in a few areas by Dudek while conducting focused surveys for vernal pool fairy shrimp during 2004 and 2005. In order to provide a better understanding of the species' breeding distribution within and adjacent to the project area, focused surveys were conducted in March 2017 during the winter rain season. Based on the past surveys conducted and Dudek's familiarity of the project area, 121 potential suitable habitat areas (i.e., features including areas of ponding such as pools/ponds/road ruts) were surveyed for evidence of western spadefoot in 2017 (Figure 3-8, Spadefoot Toad Survey Areas and Results). At each feature, a visual inspection was conducted to detect egg masses, tadpoles, metamorphs, and burrows. If the visual inspection did not result in the detection of the species, then immediate subsequent dip-netting was performed to sample areas within the pooled area. If a feature was substantially turbid (i.e., not clear water), and a visual inspection was unreliable, dip netting was performed. Data collected for each feature that was found to support western spadefoot included pool size, water depth, pool condition, water temperature, vegetation, and other species present. Once a feature was identified as supporting western spadefoot, that feature was not resurveyed during subsequent field efforts.

In addition to Dudek's efforts, USGS reviewed Dudek 2004 and 2005 positive identification locations and collected genetic samples from tadpoles within 10 different occupied pools during a site visit on March 13, 2017. The goal was to determine if the populations and ponds within the project area are genetically connected or not for the purposes of management and corridor design between populations (Rochester et al. 2017). The City requested that USGS provide independent scientific input on western spadefoot, which is a Covered Species under the Draft Santee MSCP Subarea Plan, as required for the completion of an NCCP.

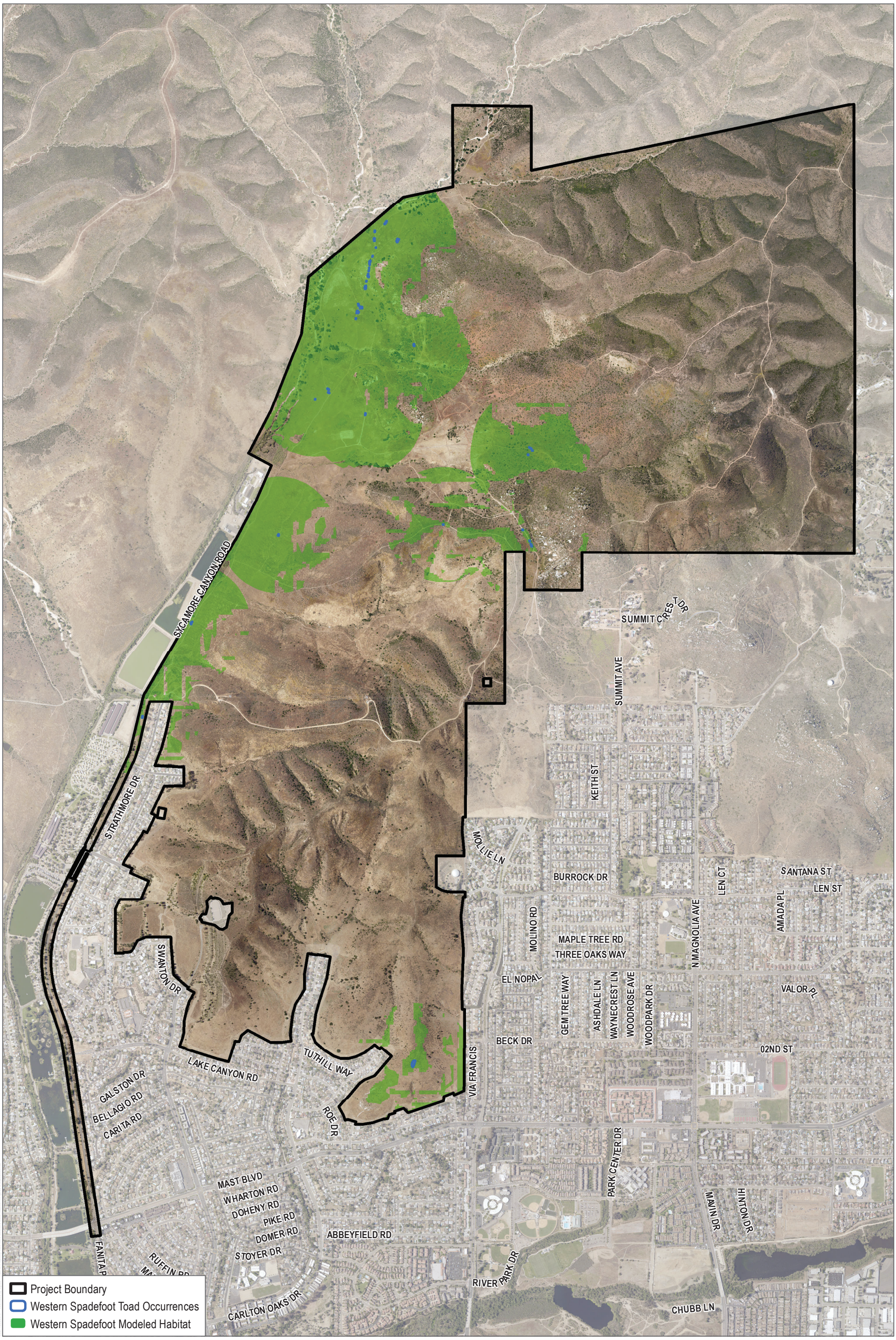
3.2.14 Bats

The purpose of the bat habitat assessment and active acoustic survey was to identify and evaluate potential features associated with habitats that could be utilized by bats for either day or night roosting within the project area. Prior to conducting fieldwork, a desktop analysis of existing biological resource data for the project area was conducted. In addition, biologists reviewed USGS

7.5-minute series topographic maps and aerial photographs to identify general topography, habitat type, drainages, and water sources.

Dudek biologists Noelle Ronan and Karen Mullen conducted a reconnaissance-level visual survey and habitat assessment while driving along roads and walking select areas of interest on May 10, 2016. The survey included a search to examine potential roosting habitat within the project area such as rock outcrops, broken tree limbs, and exfoliating tree bark primarily occurring within southern coast live oak riparian forest, southern willow scrub, sycamore alluvial woodland, and southern mixed chaparral. While conducting the visual survey and habitat assessment, Ms. Ronan and Ms. Mullen also identified and mapped suitable monitoring locations for passive acoustic surveys.

Passive acoustic surveys were conducted in July and August 2016 to acoustically monitor for the presence of bat activity within the project area. Four Anabat SD2 ultrasonic detectors (Titley Electronics, Ballina, Australia) were set out at four locations within potential roosting habitat from July 25 to August 9, 2016, then moved to four other locations from August 9 to August 23, 2016 (Figure 3-9, Bat Survey Locations). Data collected from passive acoustic bat surveys were reviewed to determine the presence of bat species within the project area. The passive acoustic bat survey results were also used to evaluate the level of bat activity at each survey station. See the bat species survey summary in Section 4.5.3.3 for survey results.



SOURCE: SANGIS 2017, 2019

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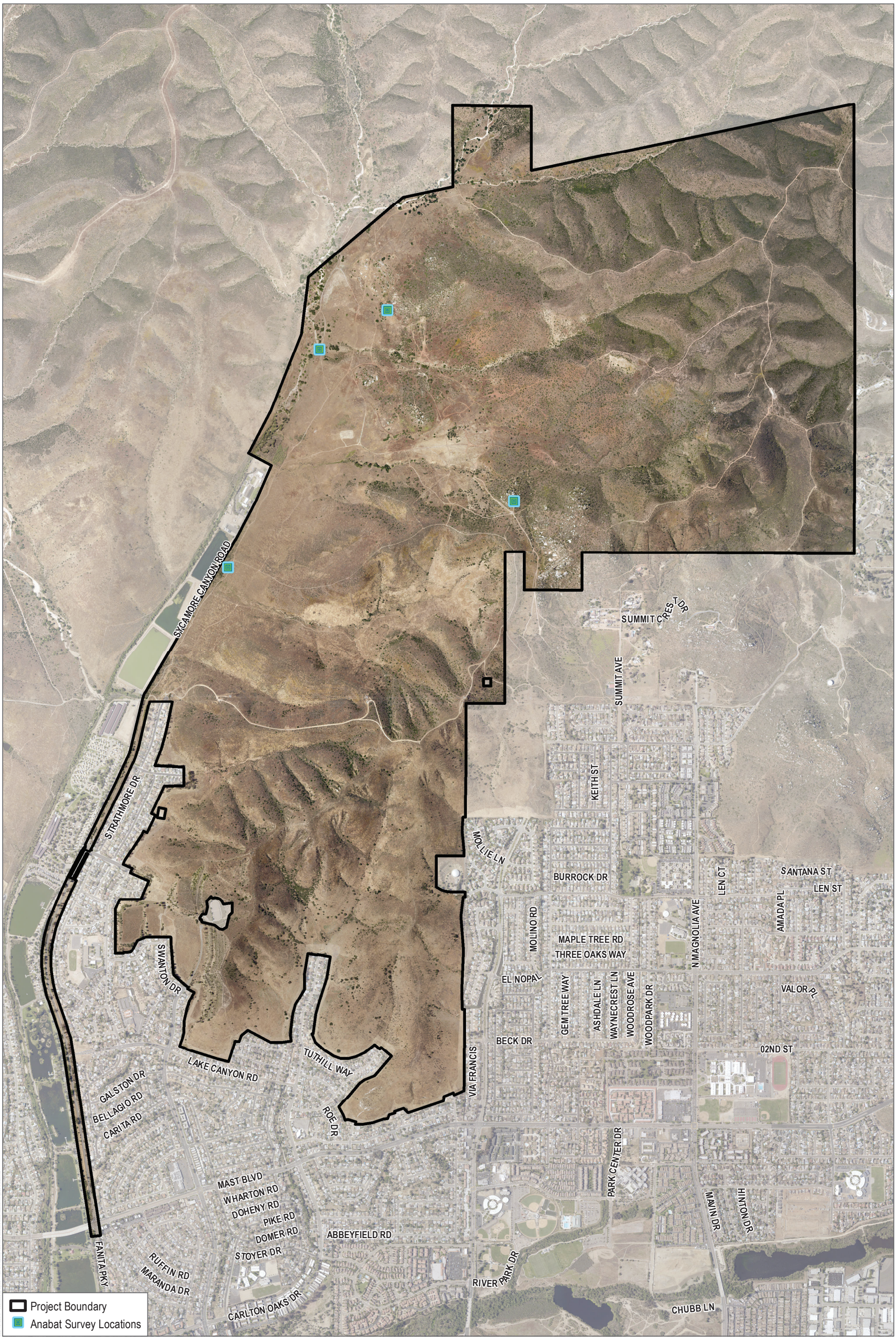
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FIGURE 3-8

Spadefoot Toad Survey Areas and Results

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SOURCE: SANGIS 2017, 2019

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FIGURE 3-9

Bat Survey Locations

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3.2.15 Wildlife Corridor Camera Study

Dudek conducted a wildlife corridor camera study throughout the project area from December 2016 to January 2017 (Figure 3-10, Camera Study Locations). The original intent was to perform the study during various seasons throughout the year. Since the project area is adjacent to both Goodan Ranch/Sycamore Canyon County Park and MCAS Miramar, which are large patches of natural open space that provide avenues for the immigration and emigration of wildlife, the purpose of this study was to assess the degree to which the project area functions as a regional wildlife movement corridor and to evaluate wildlife movement within the project area and off-site lands adjacent to the proposed project.

Within the project area, 21 camera stations were located adjacent to dirt roads along ridge tops, drainages, and water sources (i.e., creek edges) (Figure 3-10). Camera stations were set at locations determined by the biologist as best for capturing wildlife movement through the project area. Preferred sites included those that had natural funneling topography or locations where two or more dirt roads or roads and creeks intersected. Two types of wildlife cameras were used, including a Bushnell Trophy Cam Agressor Camo and Bushnell Trophy Camera Brown cameras. Digital cameras were set to fire immediately upon triggering and four shots were fired per trigger event. The trigger delay was set at 1 second. Camera aperture settings were set in the mid-range for better image sharpness and to capture the widest range of the site conditions. Cameras used infrared LED lights to minimize wildlife disturbance. In an effort to not bias the survey results, but still maintain nearby passing wildlife in the camera field of view long enough to be photographed, scent stations were deployed, but with limited scent lure. Scent stations included placement of approximately .025 teaspoons of a commercial scent lure (Gusto) on a rock in the middle of the camera's field of view. This lure is useful for all mammal species. Stations were built using a 5-foot metal pole cemented into a 5-gallon plastic bucket with a camera placed in a sealed, locked metal box attached mid-way up the pole. Due to theft, vandalizing of five cameras, and redirecting of other cameras, likely from frequent human activity (i.e., hikers, bikers, and other uses) within the project area, additional studies were not conducted during other seasons.

3.3 Habitat Modeling

In addition to field efforts, suitable habitat for all special-status wildlife species that occur or have potential to occur on site was modeled to help evaluate impacts to habitat for special-status wildlife species. Table 3-2 summarizes the models used for each species. Most of the suitable habitat models are based on the vegetation communities found on site, but some also incorporated additional information, such as slope, distance from known occurrences from survey data, and presence of host plants.

Table 3-2
Suitable Habitat Models for Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat Model
Amphibians and Reptiles		
Western spadefoot (*Spea hammondii*)	None/SSC/Covered	The following criteria was used for habitat modeling: within 300 meters of an occupied features, within vernal pool, non-native grassland, native grassland, or coastal sage scrub, and less than 20% slope. Based on occupied features rather than number of records/individuals. Number of occupied features for western spadefoot includes those recorded in 2004, 2005, 2016, and 2017.
Southern California legless lizard (*Anniella stebbinsi*)	None/SSC/None	The following vegetation communities were used for modeling: coast live oak woodland, southern willow scrub (including disturbed), mulefat scrub, southern arroyo willow riparian forest, southern sycamore-alder riparian woodland, and granitic southern mixed chaparral.
California glossy snake (*Arizona elegans occidentalis*)	None/SSC/None	The following vegetation communities were used for modeling: Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), and granitic southern mixed chaparral.
San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*)	None/SSC/None	The following vegetation communities were used for modeling: coast live oak woodland, southern willow scrub (including disturbed), mulefat scrub, southern arroyo willow riparian forest, southern sycamore-alder riparian woodland, and granitic southern mixed chaparral.
Red diamondback rattlesnake (*Crotalus ruber*)	None/SSC/None	The following vegetation communities were used for modeling: coast live oak woodland, Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), granitic southern mixed chaparral, and non-native grassland.
Blainville's horned lizard (*Phrynosoma blainvillii*)	None/SSC/Covered	The following vegetation communities were used for modeling: Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), granitic southern mixed chaparral, non-native grassland, mule fat scrub, southern arroyo willow riparian forest, southern sycamore-alder riparian woodland, and southern willow scrub (including disturbed).
Coronado Island skink (*Plestiodon skiltonianus interparietalis*)	None/WL/None	The following vegetation communities were used for modeling: coast live oak woodland, Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), granitic southern mixed chaparral, mule fat scrub, southern arroyo willow riparian forest, southern sycamore-alder riparian woodland, and southern willow scrub (including disturbed).
Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*)	None/SSC/Covered	The following vegetation communities were used for modeling: coast live oak woodland, Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), and granitic southern mixed chaparral.

Table 3-2
Suitable Habitat Models for Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat Model
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	None/SSC/None	The following vegetation communities were used for modeling: Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), and granitic southern mixed chaparral.
Two-striped garter snake (*Thamnophis hammondii*)	None/SSC/None	The following vegetation communities were used for modeling: southern willow scrub (including disturbed), mulefat scrub, non-vegetated channel, southern arroyo willow riparian forest, southern sycamore-alder riparian woodland, and vernal pool.
Birds		
Cooper's hawk (*Accipiter cooperii*) (nesting)	None/WL/None	The following vegetation communities were used for modeling nesting habitat: coast live oak woodland, southern arroyo willow riparian forest, and southern sycamore-alder riparian woodland. All vegetation communities were included in the foraging habitat model with the exception of urban/developed, unvegetated habitat, and vernal pools.
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	None/WL/None	The following vegetation communities were used for modeling nesting habitat: Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), and granitic southern mixed chaparral.
Grasshopper sparrow (*Ammodramus savannarum*) (nesting)	None/SSC/None	The following vegetation communities were used for modeling nesting habitat: Diegan coastal sage scrub-valley needlegrass grassland (including disturbed), Diegan coastal sage scrub-non-native grassland, non-native grassland, and valley needlegrass grassland (including disturbed).
Golden eagle (*Aquila chrysaetos*) (nesting and wintering)	BCC/FP, WL/None	The following vegetation communities were used for modeling foraging habitat: Diegan coastal sage scrub-valley needlegrass grassland (including disturbed), Diegan coastal sage scrub-non-native grassland, non-native grassland, valley needlegrass grassland (including disturbed), disturbed Diegan coastal sage scrub (including fire recovered), freshwater marsh (including disturbed), and cismontane alkali marsh.
Bell's sage sparrow (*Artemisiospiza belli belli)*	BCC/WL/None	The following vegetation communities were used for modeling nesting habitat: Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), and granitic southern mixed chaparral.
Long-eared owl (*Asio otus*)	None/SSC/None	The following vegetation communities were used for modeling nesting habitat: coast live oak woodland, southern willow scrub (including disturbed), mulefat scrub, southern arroyo willow riparian forest, and southern sycamore-alder riparian woodland.

Table 3-2
Suitable Habitat Models for Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat Model
Oak titmouse (*Baeolophus inornatus*)	BCC/None/None	The following vegetation communities were used for modeling nesting habitat: coast live oak woodland.
Coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)	None/SSC/Covered	The habitat for historical occurrences of coastal cactus wren burned and is in the process of recovery. Five clusters of coastal cactus wrens were observed during surveys in 2017. Clusters rather than individual records were considered for impacts given the localized groups that this species occurs in.
Northern harrier (*Circus cyaneus*)	None/SCC/None	The following vegetation communities were used for modeling foraging habitat: Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), non-native grassland, valley needlegrass grassland (including disturbed), freshwater marsh (including disturbed), and cismontane alkali marsh.
Willow flycatcher (*Empidonax traillii*)	BCC/SE/None	The following vegetation communities were used for modeling foraging habitat: southern willow scrub (including disturbed), mule fat scrub, southern arroyo willow riparian forest, and southern sycamore-alder riparian woodland.
Merlin (*Falco columbarius*) Foraging/wintering habitat	None/WL/None	The following vegetation communities were used for modeling foraging habitat: coast live oak woodland, non-native grassland, valley needlegrass grassland (including disturbed), freshwater marsh (including disturbed), and cismontane alkali marsh.
Prairie falcon (*Falco mexicanus*)	BCC/WL/None	The following vegetation communities were used for modeling foraging habitat: southern willow scrub (including disturbed), mulefat scrub, non-native grassland, non-vegetated channel, valley needlegrass grassland (including disturbed), freshwater marsh (including disturbed), and cismontane alkali marsh.
American peregrine falcon (*Falco peregrinus anatum*)	BCC/FP/None	The following vegetation communities were used for modeling foraging habitat: southern willow scrub (including disturbed), mulefat scrub, southern arroyo willow riparian forest, southern sycamore-alder riparian woodland, freshwater marsh (including disturbed), and cismontane alkali marsh.
Yellow-breasted chat (*Icteria virens*)	None/SSC/None	The following vegetation communities were used for modeling foraging habitat: disturbed southern willow scrub, mulefat scrub, southern arroyo willow riparian forest, southern sycamore-alder riparian woodland, and coast live oak woodland.

Table 3-2
Suitable Habitat Models for Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat Model
Loggerhead shrike (*Lanius ludovicianus*) (nesting)	BCC/SSC/None	The following vegetation communities were used for modeling foraging habitat: Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), disturbed habitat, disturbed wetlands, arundo-dominated riparian, non-native grassland, valley needlegrass grassland (including disturbed), freshwater marsh (including disturbed), and granitic southern mixed chaparral.
Coastal California gnatcatcher (*Polioptila californica californica*)	FT/SSC/Covered	Based on Use Areas documented during 2016 focused surveys and the following vegetation communities: Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties),
Rufous hummingbird (*Selasphorus rufus*)	BCC/None/None	The following vegetation communities were used for modeling nesting habitat: coastal live oak woodland, Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), mulefat scrub, southern sycamore-alder riparian woodland, southern willow scrub, and southern arroyo willow riparian forest.
Brewer's Sparrow (*Spizella breweri*)	BCC/None/None	The following vegetation communities were used for modeling nesting habitat: Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), and granitic southern mixed chaparral.
Yellow warbler (*Setophaga petechial*)	BCC/SSC/None	The following vegetation communities were used for modeling nesting habitat: disturbed southern willow scrub, mulefat scrub, southern arroyo willow riparian forest, southern sycamore-alder riparian woodland, and coast live oak woodland.
Least Bell's vireo (*Vireo bellii pusillus*)	FE/SE/Covered	The following vegetation communities were used for modeling nesting habitat: southern willow scrub (including disturbed), mulefat scrub, southern arroyo willow riparian forest, and southern sycamore-alder riparian woodland.
White-tailed kite (*Elanus leucurus*)	None/FP/None	The following vegetation communities were used for modeling foraging habitat: coast live oak woodland, cismontane alkali marsh, Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), freshwater marsh (including disturbed), disturbed habitat, disturbed wetlands, non-native grassland, and valley needlegrass grassland (including disturbed).
California horned lark (*Eremophila alpestris actia*)	None/WL/None	The following vegetation communities were used for modeling foraging habitat: disturbed habitat, non-native grassland, and valley needlegrass grassland (including disturbed).

Table 3-2
Suitable Habitat Models for Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat Model
Mammals		
Pallid bat (*Antrozous pallidus*)	None/SSC/None	All vegetation communities were included in the foraging habitat model with the exception of urban/developed.
Dulzura pocket mouse (*Chaetodipus californicus femoralis*)	None/SSC/None	The following vegetation communities were used for modeling: coast live oak woodland, Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), disturbed habitat, granitic southern mixed chaparral, non-native grassland, and valley needlegrass grassland (including disturbed).
Townsend's big-eared bat (*Corynorhinus townsendii*) foraging habitat	None/SSC/None	All vegetation communities were included in the foraging habitat model with the exception of urban/developed.
Western mastiff bat (*Eumops perotis californicus*)	None/SSC/None	All vegetation communities were included in the foraging habitat model with the exception of urban/developed.
Western red Bat (*Lasiurus blossevillii*)	None/SSC/None	All vegetation communities were included in the foraging habitat model with the exception of urban/developed.
Western yellow bat (*Lasiurus xanthinus*) foraging habitat	None/SSC/None	All vegetation communities were included in the foraging habitat model with the exception of urban/developed.
Long-eared myotis (*Myotis evotis*) foraging habitat	None/SSC/None	All vegetation communities were included in the foraging habitat model with the exception of urban/developed.
Western small-footed myotis (*Myotis ciliolabrum*) foraging habitat	None/None/None	All vegetation communities were included in the foraging habitat model with the exception of urban/developed.
Yuma myotis (*Myotis yumanensis*)	None/None/None	All vegetation communities were included in the foraging habitat model with the exception of urban/developed.

Table 3-2
Suitable Habitat Models for Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat Model
Pocketed free-tailed bat (*Nyctinomops femorosaccus*) foraging habitat	None/SSC/None	All vegetation communities were included in the foraging habitat model with the exception of urban/developed.
Big free-tailed bat (*Nyctinomops macrotis*)	None/SSC/None	All vegetation communities were included in the foraging habitat model with the exception of urban/developed.
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	None/SSC/None	The following vegetation communities were used for modeling: coast live oak woodland, Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), disturbed habitat, granitic southern mixed chaparral, non-native grassland, and valley needlegrass grassland (including disturbed).
Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)	None/SSC/None	The following vegetation communities were used for modeling: Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), disturbed habitat, granitic southern mixed chaparral, non-native grassland, and valley needlegrass grassland (including disturbed).
San Diego desert woodrat (*Neotoma lepida intermedia*)	None/SSC/None	The following vegetation communities were used for modeling: Diegan coastal sage scrub (including valley needlegrass grassland, baccharis-dominated, disturbed, non-native grassland, and fire recovered varieties), and granitic southern mixed chaparral.
Invertebrates		
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	FE/None/Covered	Suitable habitat includes all features identified during protocol-level surveys including: vernal pools and road ruts.
Quino checkerspot butterfly (*Euphydryas editha quino*)	FE/None/Covered	The analysis for Quino checkerspot butterfly includes three models: (1) This model includes areas within 656 feet (200 meters) of mapped host plants within coastal scrub, grassland, vernal pools, and disturbed habitat. (2) This model includes all suitable habitat (i.e., coastal scrub, grassland, vernal pools, and disturbed habitat) within a 1-kilometer buffer around all known Quino checkerspot observations that overlap the project area. (3) This model includes all suitable habitat (i.e., coastal scrub, grassland, vernal pools, and disturbed habitat) within a 1-kilometer buffer around known Quino checkerspot observations (excluding the 2005 on-site observation) that overlap the project area.

Table 3-2
Suitable Habitat Models for Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

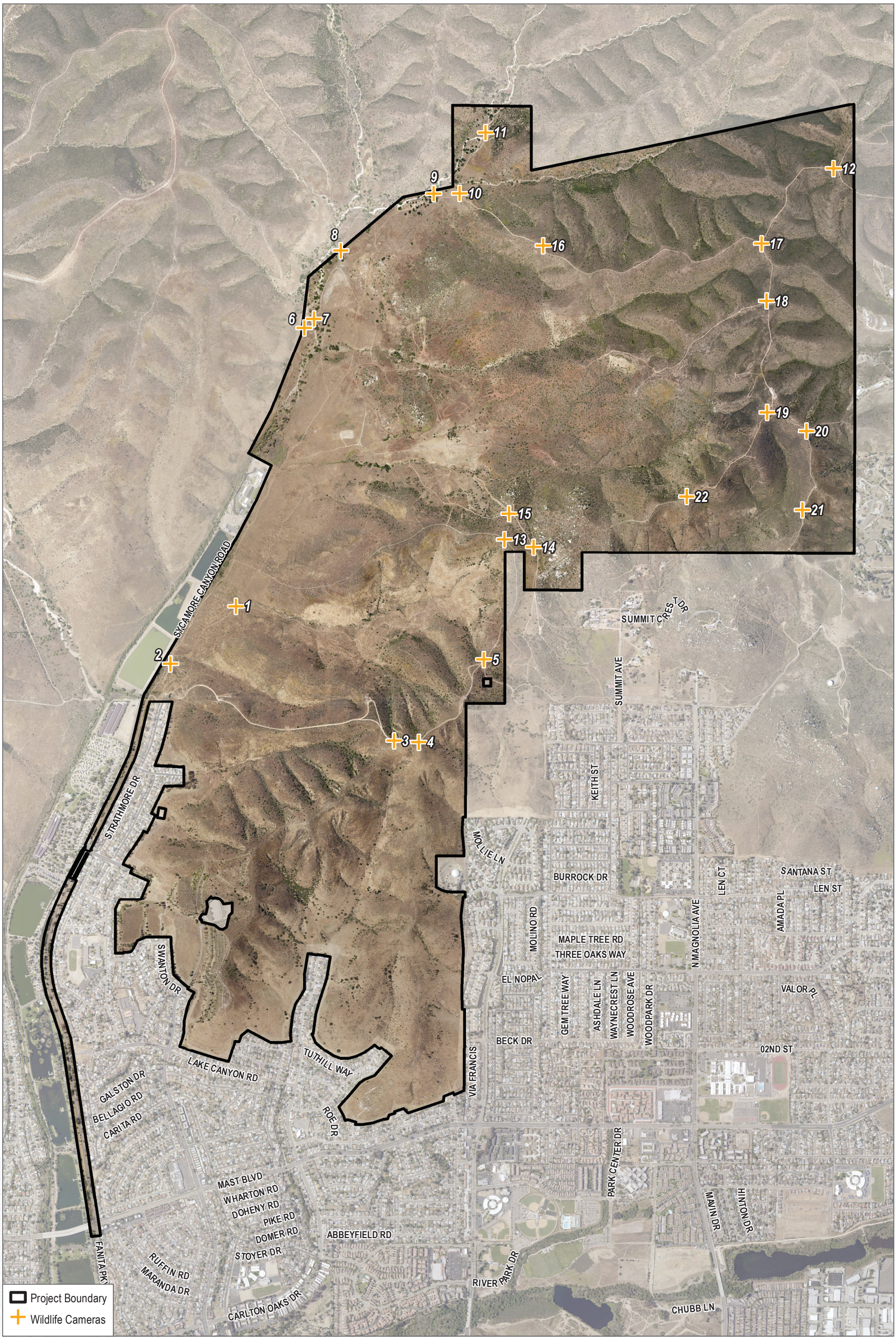
Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat Model
Hermes copper butterfly (*Lycaena hermes*)	FC/None/Covered	Suitable habitat for Hermes copper butterfly is based on the presence of redberry buckthorn within 15 feet of California buckwheat.

Notes: MSCP = Multiple Species Conservation Program.
Status Legend
Federal
FE: Federally Endangered
FT: Federally Threatened
FC: Federal Candidate
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
State
SSC: California Species of Special Concern
FP: California Fully Protected Species
WL: California Watch List Species
SE: State Endangered
ST: State Threatened
Draft Santee MSCP Subarea Plan (City of Santee 2018)
Covered: Draft Santee MSCP Subarea Plan Covered Species

3.4 Survey Limitations

Limitations of the field surveys include a diurnal bias for most species and the absence of focused trapping for mammals and reptiles, since trapping is generally only performed for select listed species. Surveys were conducted mostly during the daytime to maximize visibility for the detection of plants and most animals. Birds represent the largest component of the vertebrate fauna, and because they are active in the daytime, diurnal surveys maximize the number of observations of this portion of the fauna. Daytime surveys may result in fewer observations of animals that are more active at night, such as mammals. However, the camera studies were able to capture some nighttime activity. In addition, many species of reptiles and amphibians are nocturnal and/or secretive in their habits and are difficult to observe using standard meandering transects. However, despite these limitations, the survey work conducted on the project area provides an adequate overall assessment of faunal resources for purposes of evaluating potential project impacts. In addition, some smaller off-site areas were not surveyed due to the timing of their inclusion and/or limited legal access. Although the Magnolia Avenue extension contains suitable habitat, albeit very limited, it was not surveyed for special-status species. The habitat in this area is highly disturbed and potential for special-status species is low. The Magnolia Avenue road extension totals 13.44 acres (0.5%) of the project area. To account for survey limitations, special-status wildlife species that could occur, based on pertinent distribution and habitat preference literature and recorded off-site observations (i.e., habitat modeling), are analyzed based upon their potential to occur and adequate measures to avoid and minimize impacts are provided in this report.

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SOURCE: SANGIS 2017, 2019

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FIGURE 3-10

Camera Study Locations

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4 ENVIRONMENTAL SETTING (EXISTING CONDITIONS)

4.1 Vegetation Communities and Land Cover Types

Twenty-eight vegetation communities and/or land cover types were identified within project area: chaparral (granitic southern mixed chaparral); Diegan coastal sage scrub, which includes disturbed and fire recovered versions as well as other varieties (coastal sage scrub–valley grassland [including disturbed], coastal sage scrub–Baccharis-dominated, and disturbed coastal sage scrub–non-native grassland); marsh and swamp (coastal and valley freshwater marsh [including disturbed] and cismontane alkali marsh); native grassland; non-native grassland; vernal pools; coast live oak woodland; riparian and wetland (arundo-dominated riparian, southern arroyo willow riparian forest, southern willow scrub [including disturbed], mulefat scrub, southern sycamore–alder riparian woodland, and non-vegetated channel); and disturbed and developed areas (including disturbed wetland) (see Table 4-1; Figure 4-1, Biological Resources – Legend; and Figures 4-1a through 4-1af, Biological Resources).

Table 4-1
Vegetation Communities and Land Covers within the Fanita Ranch Project Area (Including Off-Site Areas)

General Vegetation Community/Land Cover Category	Vegetation Type (Holland/ Oberbauer Code)[1]	On Site	Off Site	Total
Disturbed and Developed Areas (10000)	Disturbed Habitat (11300)	115.21	5.43	120.64
	Disturbed Wetland[2] (11200)	0.09	—	0.09
	Non-native Vegetation (11000)	6.05	—	6.05
	Urban/Developed (12000)	9.88	3.50	13.37
	Disturbed and Developed Areas Subtotal[1]	*131.23*	*8.93*	*140.15*
Scrub and Chaparral (30000)	Diegan Coastal Sage Scrub[2] (32500)	1,017.13	6.26	1,023.39
	Diegan Coastal Sage Scrub (disturbed)[2] (32500)	259.85	11.99	271.84
	Diegan Coastal Sage Scrub (fire recovered)[2] (32500)	9.57	0.17	9.74
	Diegan Coastal Sage Scrub–Valley Needlegrass Grassland[2] (32500/42110)	63.79	0.10	63.89
	Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (disturbed)[2] (32500/42110)	51.10	2.38	53.47
	Diegan Coastal Sage Scrub–Non-native Grassland (disturbed)[2] (32500/42200)	27.47	—	27.47
	Diegan Coastal Sage Scrub–Baccharis-dominated[2] (32530)	21.60	—	21.60
	Granitic Southern Mixed Chaparral[2] (37121)	601.06	—	601.06
	Scrub and Chaparral Subtotal[1]	*2,051.57*	*20.90*	*2,072.47*

Table 4-1
Vegetation Communities and Land Covers within the Fanita Ranch Project Area (Including Off-Site Areas)

General Vegetation Community/Land Cover Category	Vegetation Type (Holland/ Oberbauer Code)[1]	On Site	Off Site	Total
Grasslands, Vernal Pools, Meadows, and Other Herb Communities (40000)	Valley Needlegrass Grassland[2] (42110)	113.82	—	113.82
	Valley Needlegrass Grassland (disturbed)[2] (42110)	64.14	—	64.14
	Non-native Grassland[2] (42200)	211.65	2.72	214.36
	Non-native Grassland/Non-native Vegetation (42200/11000)	14.96	—	14.96
	Vernal Pool (44000)[2,3]	0.80	0.01	0.81
Grasslands, Vernal Pools, Meadows, and Other Herb Communities Subtotal[1]		*405.37*	*2.73*	*408.10*
Bog and Marsh (50000)	Cismontane Alkali Marsh[2] (52310)	0.40	—	0.40
	Coastal and Valley Freshwater Marsh[2] (52410)	0.02	—	0.02
	Coastal and Valley Freshwater Marsh[2] (disturbed) (52410)	0.12	—	0.12
Bog and Marsh Subtotal[1]		*0.54*	—	*0.54*
Riparian and Bottomland Habitat (60000)	Southern Arroyo Willow Riparian Forest[2] (61320)	1.54	—	1.54
	Southern Sycamore-Alder Riparian Woodland[2] (62400)	3.23	—	3.23
	Mulefat Scrub[2] (63310)	1.86	—	1.86
	Southern Willow Scrub[2] (63320)	0.86	—	0.86
	Southern Willow Scrub (disturbed)[2] (63320)	0.48	—	0.48
	Non-vegetated Channel or Floodway[2] (64200)	9.82	0.05	9.88
	Arundo-Dominated Riparian[4] (65100)	1.93	—	1.93
Riparian and Bottomland Habitat Subtotal[1]		*19.73*	*0.05*	*19.78*
Woodland (70000)	Coast Live Oak Woodland[2] (71160)	29.63	—	29.63
Woodland Subtotal[1]		29.63	—	*29.63*
Sensitive Vegetation Subtotal[2]		*2,491.44*	*23.68*	*2,515.12*
Grand Total[1]		**2,638.07**	**32.60**	**2,670.67**

Notes:
1 Totals may not sum due to rounding.
2 Sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).
3 This is a Holland/Oberbauer Code and should not be confused with later discussion regarding pool-like features and seasonal-basin features.
4 Since this is a non-native vegetation community, only the portion under CDFW jurisdiction (1.40 acres) is considered sensitive.

- Project Boundary
- Mapbook Grid
- Off-site Areas
- Immature Fairy Shrimp *(Branchinecta Sp.)*
- San Diego Fairy Shrimp *(Branchinecta sandiegonensis)*
- Cactus Patches
- Coastal California Gnatcatcher Use Areas

Special-Status Wildlife

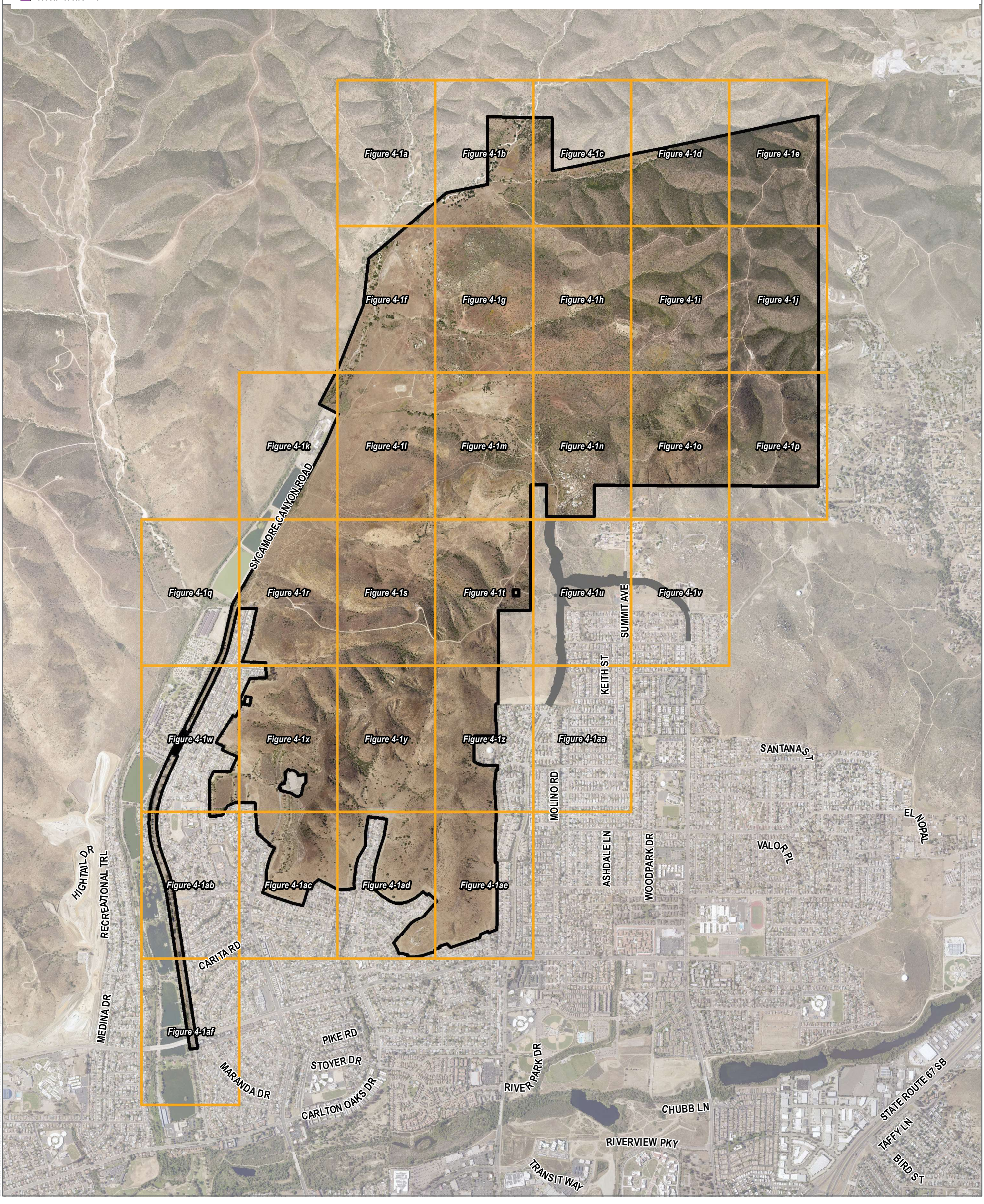
- American peregrine falcon
- Bell's Sage sparrow
- Blainville's horned lizard
- coastal California gnatcatcher
- Cooper's hawk
- Hermes Copper Butterfly
- Merlin
- Quino Checkerspot Butterfly
- San Diegan tiger whiptail
- coastal cactus wren
- double-crested cormorant
- golden eagle
- grasshopper sparrow
- least Bell's vireo
- loggerhead shrike
- long-eared owl
- northern harrier
- oak titmouse
- Belding's Orange-throated whiptail
- osprey
- red diamond rattlesnake
- southern California rufous-crowned Sparrow
- two-striped garter snake
- white-tailed kite
- willow flycatcher
- yellow warbler
- yellow-breasted chat

Special-Status Plants

- *Artemisia palmeri*
- *Bloomeria clevelandii*
- *Convolvulus simulans*
- *Dudleya variegata*
- *Ferocactus viridescens*
- *Harpagonella palmeri*
- *Holocarpha virgata ssp. elongata*
- *Monardella viminea*
- *Ophioglossum californicum*
- *Piperia cooperi*
- *Quercus engelmannii*
- *Viguiera laciniata*
- *Atriplex coulteri*
- *Bloomeria clevelandii*

Vegetation Communities and Land Cover Types

- ARU - Arundo-Dominated Riparian
- CAM - Cismontane Alkali Marsh
- CLOW - Coast Live Oak Woodland
- CSS - Diegan Coastal Sage Scrub
- CSS/VGL - Diegan Coastal Sage Scrub/VGL
- CSSB - Diegan Coastal Sage Scrub: Baccharis-dominated
- DEV - Developed Land
- DH - Disturbed Habitat
- DW - Disturbed Wetlands
- FWM - Freshwater Marsh
- GSMX - Granitic Southern Mixed Chaparral
- HW - Herbaceous Wetlands
- MFS - Mule Fat Scrub
- NNG - Non-Native Grassland
- NNG/NNV - Non-Native Grassland/Non-native Vegetation
- NNV - Non-native Vegetation
- NVC - Non-Vegetated Channel or Floodway
- SARW - Southern Sycamore-Alder Riparian Woodland
- SWRF - Southern Arroyo Willow Riparian Forest
- SWS - Southern Willow Scrub
- VGL - Valley Needlegrass Grassland
- VP - Vernal Pool
- dCSS - Disturbed Diegan Coastal Sage Scrub
- dCSS/NNG - Disturbed Diegan Coastal Sage Scrub/NNG
- dCSS/VGL - Disturbed Diegan Coastal Sage Scrub/VGL
- dFWM - Disturbed Freshwater Marsh
- dHW - Disturbed Herbaceous Wetlands
- dSWS - Disturbed Southern Willow Scrub
- dVGL - Disturbed Valley Needlegrass Grassland
- rCSS - Revegetated Diegan Coastal Sage Scrub



SOURCE: SANGIS 2017, 2019

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FIGURE 4-1

Biological Resources - Legend

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SOURCE: SANGIS 2017, 2019

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FIGURE 4-1a

Biological Resources

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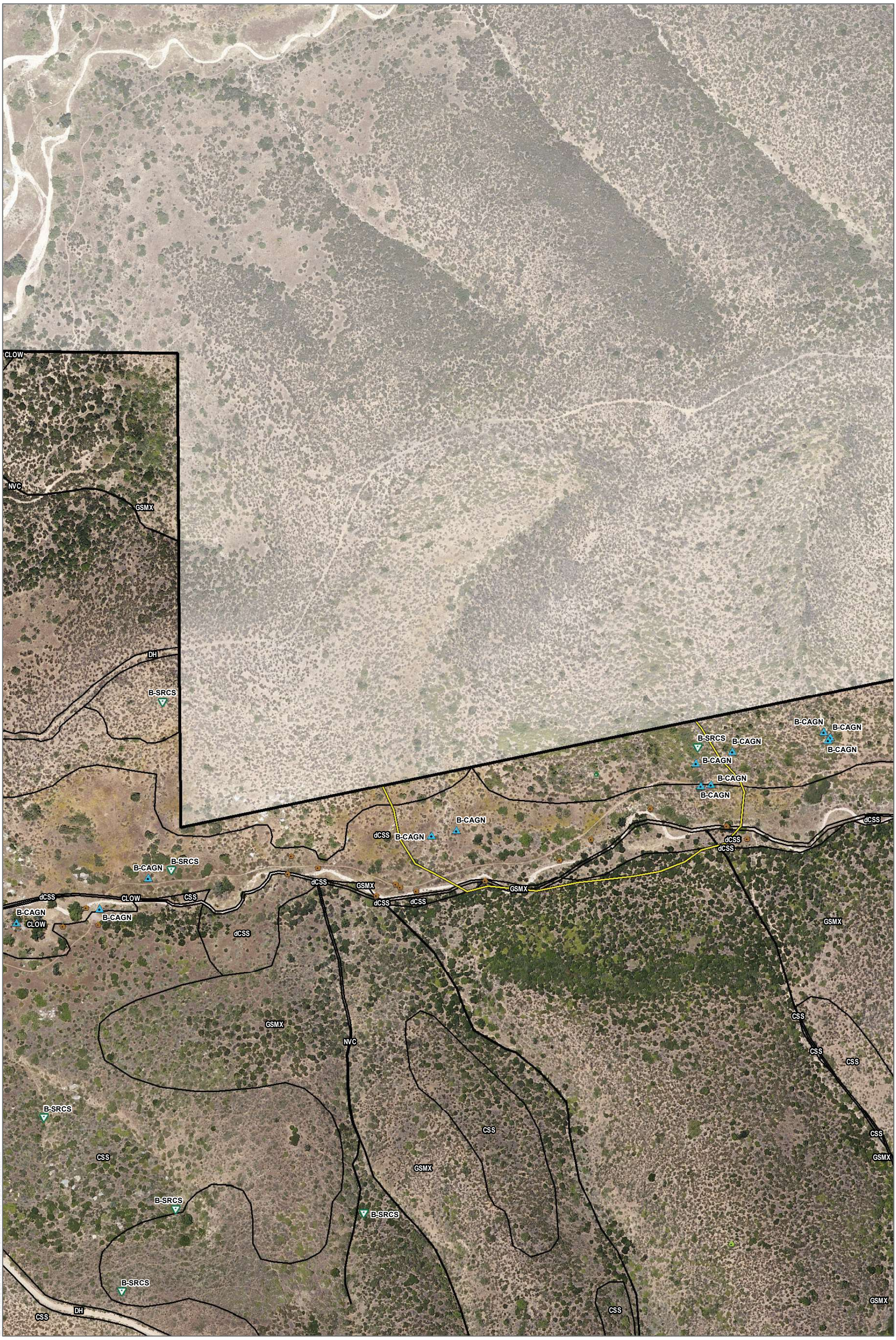
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FIGURE 4-1b

Biological Resources

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SOURCE: SANGIS 2017, 2019

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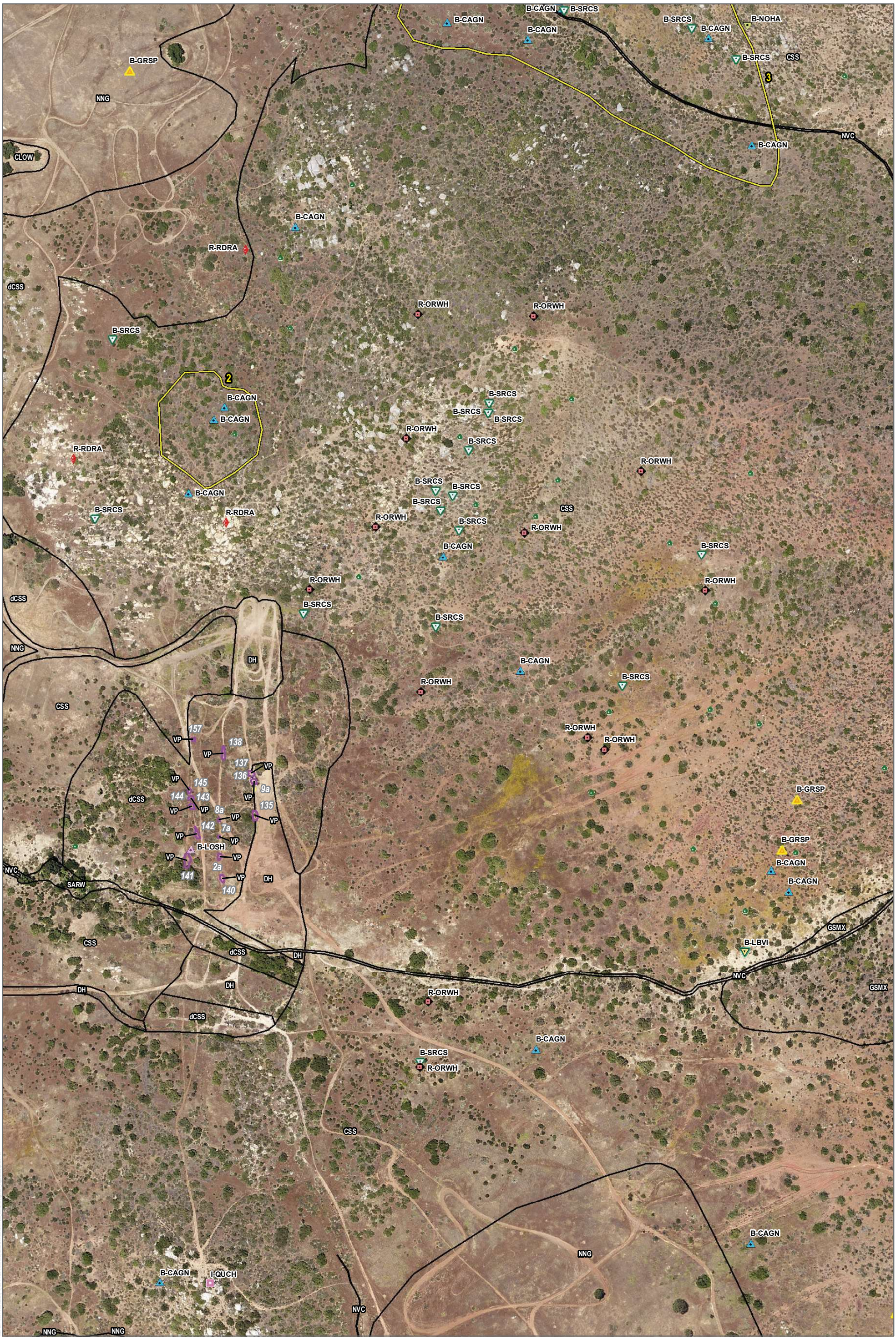
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FIGURE 4-1f

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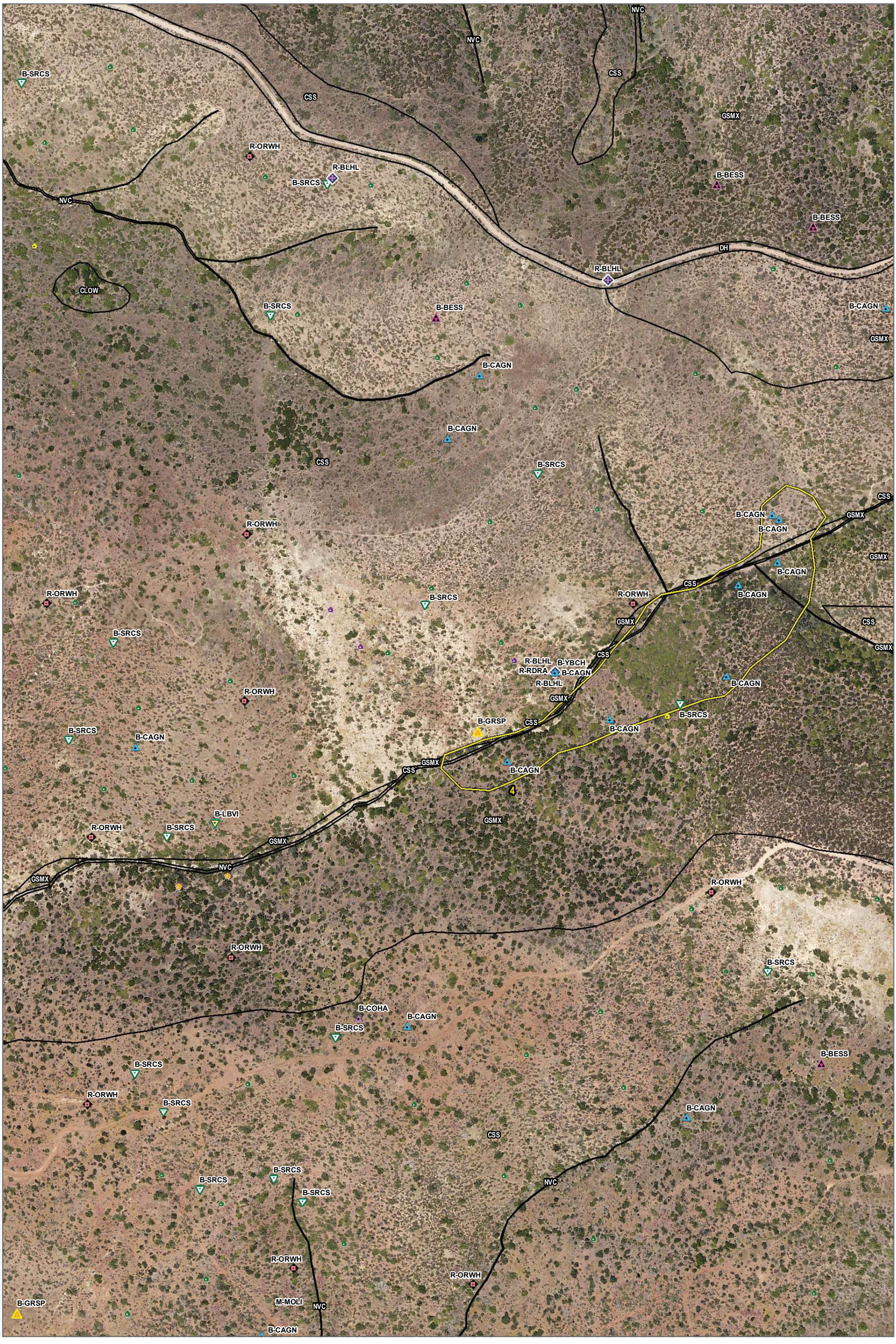
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FIGURE 4-1g

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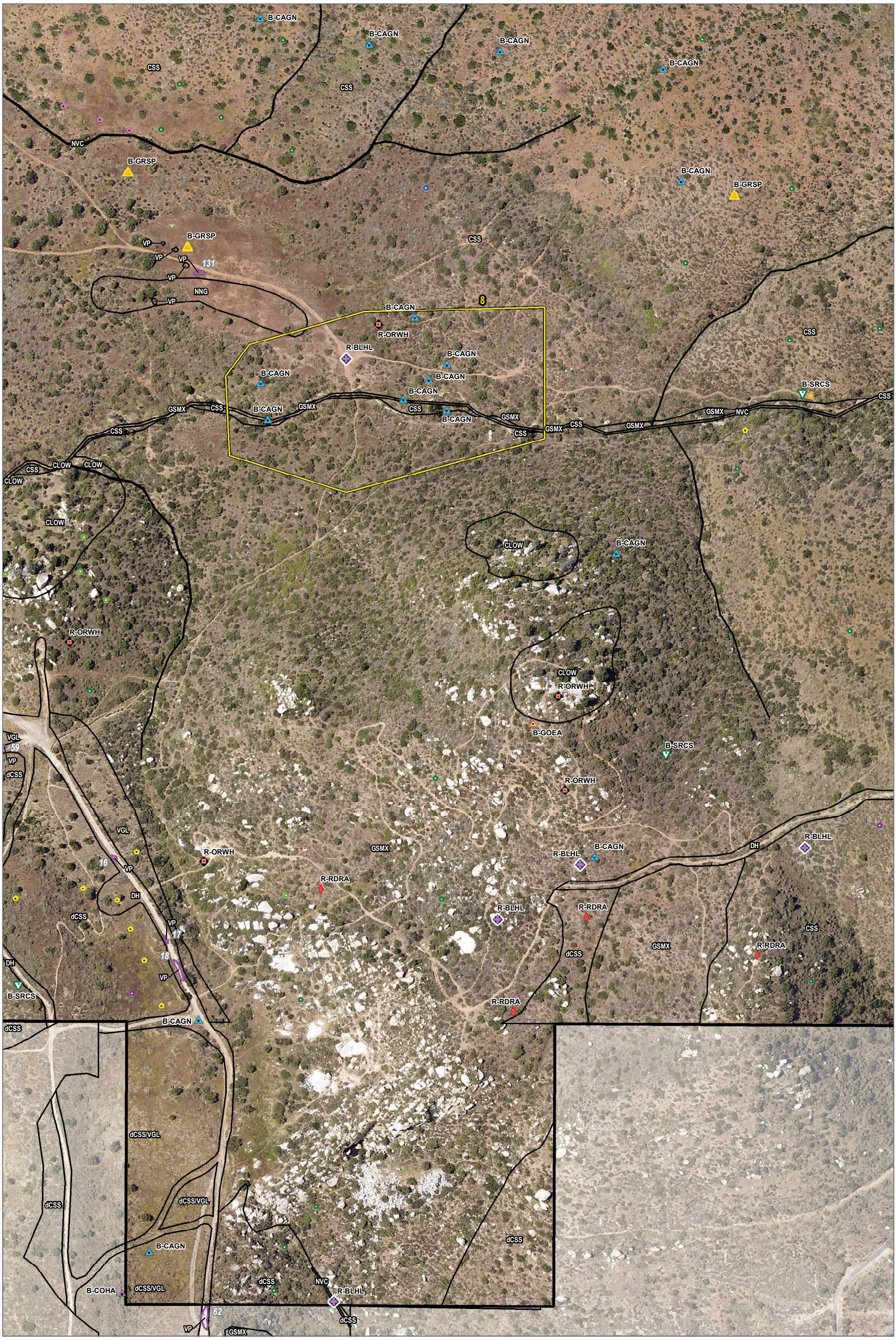
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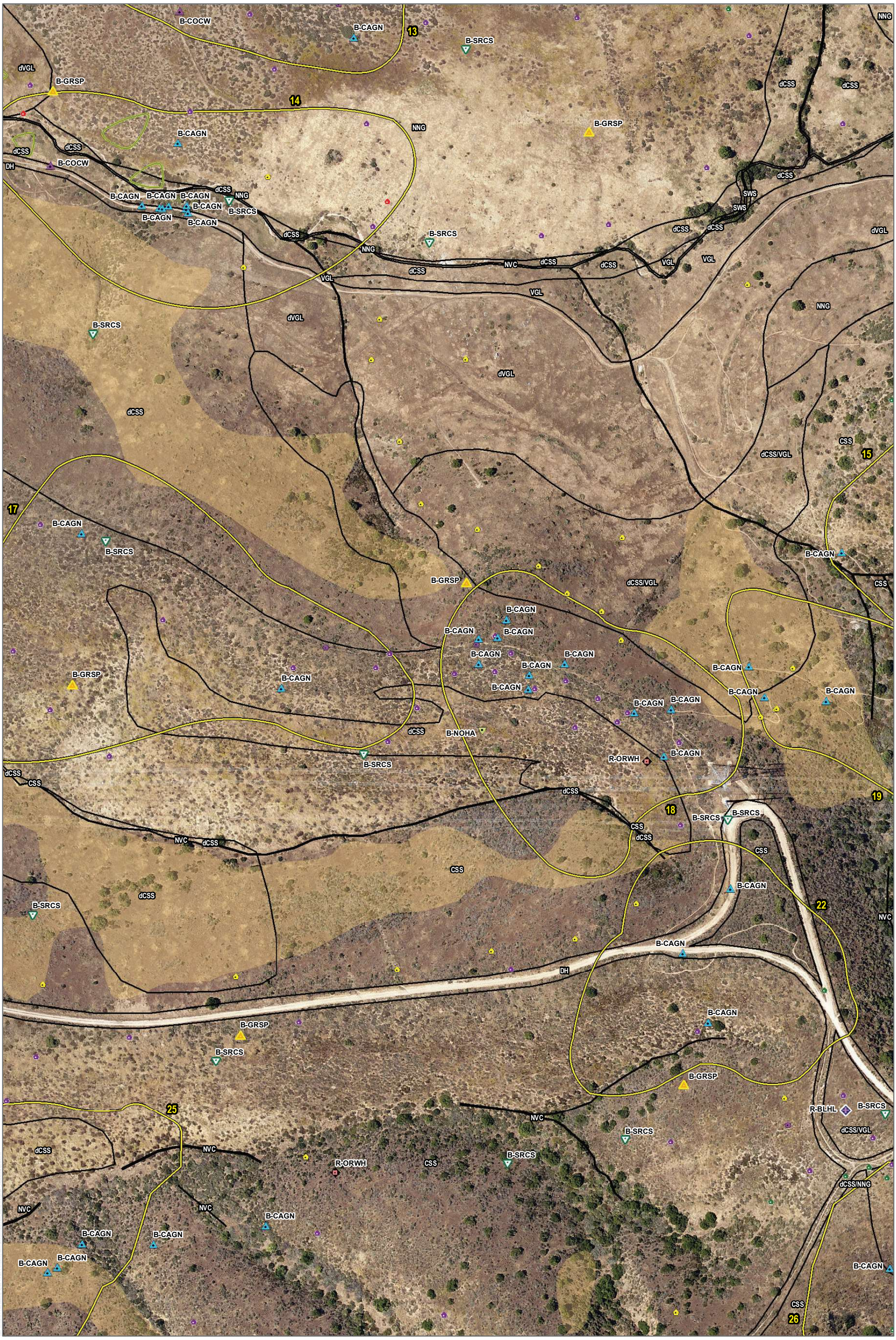
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FIGURE 4-1r

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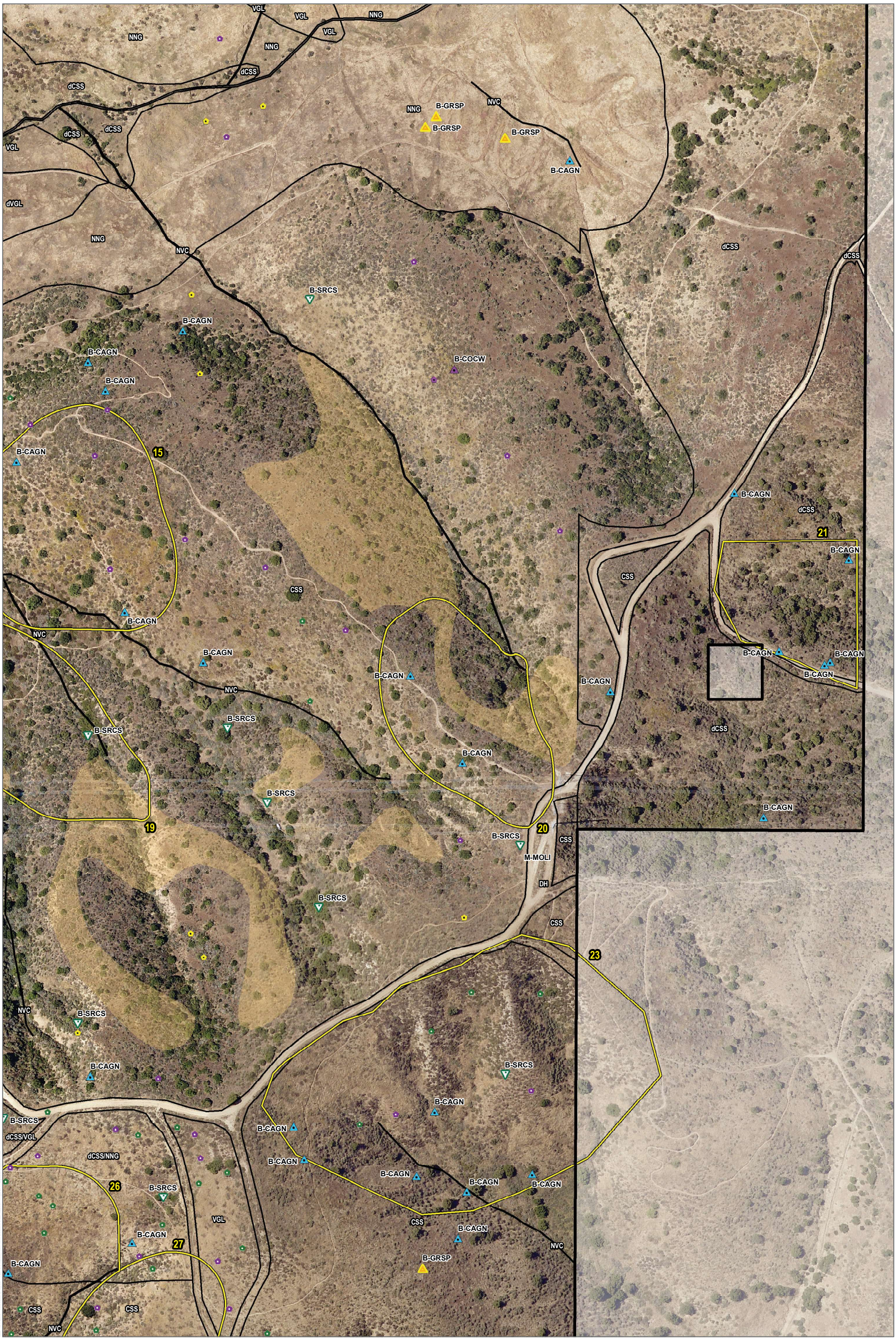
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Biological Resources

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SOURCE: SANGIS 2017, 2019

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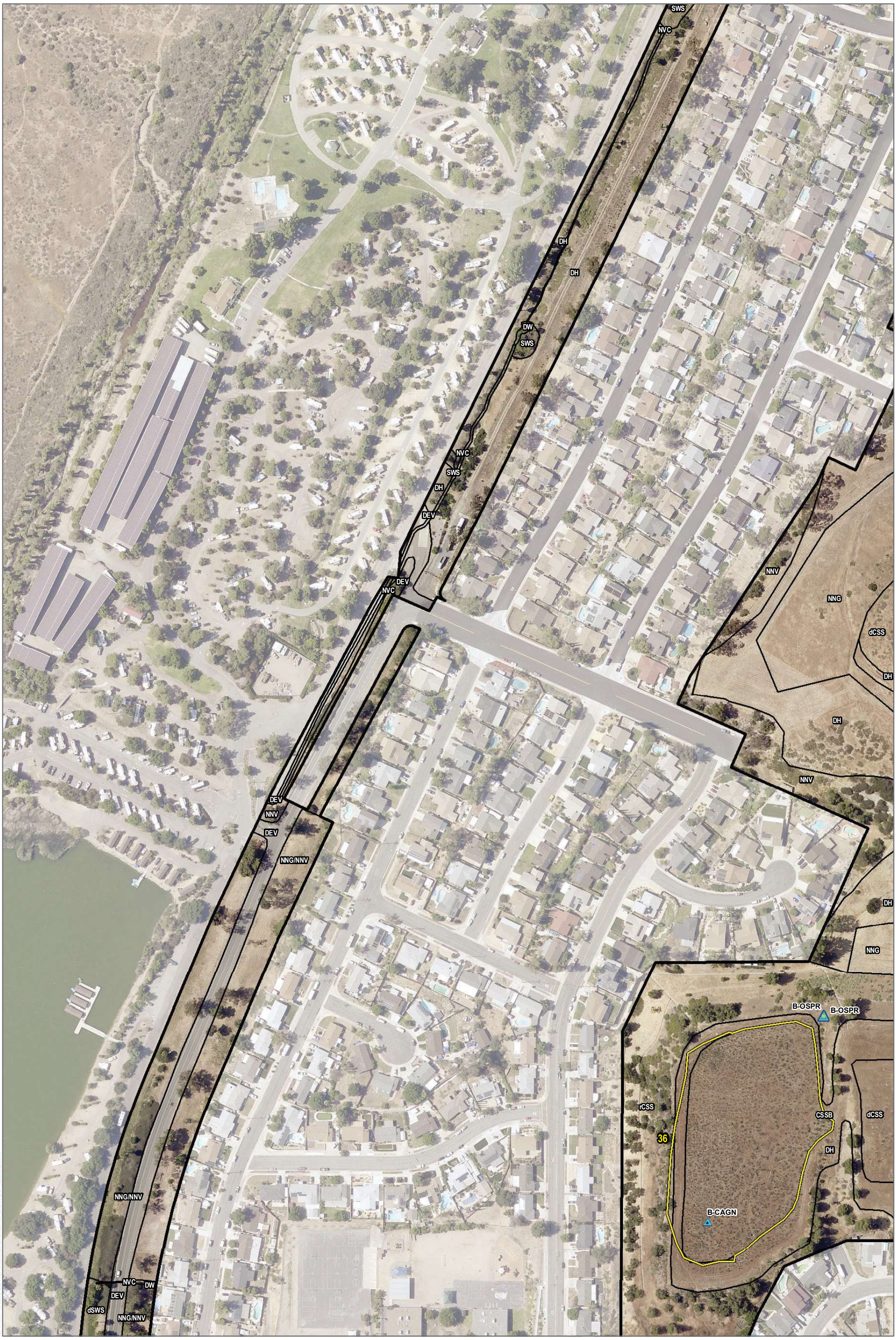
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FIGURE 4-1w

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SOURCE: SANGIS 2017, 2019

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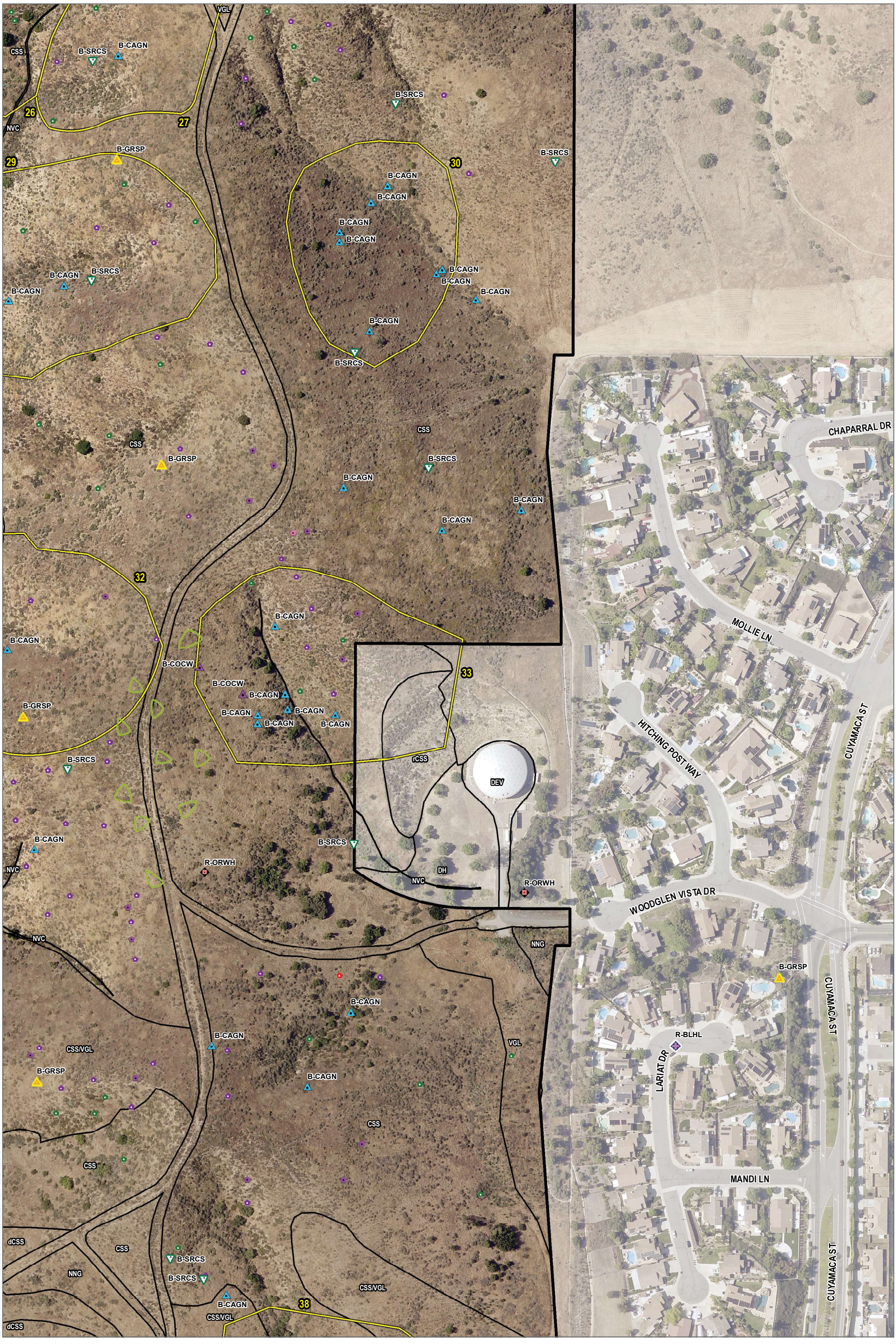
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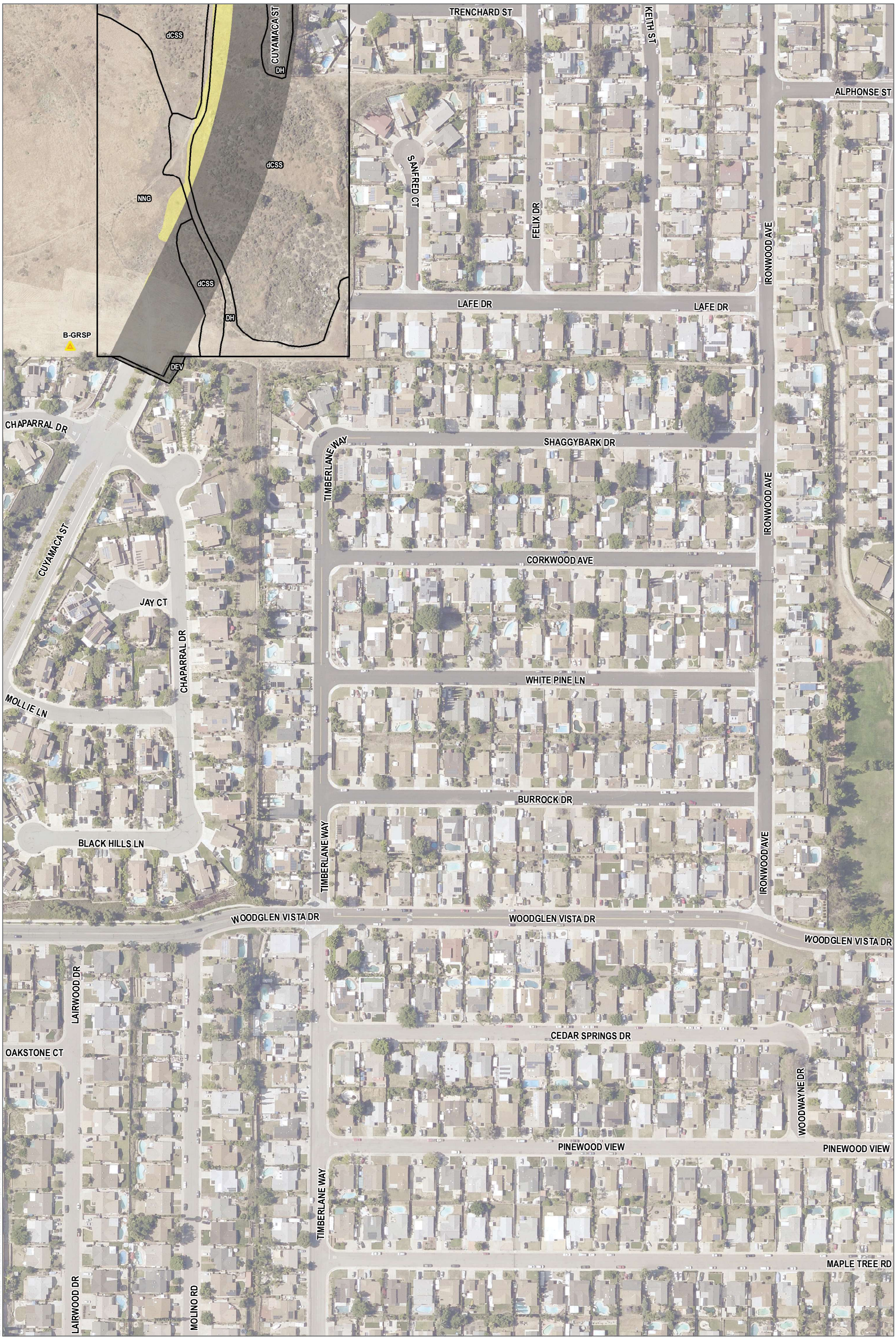
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FIGURE 4-1z

Biological Resources

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1aa

Impacts to Biological Resources

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SOURCE: SANGIS 2017, 2019

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FIGURE 4-1ab

Biological Resources

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SOURCE: SANGIS 2017, 2019

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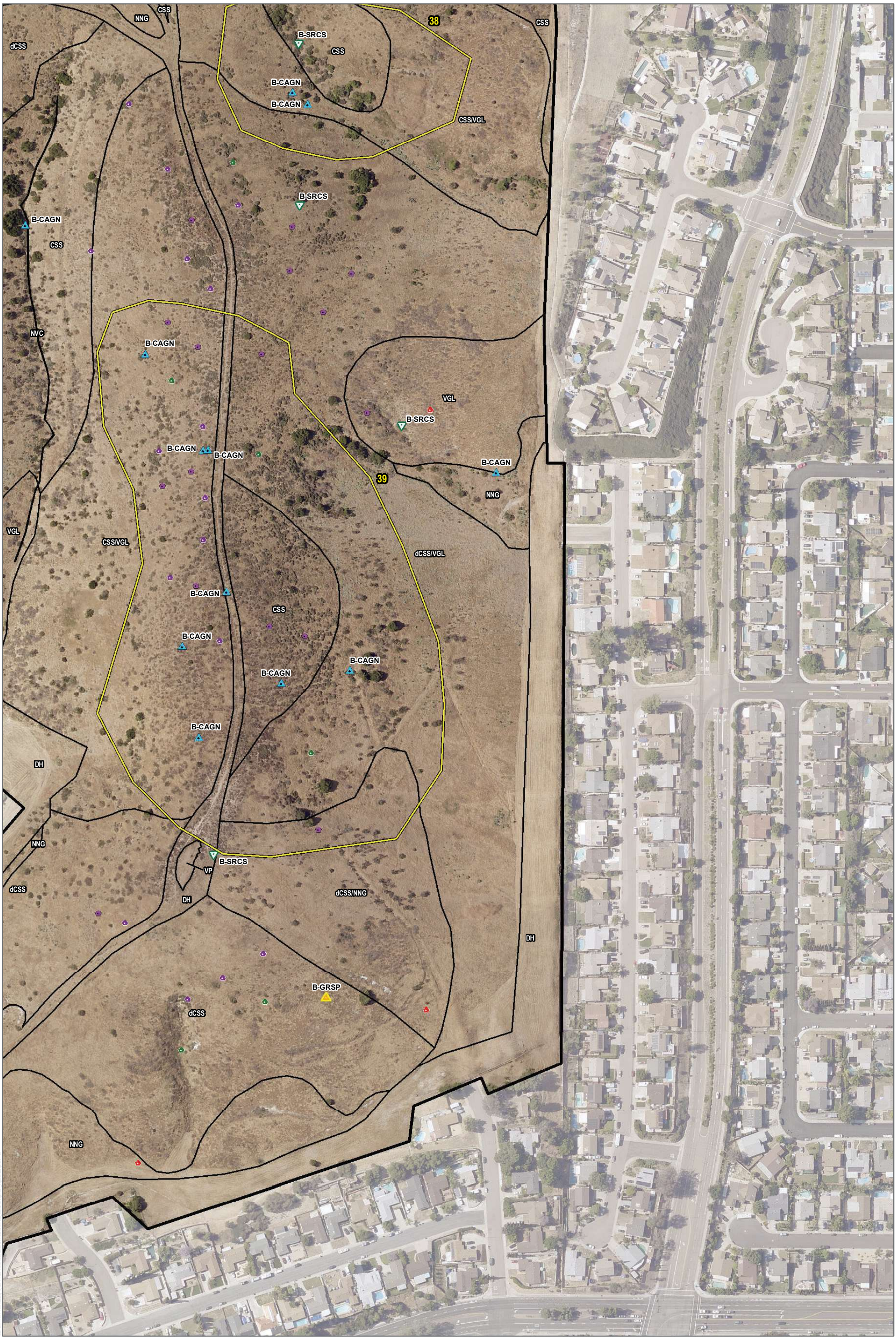
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SOURCE: SANGIS 2017, 2019

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4.1.1 Non-Native Vegetation (11000)

Non-native vegetation includes trees, shrubs, and herbs that are not native to California. Non-native vegetation within the project area largely consists of ornamental plantings along roadways or as part of fuel modification adjacent to homes that are not typically artificially irrigated and that receive water from precipitation or runoff. A total of 6.05 acres of non-native vegetation occurs on site in several locations within the Habitat Preserve and proposed village development, primarily adjacent to Fanita Parkway and along the southern boundary of the project area. Non-native vegetation is not considered a sensitive vegetation community by the Draft Santee MSCP Subarea Plan (City of Santee 2018).

4.1.2 Disturbed Wetland (11200)

Disturbed wetlands are areas permanently or periodically inundated by water that have been substantially modified by human activity. Disturbed wetland is often unvegetated, but may include some scattered native or non-native vegetation. Some characteristic non-native species that may be associated with disturbed wetlands include giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.), palms (*Phoenix* spp., *Washingtonia* spp.), and pampas grass (*Cortaderia* spp.). Native wetland species, such as willows (*Salix* spp.) and cattails (*Typha* spp.), also may be present at low cover. Disturbed wetlands include portions of wetlands with obvious artificial structures, such as concrete lining, barricades, riprap, piers, or gates. Therefore, lined channels, Arizona crossings, detention basins, culverts, and ditches would be considered disturbed wetlands. Disturbed wetlands occur throughout the County (Oberbauer et al. 2008). Only 0.09 acres of disturbed wetland occur on site. This vegetation community is considered sensitive by the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the resource agencies.

4.1.3 Disturbed Habitat (11300)

Disturbed habitat is a land cover type characterized by a predominance of non-native species, often introduced and established through human action. Oberbauer et al. (2008) describes disturbed land as areas that have been physically disturbed (by previous legal human activity) and are no longer recognizable as a native or naturalized vegetation association, but continue to retain a soil substrate. Typically, if vegetation is present, it is nearly exclusively composed of non-native plant species such as ornamentals or ruderal exotic species (i.e., weeds). A total of 120.64 acres of disturbed habitat occur on and off site and include mainly dirt roads. Disturbed habitat is not considered a sensitive vegetation community by the Draft Santee MSCP Subarea Plan, unless there is presence of burrowing owls using this habitat (City of Santee 2018).

4.1.4 Urban/Developed (12000)

According to Oberbauer et al. (2008), urban/developed represents areas that have been constructed upon or otherwise physically altered to an extent that native vegetation communities are not supported. This land cover type generally consists of semi-permanent structures, homes, parking lots, pavement or hardscape, and landscaped areas that require maintenance and irrigation (e.g., ornamental greenbelts). Typically, this land cover type is unvegetated or supports a variety of ornamental plants and landscaping. A total of 13.37 acres of urban/developed land occur on and off site. Urban/developed land is not considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

4.1.5 Diegan Coastal Sage Scrub (32500)

Diegan coastal sage scrub is a native vegetation community. According to Oberbauer et al. (2008), coastal sage scrub is composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species—such as California sagebrush (*Artemisia californica*), California buckwheat, and sages (*Salvia* spp.)—with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). Diegan coastal sage scrub occupies 1,017.13 acres on site and occurs in many patches within undisturbed areas. An additional 6.26 acres occur within the Cuyamaca Street and Magnolia Avenue off-site road extensions. Approximately 9.74 acres of fire recovered Diegan coastal sage on site are located in two southern portions of the project area: east of Settle Road and a small patch west of Hitching Post Way. In addition, 259.85 acres of disturbed Diegan coastal sage scrub on site occur in several areas, with the majority located in the central and northern boundary of the project area; 11.99 acres occur off site, mostly within the proposed Cuyamaca Street and Magnolia Avenue extensions. Diegan coastal sage scrub (including disturbed areas) is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

4.1.6 Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (32500/42110)

Diegan coastal sage scrub–valley needlegrass grassland is similar to Diegan coastal sage scrub, but includes considerable cover of purple needlegrass (*Stipa pulchra*). This vegetation community is not included in Holland (1986) or Oberbauer et al. (2008). This combination of vegetation communities is project specific and mapped in areas that are supported by more than 20% purple needlegrass within Diegan coastal sage scrub. See description for Diegan coastal sage scrub in Section 4.1.5 and valley needlegrass grassland in Section 4.1.10. Approximately 63.79 acres of Diegan coastal sage scrub–valley needlegrass grassland occur on site in several locations, primarily within the southern portion of the project area, and 0.10 acres occur off site within the Cuyamaca Street extension. In addition, 51.10 acres of disturbed Diegan coastal sage scrub–valley needlegrass grassland on site are located in large patches west of Via Francis and east of Sycamore

Canyon Road, and 2.38 acres occur off site within the Cuyamaca Street extension. Diegan coastal sage scrub and valley needlegrass grassland are considered sensitive vegetation communities in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

4.1.7 Diegan Coastal Sage Scrub–Non-Native Grassland (32500/42200)

Disturbed Diegan coastal sage scrub–non-native grassland is similar to Diegan coastal sage scrub, but is dominated by wild oat (*Avena fatua*), bromes (*Bromus* spp.), stork's bill (*Erodium* spp.), and mustard (*Brassica* spp.). This vegetation community is not included in Holland (1986) or Oberbauer et al. (2008). This combination of vegetation communities is project specific and is mapped in areas supported by more than 20% non-native grasses within Diegan coastal sage scrub. See descriptions for Diegan coastal sage scrub in Section 4.1.5 and non-native grassland in Section 4.1.11. Approximately 27.47 acres of disturbed Diegan coastal sage scrub–non-native grassland on site occur in several locations, including north of Cambury Drive and east of Sycamore Canyon Road. Diegan coastal sage scrub and non-native grassland are considered sensitive vegetation communities in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

4.1.8 Diegan Coastal Sage Scrub–Baccharis-Dominated (32530)

Diegan coastal sage scrub–Baccharis-dominated is similar to Diegan coastal sage scrub, but dominated by *Baccharis* species (desert broom [*B. sarothroides*] and/or coyote brush [*B. pilularis*]) (Oberbauer et al. 2008). This community typically occurs on disturbed sites or those with nutrient-poor soils and is often found within other forms of Diegan coastal sage scrub and on upper terraces of river valleys. This community is distributed along coastal and foothills areas in San Diego County. Approximately 21.60 acres of Diegan coastal sage scrub–Baccharis-dominated on site occur in several locations, with the majority in the southern portion of the project area north of Carlton Hills Boulevard. Diegan coastal sage scrub–Baccharis-dominated is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

4.1.9 Granitic Southern Mixed Chaparral (37121)

Granitic southern mixed chaparral is similar to southern mixed chaparral, but dominated by granitic soils. Granitic southern mixed chaparral is a drought- and fire-adapted community of woody shrubs from 5 to 10 feet tall that often forms dense, impenetrable stands. It develops primarily on mesic north-facing slopes and in canyons, and is characterized by crown- or stump-sprouting species that regenerate following fire. This association typically contains chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicolor*), wild lilac (*Ceanothus* spp.), and laurel sumac.

Due to its high-density cover, there is little or no understory in this community, except for in openings. The dominant species in the southern mixed chaparral on site are chamise, laurel sumac, white sage (*Salvia apiana*), coyote brush, and orange bush monkeyflower (*Mimulus aurantiacus*).

Approximately 601.06 acres of granitic southern mixed chaparral occur on site in several locations in the northwestern portion of the project area. Granitic southern mixed chaparral is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018), as a form of mixed chaparral.

4.1.10 Valley Needlegrass Grassland (42110)

Valley needlegrass grassland is characterized by a sparse to dense cover of perennial grasses typically up to 2 feet tall. This vegetation community typically occurs on fine-textured soils (often clay) that are moist or wet in the winter and very dry during summer and fall. Characteristic plant species typically include native grass species such as purple needlegrass, bromes, and goldfields (*Lasthenia* spp.) (Oberbauer et al. 2008). Plant species observed within native grassland include purple needlegrass, with forbs such as common goldenstar (*Bloomeria crocea*) and California blue-eyed grass (*Sisyrinchium bellum*). The percentage cover of native species can be quite low, but an area can be designated as native grassland if there is 20% cover of native grassland species. In San Diego County, native grassland often occurs where the native vegetation has been disturbed by grazing, fire, agriculture, or other activities.

A total of 113.82 acres of valley needlegrass grassland communities occur on site in several locations, primarily along the southern and western boundaries. In addition, 64.14 acres of disturbed valley needlegrass grassland on site occur in two areas, including east and north of Sycamore Canyon Road on the western portion of the project area. Valley needlegrass grassland (including disturbed) is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

4.1.11 Non-Native Grassland (42200)

Non-native grassland consists of dense to sparse cover of annual grasses with flowering culms between 0.5 to 3 feet in height (Oberbauer et al. 2008). In the County, the presence of wild oat, bromes, stork's bill, and mustard are common indicators. In some areas, depending on past disturbance and annual rainfall, annual forbs may be the dominant species; however, it is presumed that grasses will dominate. Non-native grassland totals 211.65 acres on site and 2.72 acres occur off site within Cuyamaca Street. Non-native grassland is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

4.1.12 Non-Native Grassland/Non-Native Vegetation (42200/11000)

Non-native grassland/non-native vegetation is similar to non-native grassland, but dominated by wattle (*Acacia* spp.) plantings. This vegetation community is not included in Holland (1986) or Oberbauer et al. (2008). This combination of vegetation communities is project specific and is mapped in areas supported by more than 20% non-native vegetation within non-native grassland.

See descriptions for non-native grassland in Section 4.1.11 and non-native vegetation in Section 4.1.1. Non-native grassland/non-native vegetation totals 14.96 acres on site adjacent to Fanita Parkway. Non-native grassland/non-native vegetation is not considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

4.1.13 Vernal Pool (44000)

Vernal pools are seasonally flooded wetland communities (Oberbauer et al. 2008). Vernal pools are depressions that support distinctive living communities adapted to seasonally dry and wet hydrologic conditions. Vernal pools are associated with two important physical conditions: (1) a subsurface hardpan or claypan that inhibits the downward percolation of water, and (2) a topography characterized by a series of low hummocks called mima mounds and low depressions (the vernal pools), which prevent aboveground water runoff. Vernal pools capture and store precipitation on the surface and/or subsurface in low depressions, which prevent above groundwater runoff (Bauder et al. 2009). Water collects in these depressions during the rainy season, and as the rainy season ends and the dry season begins, the water that has collected in these vernal pools gradually evaporates. The chemical composition of the remaining pool water becomes more concentrated as the pool water evaporates, which creates a chemical micro-environmental complex system for unique wetland-dependent vernal pool plant and animal communities to develop (Bauder et al. 2009). Vernal pools retain pooled water for approximately 2 weeks after significant rain events. Indicator species for vernal pools include *Psilocarphus* spp., toothed calicoflower (*Downingia cuspidata*), and crustaceans. The following criteria differentiate vernal pools from other temporary wetlands: the basin is at least partially vegetated during the normal growing season or is unvegetated due to heavy clay or hardpan soils that do not support plant growth, and the basin contains at least one vernal pool indicator species (Oberbauer et al. 2008).

Vernal pools occur within 0.80 acres on site along the western boundary and in the southern portion of the site, and within 0.01 acres off site within the Cuyamaca Street extension. Vernal pools mapped within the project area include features (i.e., natural vernal pools and road ruts) containing both plant and wildlife (i.e., San Diego fairy shrimp and western spadefoot) indicator species. Six vernal pool plant indicator species were observed on site: winged water-starwort (*Callitriche marginata*), shortseed waterwort (*Elatine brachysperma*), California waterwort (*Elatine californica*), water pygmyweed (*Crassula aquatica*), annual hairgrass (*Deschampsia danthonioides*), and woolly marbles (*Psilocarphus brevissimus*). As a wetlands community, vernal pools are considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and potentially by the resource agencies.

4.1.14 Cismontane Alkali Marsh (52310)

Cismontane alkali marsh is a wetland community dominated by low, perennial, herbaceous plants adapted to places where standing water or saturated soils are present for a considerable portion of the year (Oberbauer et al. 2008). High evaporation and low input of freshwater render these marshes somewhat alkaline, especially during the summer. Plant species composition within this community tends to consist of halophytes such as southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*) and certain sedges over the typical cattail-bulrush mix of freshwater marsh.

Cismontane alkali marsh covers 0.40 acres on site within the central portion of the project area east of Sycamore Canyon Road and adjacent to Strathmore Drive. As a wetlands community, cismontane alkali marsh is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the resource agencies.

4.1.15 Coastal and Valley Freshwater Marsh (52410)

Coastal and valley freshwater marsh is a wetland habitat that is permanently flooded by freshwater lacking a significant current (Oberbauer et al. 2008). Because it is permanently flooded by fresh water, there is an accumulation of deep, peaty soils. It typically is dominated by species such as cattail, sedge (*Carex* spp.), yellow nutsedge (*Cyperus esculentus*), and bulrushes (*Scirpus* spp.). Coastal and valley freshwater marsh totals 0.02 acres on site and is located in several areas, primarily east of Santee Lakes and adjacent to Sycamore Canyon Road. In addition, 0.12 acres of disturbed coastal and valley freshwater marsh on site occur in two areas, both east of Santee Lakes adjacent to Fanita Parkway. As a wetlands community, coastal and valley freshwater marsh is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the resource agencies.

4.1.16 Southern Arroyo Willow Riparian Forest (61320)

Southern arroyo willow riparian forest is a winter-deciduous riparian forest dominated by broad-leafed trees and arroyo willow (*Salix lasiolepis*). Typically it consists of a moderately tall, closed, or nearly closed canopy, with an understory of shrubby willows (Oberbauer et al. 2008). Southern arroyo willow riparian forest is characterized by the presence of several species besides arroyo willow, including San Diego sagewort (*Artemisia palmeri*), mulefat (*Baccharis salicifolia*), manroot (*Marah macrocarpus*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), Goodding's willow (*Salix gooddingii*), narrowleaf willow (*Salix exigua*), and yellow willow (*Salix lasiandra*) (Oberbauer et al. 2008). Southern arroyo willow riparian forest occurs in sub-irrigated and frequently overflowed areas along rivers and streams that are perennially wet (Oberbauer et al. 2008).

Approximately 1.54 acres of southern arroyo willow riparian forest occur on site in one area north of Sycamore Canyon Road. In the project area, southern arroyo willow riparian forest is dominated

by arroyo willow. As a wetlands community, southern arroyo willow riparian forest is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the resource agencies.

4.1.17 Southern Sycamore–Alder Riparian Woodland (62400)

Southern sycamore–alder riparian woodland is characterized by tall, open, broad-leafed woodland dominated by California sycamore and white alder (*Alnus Rhombifolia*) (Oberbauer et al. 2008). The woodland includes scattered trees in shrubby thickets of sclerophyllous and deciduous species. Characteristic species include coast live oak (*Quercus agrifolia*), blue elderberry (*Sambucus nigra*), and poison oak (*Toxicodendron diversilobum*). Southern sycamore–alder riparian woodland totals 3.23 acres on site. Southern sycamore–alder riparian woodland occurs in three areas, one area within Sycamore Canyon and two areas in drainages that act as tributaries to Sycamore Canyon. As a wetlands community, southern sycamore–alder riparian woodland is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the resource agencies.

4.1.18 Mulefat Scrub (63310)

Mulefat scrub is a depauperate, tall, herbaceous riparian scrub strongly dominated by mulefat. This early seral community is maintained by frequent flooding. Site factors include intermittent stream channels with fairly coarse substrate and moderate depth to the water table (Oberbauer et al. 2008). This community type is widely scattered along intermittent streams and near larger rivers. Mulefat scrub totals 1.86 acres on site in the western portion of the project area within Sycamore Canyon and in a drainage that acts as a tributary to Sycamore Canyon. As a wetlands community, mulefat scrub is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the resource agencies.

4.1.19 Southern Willow Scrub (63320)

Southern willow scrub is a dense, broad-leafed, winter-deciduous riparian thicket dominated by several willow species, with scattered emergent Fremont cottonwood and California sycamore. This community was formerly extensive along the major rivers of coastal Southern California, but is now much reduced (Oberbauer et al. 2008).

Approximately 0.86 acres of southern willow scrub occur on site in several small patches, with the largest occurrence mapped west of Santee Lakes and adjacent to Sycamore Canyon Road. This vegetation community primarily occurs within drainages. In addition, 0.48 acres of disturbed southern willow scrub on site occur in three small patches, including east and west of Santee Lakes. As a wetland community, southern willow scrub is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the resource agencies.

4.1.20 Non-Vegetated Channel or Floodway (64200)

According to Oberbauer et al. (2008), non-vegetated channel is the sandy, gravelly, or rocky fringe of waterways or flood channels that is unvegetated on a relatively permanent basis. Vegetation may be present but is usually less than 10% total cover and grows on the outer edge of the channel. There are 9.82 acres of non-vegetated channel or floodway on site and an additional 0.05 acres off site. Non-vegetated channel is considered a jurisdictional resource by the resource agencies and a sensitive community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

4.1.21 Arundo-Dominated Riparian (65100)

Arundo-dominated riparian vegetation community is composed of monotypic or nearly monotypic stands of giant reed, which is a non-native species that is fairly widespread in Southern California. Typically, it occurs on moist soils and in streambeds and may be related directly to soil disturbance or the introduction of propagates by grading or flooding. Mapped occurrences may include surrounding native trees. Giant reed often occupies jurisdictional wetlands.

Approximately 1.93 acres of arundo-dominated riparian occur in two small patches on site, including immediately north of Santee Lakes and east of Sycamore Canyon Road. Since this is a non-native vegetation community, only the portion of arundo-dominated riparian (1.40 acres) associated with a drainage feature and regulated by CDFW is considered sensitive.

4.1.22 Coast Live Oak Woodland (71160)

Coast live oak woodland is dominated by a single evergreen species, coast live oak, with a canopy height reaching 32.8 to 82.0 feet (10 to 25 meters) (Oberbauer et al. 2008). The shrub layer is poorly developed, but may include toyon (*Heteromeles arbutifolia*), gooseberry (*Ribes* spp.), or laurel sumac. Other shrub species include chamise, California buckwheat, and chaparral yucca (*Hesperoyucca whipplei*). The herb component is continuous, dominated by a variety of introduced species (Oberbauer et al. 2008).

In the project area, coast live oak woodland is dominated by coast live oak and composes 29.63 acres on site. Coast live oak woodland occurs primarily in several patches along the northwestern boundary of the project area. Coast live oak woodland is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and a portion of this community (25.08 acres) is regulated by CDFW.

4.2 Jurisdictional Aquatic Resources

Jurisdictional aquatic resources include wetlands and non-wetland waters under the jurisdiction of the ACOE and RWQCB, as well as streambeds and riparian habitat under the jurisdiction of the CDFW. Jurisdictional aquatic resources within the project area (including off site at the Cuyamaca Street and

Magnolia Avenue extension areas) total 44.97 acres, comprising 5.16 acres of ACOE/ RWQCB/ CDFW-jurisdictional wetlands/ riparian habitat, 9.88 acres of ACOE/ RWQCB/ CDFW-jurisdictional non-wetland waters of the United States/streambed, 0.02 acres of ACOE/RWQCB/CDFW-jurisdictional non-wetland waters of the United States/riparian habitat, and 29.91 acres of CDFW-only jurisdictional riparian habitat. Acreages for jurisdictional resources are summarized in Table 4-2 and represented in Figure 4-2, Jurisdictional Aquatic Resources.

Table 4-2
Jurisdictional Aquatic Resources within the Project Area (Including Off-Site Areas)

Wetlands Vegetation Community	On Site (acres)	Off Site (acres)	Total Acreage
ACOE/RWQCB Wetlands and CDFW Riparian Areas			
Disturbed Wetland	0.07	—	0.07
Cismontane Alkali Marsh	0.40	—	0.40
Coastal and Valley Freshwater Marsh	0.02	—	0.02
Coastal and Valley Freshwater Marsh (Disturbed)	0.12	—	0.12
Southern Arroyo Willow Riparian Forest	1.54	—	1.54
Mulefat Scrub	1.73	—	1.73
Southern Willow Scrub	0.79	—	0.79
Southern Willow Scrub (Disturbed)	0.48	—	0.48
ACOE/RWQCB Wetlands and CDFW Riparian Areas Subtotal[1]	*5.16*	—	*5.16*
ACOE/RWQCB Non-Wetland Waters and CDFW Streambed			
Non-Vegetated Channel or Floodway	9.82	0.05	9.88
ACOE/RWQCB Non-Wetland Waters and CDFW Riparian Habitat			
Disturbed Wetlands	0.02	—	0.02
CDFW-Only Riparian Habitat			
Southern Sycamore–Alder Riparian Woodland	3.23	—	3.23
Mulefat Scrub	0.13	—	0.13
Southern Willow Scrub	0.07	—	0.07
Arundo-Dominated Riparian	1.40	—	1.40
Coast Live Oak Woodland	25.08	—	25.08
CDFW-Only Riparian Habitat Subtotal	*29.91*	—	*29.91*
Total Jurisdictional Area[1]	**44.91**	**0.05**	**44.97**

Notes: ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.
[1] Totals may not sum due to rounding and are pending agency review.

Several unvegetated channels are located throughout the project area. They total 9.88 acres in the project area and are under the jurisdiction of ACOE/RWQCB as non-wetland waters of the United States/state and under CDFW as streambeds. Although there is a main drainage (Sycamore Canyon) that runs south along the western border of the project area, most of the larger drainages flow east–west. The drainages on site eventually flow into the San Diego River, which runs west less than 0.5 miles south of the project area. The San Diego River flows into the Pacific Ocean, a navigable water of the United States. The on-site drainages do not contain hydrophytic vegetation

or hydric soils; however, they do exhibit evidence of hydrology and a clear bed and bank. These drainages are mapped on Figure 4-2 as line features. These unvegetated drainages are considered waters of the United States under the jurisdiction of the ACOE, and waters of the State of California under the jurisdiction of the RWQCB and CDFW.

Approximately 0.02 acres of CDFW-jurisdictional disturbed wetland are associated with one of the unvegetated channels and are considered ACOE/RWQCB-jurisdictional non-wetland waters (lacked hydric soils to make it an ACOE/RWQCB-jurisdictional wetland) and CDFW-jurisdictional riparian habitat.

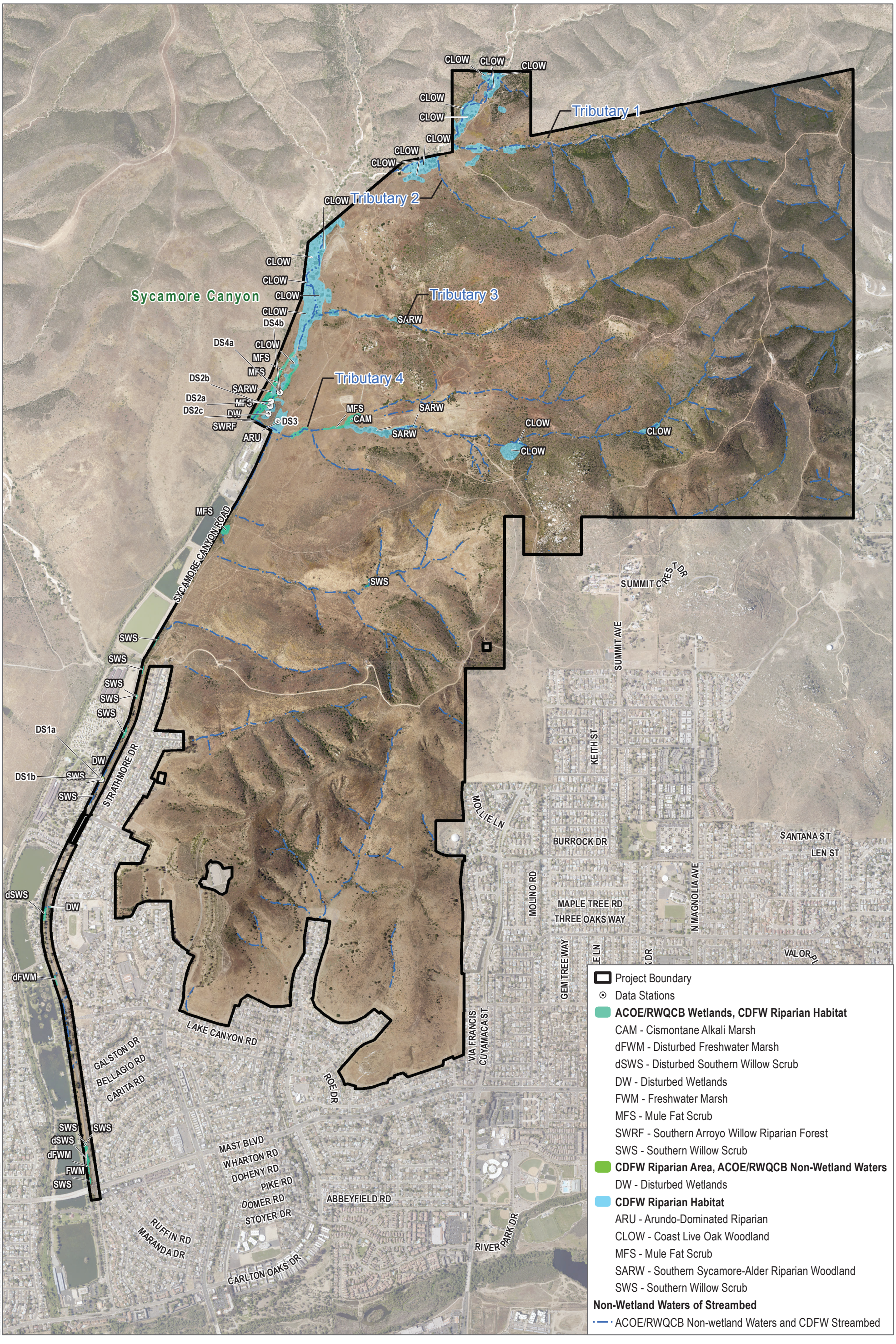
In addition, 5.16 acres of ACOE/RWQCB/CDFW-jurisdictional wetlands/riparian habitat, including cismontane alkali marsh, coastal and valley freshwater marsh (including disturbed), southern willow scrub (including disturbed), disturbed wetlands, mulefat scrub, and southern arroyo willow riparian forest are located primarily in the western portion of the project area. There are also 29.91 acres of CDFW-only riparian habitat that have hydric vegetation, but lack hydric soils and/or suitable hydrology to be under the jurisdiction of ACOE and RWQCB.

Wetland sampling points were taken within selected communities (Figure 4-2); the results are summarized in Table 4-3.

Table 4-3
Wetland Sampling Point Summary

Wetland Sampling Point	ACOE Wetland Determination Field Indicators			Determination, Vegetation Community	Jurisdiction
	Vegetation	*Hydric Soils*	*Hydrology*		
1a	✓	None	✓	Non-wetland Waters/Riparian Habitat, Disturbed Wetland	ACOE/ RWQCB/ CDFW
1b	None	None	None	None, Disturbed Habitat	None
2a	✓	✓	✓	Wetland/Riparian Habitat, Mulefat Scrub	ACOE/ RWQCB/ CDFW
2b	None	None	None	None, Diegan Coastal Sage Scrub	None
2c	None	None	None	Riparian Habitat, Southern Sycamore–Alder Riparian Woodland	CDFW only
3	None	None	None	Riparian Habitat, Arundo-Dominated Riparian	CDFW only
4a	✓	✓	✓	Wetland/Riparian Habitat, Southern Arroyo Willow Riparian Forest	ACOE/ RWQCB/ CDFW
4b	None	None	None	Riparian Habitat, Southern Sycamore–Alder Riparian Woodland	CDFW only

Notes: ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.



SOURCE: SANGIS 2017, 2019

DUDEK

0 750 1,500 Feet

FIGURE 4-2

Jurisdictional Aquatic Resources

Fanita Ranch Biological Technical Report

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4.3 Botany – Plant Diversity

A total of 420 species of plants were observed within the project area during the 2004 and 2016 surveys conducted by Dudek (Appendix J). There are 78 families represented on site, with nearly half of the species coming from the *Asteraceae*, *Poaceae*, *Boraginaceae*, and *Fabaceae* families. Species composition includes 333 (79%) native species and 87 (21%) non-native species occurring on site.

Within the project area, 14 special-status plant species were observed, of which 4 are Draft Santee MSCP Subarea Plan Covered Species, including San Diego goldenstar (*Bloomeria clevelandii*), San Diego barrel cactus (*Ferocactus viridescens*), variegated dudleya (*Dudleya variegata*), and willowy monardella.

4.4 Zoology – Wildlife Diversity

The project area supports habitat for common upland and riparian species. Chaparral, coastal scrub, woodland, riparian, and non-native habitats (e.g., non-native vegetation and non-native grassland) within the project area provide foraging and nesting habitat for migratory and resident birds and other wildlife species. Rock outcroppings, chaparral, coastal scrub, grassland, and woodlands within the project area provide cover and foraging opportunities for wildlife species, including reptiles and mammals.

There were 274 species observed in the project area during the 2014, 2015, 2016, and 2017 surveys. Of the total species observed, 41 (15%) of these are considered special status (9 of which are Draft Santee MSCP Subarea Plan Covered Species). Species observed within the project area were recorded during focused surveys, habitat assessments, vegetation mapping, and sensitive plant surveys. A cumulative list of wildlife species observed during these surveys is provided in Appendix K. Species richness in the project area is moderate due to the property size, amount of undeveloped land, and the number of native upland habitats. Species richness is generally increased with the presence of more habitat types and ecotones. The project area is dominated by three habitat types: coastal sage scrub communities compose 55%, grassland communities compose 15%, and granitic southern mixed chaparral compose 22% of the project area. Although species richness is moderate, the number of species and the wildlife population levels (i.e., number of individuals) is typical for undeveloped areas in this region, particularly those areas that support multiple upland habitat types. The project area supports numerous special-status wildlife species, which are addressed in Section 4.5.3, Special-Status Wildlife Species.

4.4.1 Birds

A total of 137 species of birds were observed within the project area or immediately off site during the surveys conducted from 2003 to 2017. Some of the species observed include rufous-crowned sparrow (*Aimophila ruficeps*), California quail (*Callipepla californica*), Anna's hummingbird

(*Calypte anna*), western scrub-jay (*Aphelocoma californica*), California towhee (*Melozone crissalis*), house finch (*Haemorhous mexicanus*), red-tailed hawk (*Buteo jamaicensis*), and northern mockingbird (*Mimus polyglottos*).

A total of 22 special-status birds were observed: Cooper's hawk (*Accipiter cooperii*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), grasshopper sparrow (*Ammodramus savannarum*), oak titmouse (*Baeolophus inornatus*), coastal cactus wren, northern harrier (*Circus cyaneus*), willow flycatcher (*Empidonax traillii*), merlin (*Falco columbarius*), American peregrine falcon (*Falco peregrinus anatum*), yellow-breasted chat (*Icteria virens*), loggerhead shrike (*Lanius ludovicianus*), osprey (*Pandion haliaetus*), coastal California gnatcatcher, rufous hummingbird (*Selasphorus rufus*), yellow warbler (*Setophaga petechia*), Brewer's sparrow (*Spizella breweri*), golden eagle, Bell's sage sparrow (*Artemisiospiza belli belli*), long-eared owl (*Asio otus*), white-tailed kite (*Elanus leucurus*), California horned lark (*Eremophila alpestris actia*), and least Bell's vireo.

Three of the bird species observed are Draft Santee MSCP Subarea Plan Covered Species: coastal California gnatcatcher, coastal cactus wren, and least Bell's vireo.

4.4.2 Reptiles and Amphibians

A total of 31 species of reptiles and amphibians were observed within the project area during the various surveys conducted for the proposed project. Some of the more common species observed on site include western fence lizard (*Sceloporus occidentalis*), common side-blotched lizard (*Uta stansburiana*), western skink (*Plestiodon skiltonianus*), striped racer (*Coluber lateralis*), gophersnake (*Pituophis catenifer*), western rattlesnake (*Crotalus oreganus*), and southern alligator lizard (*Elgaria multicarinata*).

Six special-status amphibians and reptiles were observed: western spadefoot, red diamondback rattlesnake (*Crotalus ruber*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), two-striped gartersnake (*Thamnophis hammondii*), and Blainville's horned lizard (*Phrynosoma blainvillii*).

Three reptile and amphibian species observed are Draft Santee MSCP Subarea Plan Covered Species: Belding's orange throated whiptail, Blainville's horned lizard, and western spadefoot.

Two non-native and invasive species, African clawed frog (*Xenopus laevis*) and American bullfrog (*Lithobates catesbeianus*), were detected during previous surveys conducted in 1997, 2005, and 2006. African clawed frog occurred in two vernal pools (30 and 44) within the Habitat Preserve in the western portion of the site, and in one road rut (124) within the FMZ road in the eastern portion of the site (Figures 3-1a through 3-1o). The vernal pools (30 and 44) are approximately 700 feet and 880 feet, respectively, northeast of Sycamore Creek and therefore it is likely that this species

originated from Sycamore Creek. The non-vegetated channel approximately 300 feet southeast of the road rut (124) is likely the originating stream for this species. American bullfrog locations were not mapped; however, it is likely that this species is using Sycamore Creek and potentially seasonal basin features within the project area.

4.4.3 Mammals

A total of 37 species of mammals were detected within the project area by direct observation or sign. Common species on site include San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), brush rabbit (*Sylvilagus bachmani*), desert wood rat (*Neotoma lepida*), Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus [Otospermophilus] beecheyi*), coyote (*Canis latrans*), and mule deer (*Odocoileus hemionus*).

A total of 10 special-status mammals were observed: San Diego black-tailed jackrabbit, San Diego desert woodrat (*Neotoma lepida intermedia*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western red bat (*Lasiurus blossevillii*), western yellow bat (*Lasiurus xanthinus*), western small-footed myotis (*Myotis ciliolabrum*), Yuma myotis (*Myotis yumanensis*), and pocketed free-tailed bat (*Nyctinomops femorosaccus*).

4.4.4 Invertebrates

A total of 69 species of invertebrates, the majority of which were butterflies, were identified within the project area by direct observation. Common species on site include Behr's metalmark (*Apodemia mormo virgulti*), common California ringlet (*Coenonympha tullia*), Pacific Sara orangetip (*Anthocharis sara sara*), and checkered white (*Pontia protodice*).

Three special-status invertebrates were observed: San Diego fairy shrimp, Quino checkerspot butterfly, and Hermes copper butterfly. All three species are Draft Santee MSCP Subarea Plan Covered Species.

4.5 Sensitive Biological Resources

The following resources are discussed in this section: habitat areas that are unique, are of relatively limited distribution, or are of particular value to wildlife; plant and animal species present in the project vicinity that are given special recognition by federal, state, or local conservation agencies and organizations owing to declining, limited, or threatened populations; and wildlife corridors and habitat linkages. Sources used for determination of sensitive biological resources were included in Section 3.1, Literature Review.

4.5.1 Sensitive and/or Regulated Habitats

Sensitive habitats are those that are considered rare or declining in the region, or that support sensitive plant and/or wildlife species. In particular, the Draft Santee MSCP Subarea Plan and other local and regional Wildlife Agencies (i.e. CDFW and USFWS) consider the following habitats sensitive, requiring specific mitigation in order to comply with the Draft Santee MSCP Subarea Plan and other regional conservation goals. Regulated habitats are those under the jurisdiction of ACOE, CDFW, and/or RWQCB. These habitats would be considered sensitive for CEQA purposes. Sensitive habitats found in the project area are listed as follows:

- Coast live oak woodland
- Valley needlegrass grassland (including disturbed)
- Arundo-dominated riparian (only the portion regulated by CDFW)
- Disturbed wetland
- Mulefat scrub
- Coastal and valley freshwater marsh (including disturbed)
- Cismontane alkali marsh
- Non-vegetated channel or floodway
- Southern sycamore–alder riparian woodland
- Southern arroyo willow riparian forest
- Southern willow scrub (including disturbed)
- Vernal pool
- Diegan coastal sage scrub (including disturbed, grassland associations, and fire recovered)
- Diegan coastal sage scrub–Baccharis-dominated
- Granitic southern mixed chaparral
- Non-native grassland

4.5.2 Special-Status Plant Species

Special-status plant surveys were conducted to determine the presence or absence of plant species that are considered endangered, rare, or threatened under CEQA Guidelines Section 15380 (14 CCR 15000 et seq.). Special-status plant species directly observed during focused surveys or known to occur in the surrounding region are described in Appendix M, Special-Status Plant Species Detected or Potentially Occurring in the Project Area. Appendix M describes their known

occurrences or potential to occur within the project area based on their general biology (primary habitat associations, life form, blooming period, and known elevation range).

Endangered, rare, or threatened plant species, as defined in CEQA Guidelines Section 15380(b) (14 CCR 15000 et seq.), are referred to as "special-status plant species" in this report and include endangered or threatened plant species recognized in the context of CESA and FESA (CDFW 2017b), plant species with a CRPR of 1 through 4 (CDFW 2017c; CNPS 2018), and plant species considered Covered under the Draft Santee MSCP Subarea Plan.

In considering rarity, the CNPS Inventory of Rare and Endangered Vascular Plants of California was the primary reference (CNPS 2018). Use of the CNPS Inventory is helpful because it clearly defines levels of endangerment and rarity for all of the species addressed in the inventory. The CNPS Inventory divides its subject taxa into four ranks: CRPR 1 (which is further divided into 1A and 1B), 2 (which is further divided into 2A and 2B), 3, and 4. Plants with a CRPR of 1A are presumed extirpated or extinct because they have not been seen or collected in the wild in California for many years. Plants with a CRPR of 1B are rare throughout their range, with the majority of them endemic to California. Most of the plants that are ranked 1B have declined significantly over the last century. Plants with a CRPR of 2A are presumed extirpated because they have not been observed or documented in California for many years. Except for being common beyond the boundaries of California, plants with a CRPR of 2B would have been ranked 1B. Plants with a CRPR of 3 have not had sufficient information collected to assign them to one of the other ranks or to reject them. Nearly all of the plants constituting CRPR 3 are taxonomically problematic. All of the plants constituting CRPR 1A, 1B, 2A, 2B, and 3 meet the definitions of CESA and are eligible for state listing. Plants with a CRPR of 4 are of limited distribution or infrequent throughout a broader area in California, and their status should be monitored regularly. Should the degree of endangerment or rarity of a CRPR 4 plant change, they will be transferred to a more appropriate rank.

Some of the plants constituting CRPR 4 meet the definitions of the CESA and few, if any, are eligible for state listing; this rank is considered to be a watch list. Nevertheless, many of them are significant locally, and it is strongly recommended that CRPR 4 plants be evaluated for impact significance during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, based on CEQA Guidelines Section 15125(c) and/or 15380. This may be particularly appropriate for the following:

- The type locality of a CRPR 4 plant
- Populations at the periphery of a species' range
- Areas where the taxon is especially uncommon
- Areas where the taxon has sustained heavy losses
- Populations exhibiting unusual morphology or occurring on unusual substrates

Focused surveys within the project area were conducted according to the methods presented in Section 3.2, Field Reconnaissance. Through discussions between the City and Wildlife Agencies, it was determined that the 2004 plant surveys were still useful for analysis purposes because they occurred right after the Cedar fire, which burned off years of duff and debris, allowing the ground to be the most visible it could be; because appropriate rainfall during the winter following the fire allowed for good growth of these species; and because periods of subsequent growth of non-native annual grasses combined with drought left the project area in a current condition that was densely covered by a duff layer that created poor survey visibility. It was determined that follow-up surveys would likely result in fewer detections, so the most conservative existing dataset was used for analysis. Although comprehensive surveys for special-status plants were not conducted in 2016 (surveys focused only on willowy monardella where observations had been previously recorded), spot checking previously detected locations confirmed continued presence of populations. Additional populations of six special-status plant species were anecdotally observed during surveys conducted in 2016 and 2017, including San Diego goldenstar, San Diego barrel cactus, Palmer's grapplinghook (*Harpagonella palmeri*), willowy monardella, Engelmann oak (*Quercus engelmannii*), and ashy spike-moss (*Selaginella cinerascens*).

Eight other special-status plant species were observed during previous studies (Dudek 1997, 2005, 2006, 2007): San Diego sagewort, Coulter's saltbush (*Atriplex coulteri*), dissected-leaved toothwort (*Cardamine pachystigma* var. *dissectifolia*), small-flowered morning-glory (*Convolvulus simulans*), variegated dudleya, graceful tarplant (*Holocarpha virgata* ssp. *elongata*), California adder's-tongue (*Ophioglossum californicum*), chaparral rein orchid (*Piperia cooperi*), and San Diego County viguiera (*Viguiera laciniata*).

The species locations were generally mapped by hand and/or with a portable GPS unit as point records where the occurrence is of a single individual and as polygons for a population. The number of individuals within a polygon for a population of special-status plants was visually estimated. For many areas, estimation of number of individuals involved estimating an average density within the mapped polygon. The special-status plant populations within Fanita Ranch are summarized in Table 4-4, and species locations are represented on Figure 4-1 and Figures 4-1a through 4-1af.

Table 4-4
Special-Status Plant Populations within the Fanita Ranch Project Area
(Including Off-Site Areas)

Plant Species	Status (Federal/State/ CNPS/Draft Santee MSCP Subarea Plan)	On Site		Off Site[1]	Total
		Pre-2016	*2016/2017*	*Pre-2016*	
San Diego Sagewort (*Artemisia palmeri*)	None/None/4.2/None	220	—	—	220
Coulter's Saltbush (*Atriplex coulteri*)	None/None/1B.2/None	65	—	—	65

Table 4-4
Special-Status Plant Populations within the Fanita Ranch Project Area
(Including Off-Site Areas)

Plant Species	Status (Federal/State/ CNPS/Draft Santee MSCP Subarea Plan)	On Site		Off Site[1]	Total
		Pre-2016	*2016/2017*	*Pre-2016*	
San Diego Goldenstar (*Bloomeria clevelandii*)	None/None/1B.1/Covered	17,628	690	—	18,318
Small-flowered Morning-glory (*Convolvulus simulans*)	None/None/4.2/None	13	—	—	13
Variegated Dudleya (*Dudleya variegata*)	None/None/1B.2/Covered NE	8,937	—	5	8,942
San Diego Barrel Cactus (*Ferocactus viridescens*)	None/None/2B.1/Covered	4,846	10	—	4,856
Palmer's Grapplinghook (*Harpagonella palmeri*)	None/None/4.2/None	440	10	10	460
Graceful Tarplant (*Holocarpha virgata* ssp. *elongata*)	None/None/4.2/None	6	—	—	6
Willowy Monardella (*Monardella viminea*)	FE/CE/1B.1/Covered	1,588	34	—	1,622
California Adder's-tongue (*Ophioglossum californicum*)	None/None/4.2/None	250	—	—	250
Chaparral Rein Orchid (*Piperia cooperi*)	None/None/4.2/None	1	—	—	1
Engelmann Oak (*Quercus engelmannii*)	None/None/4.2/None	4	1	—	5
Ashy Spike-Moss (*Selaginella cinerascens*)	None/None/4.1/None	*Not mapped due to low ranking and prevalence within the project area.*			
San Diego County Viguiera (*Viguiera laciniata*)	None/None/4.2/None	2,046	—	5	2,051

Notes: MSCP = Multiple Species Conservation Program; NE = narrow endemic.
[1] No special-status plants were surveyed within the off-site areas in 2016/2017.

Status Legend
Federal
FE: Federally listed as endangered.
State
CE: State listed as endangered.
CRPR: California Rare Plant Rank (previously known as the CNPS List)
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
4: Plants of limited distribution – a watch list
Threat Rank
.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 – Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)

Draft Santee MSCP Subarea Plan (City of Santee 2018)
Covered: Draft Santee MSCP Subarea Plan Covered Species

San Diego Sagewort (*Artemisia palmeri*), CRPR 4.2

San Diego sagewort has a CRPR 4.2. San Diego sagewort is a dicot, California native perennial deciduous shrub, and is distributed along the coast of San Diego County (CNPS 2018). San Diego sagewort is found in chaparral; coastal sage scrub; and riparian forest, scrub, and woodland. This species' bloom period is between February and September. San Diego sagewort occurs on sandy, mesic soils at an elevation of 50 feet to 3,000 feet.

A total of 220 San Diego sagewort plants were observed within the central portion of the project area within coast live oak woodland and granitic southern mixed chaparral (Figure 4-1 and Figures 4-1a through 4-1af).

Coulter's Saltbush (*Atriplex coulteri*), CRPR 1B.2

Coulter's saltbush has a CRPR 1B.2. Coulter's saltbush is a dicot, California native perennial herb, and is distributed in Southern California (CNPS 2018). This species is found in coastal strand, valley grassland, and coastal sage scrub. Coulter's saltbush's bloom period is between March and October. This species occurs on alkaline or clay soils at an elevation of less than 1,640 feet.

A total of 65 Coulter's saltbush plants were observed in the western central portion of the project area within disturbed valley needlegrass grassland, non-native grassland, and disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af).

San Diego Goldenstar (*Bloomeria clevelandii*), CRPR 1B.1/Draft Santee MSCP Subarea Plan Covered Species

San Diego goldenstar has a CRPR 1B.1 and is covered by the Draft Santee MSCP Subarea Plan. San Diego goldenstar is a monocot, California native perennial herb, and is distributed in San Diego and Riverside Counties (CNPS 2018). San Diego goldenstar is found in coastal sage scrub, chaparral, valley grassland, and freshwater wetlands. This species' bloom period is between April and May. San Diego goldenstar occurs at an elevation of less than 330 feet.

Approximately 18,313 San Diego goldenstar plants were observed, primarily in the central portion of the project area within Diegan coastal sage scrub (including disturbed), Diegan coastal sage scrub–valley needlegrass grassland (including disturbed), disturbed Diegan coastal sage scrub–non-native grassland, valley needlegrass grassland (including disturbed), granitic southern mixed chaparral, non-native grassland, and disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af).

Small-Flowered Morning-Glory (*Convolvulus simulans*), CRPR 4.2

Small-flowered morning-glory has a CRPR 4.2. Small-flowered morning glory is an annual herb that blooms March through July and grows in openings in chaparral, coastal scrub, and valley and foothill grassland (CNPS 2018). The species is also associated with clay, serpentinite seeps and occurs at an elevation of between 100 feet and 2,870 feet.

A total of 13 small-flowered morning-glory plants were observed in the central and southern portion of the project area within Diegan coastal sage scrub (including disturbed), disturbed Diegan coastal sage scrub–non-native grassland, non-native grassland, valley needlegrass grassland, and disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af).

Variegated Dudleya (*Dudleya variegata*), CRPR 1B.2/Draft Santee MSCP Subarea Plan Covered Species Narrow Endemic

Variegated dudleya has a CRPR 1B.2 and is covered by the Draft Santee MSCP Subarea Plan. Variegated dudleya is a perennial herb that blooms April through June and grows in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland with clay soils, and vernal pools (CNPS 2018). This species is distributed in San Diego, Orange, and Imperial Counties. The elevation range for variegated dudleya is less than 1,000 feet.

Approximately 8,942 individuals of variegated dudleya were recorded throughout the central and southern portion of the project area within Diegan coastal sage scrub (including disturbed), disturbed Diegan coastal sage scrub–valley needlegrass grassland, disturbed Diegan coastal sage scrub–non-native grassland, non-native grassland, valley needlegrass grassland (including disturbed), and disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af).

San Diego Barrel Cactus (*Ferocactus viridescens*), CRPR 2B.1/Draft Santee MSCP Subarea Plan Covered Species

San Diego barrel cactus has a CRPR 2B.1 and is covered by the Draft Santee MSCP Subarea Plan. San Diego barrel cactus is a dicot, California native shrub stem succulent, and is only distributed in San Diego County (CNPS 2018). This species is found in chaparral, valley grassland, coastal sage scrub, vernal pools, and freshwater wetlands. This species' bloom period is between May and June. San Diego barrel cactus occurs on sandy to rocky areas and at an elevation of between 30 feet and 500 feet.

A total of 4,866 San Diego barrel cactus plants were observed throughout the central and southern portion of the project area, including a few areas in the western section, within Diegan coastal sage scrub (including disturbed), Diegan coastal sage scrub–Baccharis-dominated, Diegan coastal sage scrub–valley needlegrass grassland (including disturbed), disturbed Diegan coastal sage scrub–

non-native grassland, valley needlegrass grassland (including disturbed), granitic southern mixed chaparral, non-native grassland, southern sycamore–alder riparian woodland, and disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af).

Palmer's Grapplinghook (*Harpagonella palmeri*), CRPR 4.2

Palmer's grapplinghook has a CRPR 4.2. Palmer's grapplinghook is a dicot, California native annual herb, and is distributed in San Diego, Los Angeles, Orange, and Riverside Counties (CNPS 2018). This species is found in chaparral, valley grassland, and coastal sage scrub. This species' bloom period is between March and May. Palmer's grapplinghook occurs on dry, semi-barren sites and at an elevation of less than 3,280 feet.

A total of 460 Palmer's grapplinghook plants were observed in the central and southern portions of the project area within Diegan coastal sage scrub (including disturbed), non-native grassland, and disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af).

Graceful Tarplant (*Holocarpha virgata* ssp. *elongata*), CRPR 4.2

Graceful tarplant has a CRPR 4.2. Graceful tarplant is a dicot, California native annual herb that is endemic to California and occurs in coastal San Diego, Riverside, and Orange Counties (CNPS 2018). This species is found in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland. The bloom period for graceful tarplant is between May and November. Graceful tarplant occurs at an elevation of between 195 feet and 3,610 feet.

Six graceful tarplant individuals were observed in the northwestern portion of the project area within coast live oak woodland, disturbed valley needlegrass grassland, non-native grassland, and disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af).

Willowy Monardella (*Monardella viminea*), Federally Endangered (FE)/State Endangered/CRPR 1B.1/Draft Santee MSCP Subarea Plan Covered Species

Willowy monardella is federal and state endangered, has a CRPR 1B.1, and is covered by the Draft Santee MSCP Subarea Plan. Willowy monardella is a dicot, California native perennial herb, and is distributed in San Diego and Riverside Counties (CNPS 2018). This species is found in rocky washes, cobbly areas, and alluvial benches. The bloom period for willowy monardella is between June and August. Willowy monardella occurs at an elevation of less than 1,310 feet.

A total of 1,622 willowy monardella plants were observed in the northwestern portion of the project area within coast live oak woodland, Diegan coastal sage scrub (including disturbed), disturbed valley needlegrass grassland, mulefat scrub, non-native grassland, non-vegetated channel, southern sycamore–alder riparian woodland, and southern arroyo willow riparian forest (Figure 4-1 and

Figures 4-1a through 4-1af). A total of 117.56 acres of USFWS-designated Critical Habitat for willowy monardella occurs along the northwestern boundary of the project area (Figure 2-1).

California Adder's-Tongue (*Ophioglossum californicum*), CRPR 4.2

California adder's-tongue has a CRPR 4.2. California adder's-tongue is a pteridophyte, California native fern, and is distributed in central and Southern California (CNPS 2018). This species is found in chaparral, valley grassland, freshwater wetlands, wetland-riparian habitat, and edges of vernal pools. The bloom period for California adder's-tongue is between January and June. California adder's-tongue occurs at an elevation of between 200 feet and 1,475 feet.

A total of 250 California adder's-tongue plants were observed in one area in the northeastern portion of the project area within Diegan coastal sage scrub (Figure 4-1 and Figures 4-1a through 4-1af).

Chaparral Rein Orchid (*Piperia cooperi*), CRPR 4.2

Chaparral rein orchid has a CRPR 4.2. Chaparral rein orchid is a monocot, California native perennial herb, and is distributed in Southern California (CNPS 2018). This species is found on dry sites, and in scrub, chaparral, woodland, and forest habitats. The bloom period for chaparral rein orchid is between March and June. Chaparral rein orchid occurs at an elevation of less than 5,000 feet.

One chaparral rein orchid plant was observed in the northern portion of the project area within granitic southern mixed chaparral (Figure 4-1 and Figures 4-1a through 4-1af).

Engelmann Oak (*Quercus engelmannii*), CRPR 4.2

Engelmann oak has a CRPR 4.2. Engelmann oak is a dicot, California native tree, and is distributed in central and Southern California (CNPS 2018). This species is found in chaparral, valley grassland, and foothill woodland. The bloom period for Engelmann oak is between March and June. Engelmann oak occurs at an elevation of less than 4,260 feet.

Five Engelmann oak trees were observed in the central portion of the project area within Diegan coastal sage scrub and granitic southern mixed chaparral (Figure 4-1 and Figures 4-1a through 4-1af).

Ashy Spike-Moss (*Selaginella cinerascens*), CRPR 4.1

Ashy spike-moss has a CRPR 4.1. Ashy spike-moss is a pteridophyte, California native fern that occurs in San Diego, Riverside, and Orange Counties (CNPS 2018). This species is found in chaparral and coastal sage scrub. Ashy spike-moss occurs at an elevation of 65 feet to 2,100 feet.

Ashy spike-moss was observed in open areas on red clay primarily in the central portion of the project area. This species is a fern and grows as a continuous mat, which makes it difficult to

provide accurate population counts. This species was not mapped due to low ranking and prevalence within the project area.

San Diego County Viguiera (*Viguiera laciniata*), CRPR 4.2

San Diego County viguiera has a CRPR 4.2. San Diego County viguiera is a dicot, California native perennial shrub that occurs in San Diego and Orange Counties (CNPS 2018). This species is found in chaparral and coastal sage scrub. The bloom period for San Diego County viguiera is between February and August. San Diego County viguiera occurs at an elevation of 195 feet to 2,460 feet.

Approximately 2,051 San Diego County viguiera shrubs were observed throughout the project area within Diegan coastal sage scrub (including disturbed), Diegan coastal sage scrub–valley needlegrass grassland (including disturbed), disturbed Diegan coastal sage scrub–non-native grassland, granitic southern mixed chaparral, non-native grassland, valley needlegrass grassland, and disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af).

4.5.3 Special-Status Wildlife Species

Appendix N, Special-Status Wildlife Species Potential to Occur within the Project Area, describes the special-status wildlife species that have been observed; have low, moderate, or high potential to occur; or are not expected to occur. The potential to occur is based on known occurrences in the region, life history, and the general habitat requirements. The CDFW assigns SSC statuses to species whose population levels are declining, have limited ranges, and/or are vulnerable to extinction due to continuing threats (CDFW 2017c). In addition, Fully Protected species are protected by the CDFW, and Watch List (WL) species are candidates for higher sensitive statuses. The USFWS provides the Birds of Conservation Concern (BCC) status to migratory and non-migratory bird species that adhere to the 1988 amendment to the Fish and Wildlife Conservation Act that mandates the USFWS to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973" (USFWS 2008). Special-status wildlife species also include those covered under the Draft Santee MSCP Subarea Plan.

Focused surveys for various wildlife species were conducted according to the methods presented in Section 3.2. A total of 41 special-status species were observed during surveys conducted in 2016 and 2017, and during previous surveys (Dudek 1997, 2005, 2006, 2007) (Figures 4-1a through 4-1af). Those species observed within the project area, and those for which surveys were conducted, are discussed in this section. There are additional species with a moderate potential to occur and they are described in Appendix N. A description of special-status wildlife species observed or detected during surveys is included in Table 4-5.

Table 4-5
Special-Status Wildlife Species Observed on Fanita Ranch
(Including Off-Site Areas)

Wildlife Species	Status (Federal/State/ Draft Santee MSCP Subarea Plan/Other)	On-Site Recordings[1]		Off-Site Recordings[1]	
		Pre-2016	*2016/2017*	*Pre-2016*	*2016/2017*
Amphibians and Reptiles					
Western spadefoot (*Spea hammondii*)	None/SSC/Covered/None	38 features[2]		—	—
San Diegan tiger whiptail[3] (*Aspidoscelis tigris stejnegeri*)	None/SSC/None/None	2	–	—	—
Red diamondback Rattlesnake[3] (*Crotalus ruber*)	None/SSC/None/None	9	1	—	—
Blainville's horned lizard[3] (*Phrynosoma blainvillii*)	None/None/Covered/None	24	3	—	—
Belding's orange-throated whiptail[3] (*Aspidoscelis hyperythra beldingi*)	None/WL/Covered/None	47	6	1	—
Two-striped garter snake (*Thamnophis hammondii*)	None/SSC/None/None	1	—	—	—
Birds					
Cooper's hawk[3] (*Accipiter cooperii*)	None/WL/None/None	11	4	1	—
Southern California rufous-crowned[3] (*Aimophila ruficeps canescens*)	None/WL/None/None	126	28	1	—
Grasshopper sparrow[3] (*Ammodramus savannarum*)	None/SSC/None/None	68	19	—	—
Golden eagle (*Aquila chrysaetos*)	BCC/FP, WL/None/None	1	—	—	—
Bell's sage sparrow[3] (*Artemisiospiza belli belli*)	BCC/WL/None/None	15	—	—	—
Long-eared owl (*Asio otus*)	None/SSC/None/None	1	—	—	—
Oak titmouse[3] (*Baeolophus inornatus*)	BCC/None/None/None	—	3	—	—
Coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)	BCC/SSC/Covered/None	N/A[4]	5 clusters[4]	—	—
Northern harrier (*Circus cyaneus*)	None/SSC/None/None	6	–	—	—
Willow flycatcher (*Empidonax traillii*)	BCC/SE/None/None	—	1	—	—
Merlin (*Falco columbarius*)	None/WL/None/None	1	—	—	—
American peregrine falcon (*Falco peregrinus anatum*)	BCC/FP/None/None	1	2	—	—
Yellow-breasted chat (*Icteria virens*)	None/SSC/None/None	2	1	—	—

Table 4-5
Special-Status Wildlife Species Observed on Fanita Ranch
(Including Off-Site Areas)

Wildlife Species	Status (Federal/State/ Draft Santee MSCP Subarea Plan/Other)	On-Site Recordings[1]		Off-Site Recordings[1]	
		Pre-2016	*2016/2017*	*Pre-2016*	*2016/2017*
Loggerhead shrike[3] (*Lanius ludovicianus*)	BCC/SSC/None/None	8	—	—	—
Osprey (*Pandion haliaetus*)	None/WL/None/None	—	2	—	—
Coastal California gnatcatcher (*Polioptila californica californica*)	FT/SSC/Covered/None	4 pairs, 1 individual[5]	39 Use Areas[6]	—	—
Rufous hummingbird (*Selasphorus rufus*)	BCC/None/None/None	—	1	—	—
Brewer's Sparrow (*Spizella breweri*)	BCC/None/None/None	*Not mapped due to low ranking and prevalence within the project area.*			
Yellow warbler (*Setophaga petechial*)	BCC/SSC/None/None	3	3	—	—
Least bell's vireo (*Vireo bellii pusillus*)	FE/SE/Covered/None	1	2	—	—
White-tailed kite (*Elanus leucurus*)	None/FP/None/None	4	—	—	—
California horned lark[3] (*Eremophila alpestris actia*)	None/WL/None/None	*Not mapped due to low ranking and prevalence within the project area.*			
Mammals					
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	None/SSC/None/None	*Not mapped due to low ranking and prevalence within the project area.*			
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	None/SSC/None/None				
San Diego desert woodrat (*Neotoma lepida intermedia*)	None/SSC/None/None				
Pallid bat (*Antrozous pallidus*)	None/SSC/None/WBWG: H	*Acoustically detected. See Section 4.5.3.3 for discussion on focused bat survey results.*			
Townsend's big-eared bat (*Corynorhinus townsendii*)	None/SSC/None/WBWG: H				
Western red bat (*Lasiurus blossevillii*)	None/SSC/None/WBWG: H				
Western yellow bat (*Lasiurus xanthinus*)	None/SSC/None/WBWG: H				
Western small-footed myotis (*Myotis ciliolabrum*)	None/None/None/WBWG: M				
Yuma myotis (*Myotis yumanensis*)	None/None/None/ WBWG: LM				
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	None/SSC/None/WBWG: M				

Table 4-5
Special-Status Wildlife Species Observed on Fanita Ranch
(Including Off-Site Areas)

Wildlife Species	Status (Federal/State/ Draft Santee MSCP Subarea Plan/Other)	On-Site Recordings[1]		Off-Site Recordings[1]	
		Pre-2016	*2016/2017*	*Pre-2016*	*2016/2017*
Invertebrates					
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	FE/None/Covered/None	71 features[2]		1 feature[2]	
Quino checkerspot butterfly (*Euphydryas editha quino*)[7]	FE/None/Covered/None	1	—	—	—
Hermes copper butterfly (*Lycaena hermes*)[7]	FC/None/Covered/None	3	—	—	—

Notes: MSCP = Multiple Species Conservation Program.

1 Species counts are based on recordings during surveys. Totals are for individuals unless otherwise noted.

2 Based on occupied features rather than number of records/individuals. Number of occupied features for western spadefoot includes those recorded in 2004, 2005, 2016, and 2017. Number of occupied features for San Diego fairy shrimp includes those with San Diego fairy shrimp present as well as features with immature or female brachiopods that could not be identified to species and is based on the protocol-level survey results from 2004, 2004/2005, and 2015/2016.

3 For some widely distributed and more common species, the numbers do not represent the actual population, which may be significantly higher in population and distribution.

4 The habitat for historical occurrences of coastal cactus wren burned and is in the process of recovery. There were five clusters of coastal cactus wren observations observed during surveys in 2017. Clusters rather than individual records were considered for impacts given the localized groups that this species occurs in.

5 Coastal California Gnatcatcher total based on results in Appendix D during 2005 focused surveys.

6 Based on coastal California gnatcatcher Use Areas documented during 2016 focused surveys.

7 Data includes historical occurrences; however, 2016 focused surveys were negative.

Status Legend

Federal

FE: Federally Endangered
FT: Federally Threatened
FC: Federal Candidate
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern

State

SSC: California Species of Special Concern
FP: California Fully Protected Species
WL: California Watch List Species
SE: State Endangered
ST: State Threatened

Draft Santee MSCP Subarea Plan (City of Santee 2018)

Covered: Draft Santee MSCP Subarea Plan Covered Species

WBWG: Western Bat Working Group

H: High
HM: High–Medium
M: Medium
LM: Low–Medium
L: Low

4.5.3.1 Amphibians and Reptiles

Western Spadefoot (*Spea hammondii*), SSC/Draft Santee MSCP Subarea Plan Covered Species

Western spadefoot is primarily an upland species that requires upland habitats for foraging and aestivation burrows during the dry season, but shallow permanent and temporary wetlands for breeding during the wet season (USFWS 2005). Western spadefoot inhabits primarily grasslands with shallow temporary pools and valley–foothill hardwood woodlands (Zeiner et al. 1988). This species ranges throughout the Central Valley and Coast Ranges. Western spadefoot typically occurs in elevations from near sea level to 4,460 feet (Jennings and Hayes 1994). The species is most active during periods of rain. Little is known about the upland habitats used by this species, but a study published in October 2019 found a mean maximum distance from breeding habitat into upland habitat of 69 meters, with a range between 16 meters to 262 meters from breeding habitat (Baumberger et al. 2019). To conserve western spadefoot burrows within upland habitat, CDFW suggests a buffer around breeding habitat of 76 meters and USFWS suggests a buffer of 368 meters (Baumberger et al. 2019). The USGS suggests buffers between 200 meters and 400 meters around breeding habitat (Rochester et al. 2017).

Occurrence in Project Area

Western spadefoot was observed in a total of 38 features observed during vernal pool branchiopod surveys in 2004, 2005, and 2016 and during the 2017 focused surveys along the western boundary and in the southern portion of the project area (Figure 3-8). A total of 242 features were mapped within the project area during vernal pool branchiopod surveys with the potential to support this species. There are approximately 395.24 acres of suitable habitat for western spadefoot in the project area. The following criteria were used for western spadefoot habitat modeling: within 984 feet (300 meters) of occupied features; within vernal pool, open woodlands, non-native grassland, native grassland, coastal sage scrub, or other open lands; and less than 20% slope. It should be noted that a 300-meter buffer was used because it lies in the suggested USGS buffer range and it captures the maximum distance (262 meters) western spadefoots were observed from breeding habitat in the Baumberger et al. 2019 study

San Diegan Tiger Whiptail (*Aspidoscelis tigris stejnegeri*), SSC

San Diegan tiger whiptail is a subspecies and inhabits valley–foothill hardwood, valley–foothill hardwood–conifer, valley–foothill riparian, mixed conifer, pine–juniper, chamise–redshank chaparral, mixed chaparral, desert scrub, desert wash, alkali scrub, and annual grassland (Zeiner et al. 1988). San Diegan tiger whiptail is found in coastal Southern California west of the Peninsular Ranges and south of the Transverse Ranges (Nafis 2017). This species is commonly found in and around dense vegetation, and will cross open areas to reach the cover of vegetated areas.

Occurrence in Project Area

San Diegan tiger whiptail was observed in two locations occurring within the northeastern and northwestern portion of the project area within granitic southern mixed chaparral and non-native grassland in 2004 (Figure 4-1 and Figures 4-1a through 4-1af). There are approximately 638.67 acres of suitable chaparral, oak woodland, and riparian habitat for San Diegan tiger whiptail in the project area.

Red Diamondback Rattlesnake (*Crotalus ruber*), SSC

Red diamondback rattlesnake inhabits chaparral, woodland, and arid desert habitat in rocky areas and dense vegetation along coastal and eastern slopes of San Diego County, and north through western Riverside County to San Bernardino County (Zeiner et al. 1988). This species occurs in elevations from sea level to 5,000 feet and feeds on ground squirrels, rabbits, rodents, lizards, birds, carrion, and other snakes (Klauber 1972; Stebbins 2003).

Occurrence in Project Area

Red diamondback rattlesnake was observed in the northern portion of the project area within Diegan coastal sage scrub (including disturbed), disturbed valley needlegrass grassland, and granitic southern mixed chaparral (Figure 4-1 and Figures 4-1a through 4-1af). There are nine records from 2004 and one record from 2016. There are approximately 2,331.42 acres of suitable chaparral, coastal scrub, non-native grassland, and oak woodland habitat for red diamondback rattlesnake in the project area.

Blainville's Horned Lizard (*Phrynosoma blainvillii*), SSC/Draft Santee MSCP Subarea Plan Covered Species

Blainville's horned lizard inhabits valley–foothill hardwood, conifer and riparian habitats, pine–cypress, juniper, and annual grassland habitats (Zeiner et al. 1988). This species occurs in Sierra Nevada foothills and throughout the central and Southern California coast. Blainville's horned lizard forages on the ground in open areas between shrubs. The species' elevation range extends from sea level to 6,000 feet in the mountains of Southern California.

Occurrence in Project Area

Blainville's horned lizard was observed 27 times in the northern and central portion of the project area within Diegan coastal sage scrub, granitic southern mixed chaparral, and disturbed Diegan coastal sage scrub–valley needlegrass grassland (Figure 4-1 and Figure 4-1a through 4-1af). There are approximately 2,309.77 acres of suitable chaparral, coastal scrub, non-native grassland, and native riparian habitat for Blainville's horned lizard in the project area.

Belding's Orange-Throated Whiptail (*Aspidoscelis hyperythra beldingi*), WL/Draft Santee MSCP Subarea Plan Covered Species

Belding's orange-throated whiptail inhabits low-elevation coastal scrub, chamise–redshank chaparral, and valley–foothill hardwood habitats (Zeiner et al. 1988). This species ranges from Orange, Riverside, San Bernardino, and San Diego Counties west of the Peninsular Ranges. The Belding's orange-throated whiptail ranges in elevation from sea level to 3,410 feet (Jennings and Hayes 1994). This species uses dense vegetation or other surface objects such as rocks, logs, decaying vegetation, and boards as cover.

Occurrence in Project Area

Belding's orange-throated whiptail was observed 54 times in the northern and southern portion of the project area within Diegan coastal sage scrub (including disturbed), granitic southern mixed chaparral, and coast live oak woodland (Figure 4-1 and Figures 4-1a through 4-1af). There are approximately 2,102.10 acres of suitable chaparral, coastal scrub, and oak woodland habitat for Belding's orange-throated whiptail in the project area.

Two-Striped Gartersnake (*Thamnophis hammondii*), SSC

Two-striped gartersnake inhabits permanent or semi-permanent bodies of water with densely vegetated banks with streamside rocks (Zeiner et al. 1988). This species ranges from the Diablo Range and South Coast to the U.S./Mexico border. Typical elevation ranges from sea level to 8,000 feet. The two-striped gartersnake basks on streamside rocks during the day and retreats to holes or mammal burrows at night (Rathburn et al. 1993).

Occurrence in Project Area

One two-striped gartersnake was observed at one location on the western boundary of the project area within disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af). There are approximately 18.66 acres of suitable non-vegetated channel or floodway and vernal pool habitat for two-striped gartersnake in the project area.

4.5.3.2 Birds

Burrowing Owl (*Athene cunicularia*), BCC/SSC/Draft Santee MSCP Subarea Plan Covered Species

Burrowing owl is a BCC, an SSC, and a Draft Santee MSCP Subarea Plan Covered Species. It occurs throughout North and Central America west of the eastern edge of the Great Plains south to Panama. The winter range is much the same as the nesting range, except that most burrowing

owls apparently vacate the northern areas of the Great Plains and the Great Basin in winter (County of Riverside 2008). The majority of burrowing owls that breed in Canada and the northern United States are believed to migrate south during September and October and north during March and April and into the first week of May. These individuals winter within the nesting habitat of more southern populations. Thus, winter observations may include migratory individuals and the resident population (County of Riverside 2008). The burrowing owls in Northern California are believed to migrate (Coulombe 1971).

In California, burrowing owls are year-round residents of flat, open, dry grassland and desert habitats at lower elevations. They can inhabit annual and perennial grasslands and scrublands characterized by low-growing vegetation. They may be found in areas that include trees and shrubs if the cover is less than 30%; however, they prefer treeless grasslands (Bates 2006). Although burrowing owls prefer large, contiguous areas of treeless grasslands, they have also been known to occupy fallow agriculture fields, golf courses, cemeteries, road allowances, airports, vacant lots in residential areas and university campuses, and fairgrounds when nest burrows are present (Bates 2006; County of Riverside 2008). They typically require burrows made by fossorial mammals, such as California ground squirrels. This species also prefers sandy soils with higher bulk density and less silt, clay, and gravel (Lenihan 2007).

Occurrence in Project Area

Focused surveys for burrowing owl were conducted within the project area in 2016, following the guidelines in the Staff Report on Burrowing Owl Mitigation (CDFG 2012) (see Section 3.2.8, Burrowing Owl, for methods).

Potential suitable habitat within the project area includes approximately 1,785 acres of non-native grassland, disturbed habitat, and open areas of coastal sage scrub (including disturbed) that contain burrows, burrow surrogates, or fossorial mammal dens (Figure 3-3). Although there is potential suitable habitat within the project area in the Habitat Preserve, village development, and portions of the off-site areas, no burrowing owls were detected during focused surveys for this species in 2016. The loamy/cobbly soils underlying much of the project area, in particular most of the area within the village development, are not ideal for ground squirrel burrowing. This suggests that within the project area, the distribution and abundance of California ground squirrels, a primary source of burrows for burrowing owls, is limited. Additionally, based on habitat and occurrence data from recent studies, there is a low potential for burrowing owl to occur within the project area in both the Habitat Preserve and village development. There is one California Natural Diversity Database occurrence (presumed extant) from 1993 observed within the project vicinity (CDFW 2017a; Appendix N).

Cooper's Hawk (*Accipiter cooperii*), WL

Cooper's hawk inhabits live oak, riparian deciduous, and other forest habitats near water. Nesting and foraging usually occur near open water or riparian vegetation. Nests are built in dense stands with moderate crown depths, usually in second-growth conifer or deciduous riparian areas. Nests in deciduous trees are typically located in crotches 20 to 50 feet above the ground; in conifers, nests are in horizontal branches or the main crotch. Cooper's hawks use patchy woodlands and edges with snags for perching and hunting small birds, small mammals, reptiles, and amphibians (Zeiner et al. 1990a). Cooper's hawks are diurnally active and year-round residents. Breeding occurs from March through August, with peak activity in May through July. Males defend an area about 330 feet around potential nest sites (Zeiner et al. 1990a).

Occurrence in Project Area

Cooper's hawk was observed in 16 locations in the northern and southern portion of the project area within Diegan coastal sage scrub (including disturbed), coast live oak woodland, valley needlegrass grassland (including disturbed), disturbed Diegan coastal sage scrub–valley needlegrass grassland, non-native grassland, granitic southern mixed chaparral, and disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af). Individuals are known to use wooded habitats on the northwestern portion of the project area for foraging and breeding habitat. There are approximately 34.41 acres of suitable nesting habitat (including oak woodland and riparian forest and woodland vegetation communities) and 2,640.56 acres of suitable foraging habitat in the project area for Cooper's hawk (including coastal sage scrub, chaparral, grassland, disturbed habitat, wetlands, oak woodland, and riparian forest vegetation communities).

Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*), WL

Southern California rufous-crowned sparrow inhabits mixed chaparral and coastal sage scrub. In California, its range extends southward from Mendocino and Tehama Counties; this species is most numerous in the western part of this range (Zeiner et al. 1990a). Southern California rufous-crowned sparrows breed and forage on dry grass and/or forbs on hillsides with scattered shrubs and rock outcrops. Nests are usually made on the ground, at the base of grass tussock or shrubs. It is a year-round resident and diurnally active, eating mostly insects and spiders during the breeding season and seeds, grass, and forb shoots throughout the year. It breeds from mid-March to mid-June with a peak in May. In Southern California coastal sage scrub, the average sized territory is approximately 2 acres (Zeiner et al. 1990a).

Occurrence in Project Area

Southern California rufous-crowned sparrow was observed throughout the project area within chaparral and coastal sage scrub (Figure 4-1 and Figures 4-1a through 4-1af). There are approximately 2,072.47 acres of suitable chaparral and coastal scrub habitat for Southern California rufous-crowned sparrow in the project area.

Grasshopper Sparrow (*Ammodramus savannarum*), SSC

The grasshopper sparrow is a neotropical migrant that breeds throughout the eastern two-thirds of the United States, except for the extreme southeast (Vickery 1996). In California, birds observed during the winter in breeding areas may be residents or winter migrants (Unitt 2008). Its breeding range in California includes Humboldt, Del Norte, Mendocino, Trinity, and Tehama Counties in the north; areas west of the Cascade and Sierra Nevada ranges; and south to San Diego County (Unitt 2008). The grasshopper sparrow uses dense, dry, or well-drained grassland, especially native grassland with a mix of grasses and forbs, for foraging and nesting; the species requires fairly continuous native grassland areas with occasional taller grasses, forbs, or shrubs for song perches (Garrett and Dunn 1981a; Unitt 2008). Grasshopper sparrows feed primarily on insects in the summer and grass and forb seeds in winter (Vickery 1996). Grasshopper sparrows breed from early April to mid-July, with a peak in May and June. Clutch size is four to five eggs that incubate in 11 to 12 days (Harrison 1978).

Occurrence in Project Area

Grasshopper sparrow was observed in several locations throughout the project area within Diegan coastal sage scrub–valley needlegrass grassland (including disturbed), disturbed Diegan coastal sage scrub–non-native grassland, valley needlegrass grassland (including disturbed), and non-native grassland, (Figure 4-1 and Figures 4-1a through 4-1af). Although 73 observations of grasshopper sparrow were previously mapped during surveys conducted in 1997, 2003, and 2004, those locations were within grassland areas affected by the Cedar fire and have since recovered as chaparral and scrub habitats. Therefore, more accurate mapping of grasshopper sparrow would only include the 2016 locations. A total of 19 grasshopper sparrow individuals were observed during 2016. There are approximately 552.11 acres of suitable grassland habitat for grasshopper sparrow in the project area.

Golden Eagle (*Aquila chrysaetos*), BCC/Fully Protected, WL

The golden eagle is a year-round, diurnally active species that is a permanent resident and migrant throughout California. Golden eagles are more common in northeast California and the Coast Ranges than in Southern California and the deserts. In Southern California, the species tends to occupy mountain, foothill, and desert habitats. Foraging habitat for this species includes open habitats with scrub, grasslands, desert communities, and agricultural areas. This species nests on cliffs within canyons and escarpments and in large trees (generally occurring in open habitats) and

is primarily restricted to rugged, mountainous country (Garrett and Dunn 1981b; Johnsgard 1990). Most nests are located on cliffs or trees near forest edges or in small stands near open fields (Kochert et al. 2002). Nest locations tend to be more closely associated with topographic heterogeneity than with a particular vegetation type (Call 1978).

Golden eagles breed from January through August, with peak breeding activity occurring from February through July. Nest building can occur almost any time during the year. This species nests on cliffs, rock outcrops, large trees, and artificial structures such as electrical transmission towers, generally near open habitats used for foraging (Garrett and Dunn 1981b; Johnsgard 1990; Kochert et al. 2002; Scott 1985). Golden eagles commonly build, maintain, and variably use multiple alternative nest sites in their breeding territories, routinely refurbishing and reusing individual nests over many years. Generally, the nests are large platforms composed of sticks, twigs, and greenery that are often 10 feet (3 meters) across and 3 feet (1 meter) high (Zeiner et al. 1990a). Pairs may build more than one nest and attend to them prior to laying eggs (Kochert et al. 2002). Each pair can have up to 10 nests, but only 2 to 3 are generally used in rotation from one year to the next. Some pairs use the same nest each year, and others use alternate nests year after year, and still others apparently nest only every other year. Succeeding generations of eagles may even use the same nest (Terres 1980).

The USGS, in collaboration with local, state, and other federal agencies, began a multiyear survey and tracking program of golden eagles in October 2014 and has continued through 2019. Golden eagles were captured and given an ID and a GPS transmitter. Using the GPS transmitters, the USGS has been able to collect abundant 3D location data. While the biotelemetry data has not been analyzed yet, basic location data has been made available to the public (Tracey et al. 2016, 2017). In general, data were collected between November 22, 2014, and February 23, 2016. The location data for eagles ranged as far north in California as San Luis Obispo and Inyo National Forest, as well as Nevada, Colorado, Utah, and Wyoming, and as far south as La Paz, Baja California, Mexico (Tracey et al. 2016, 2017).

Occurrence in Project Area

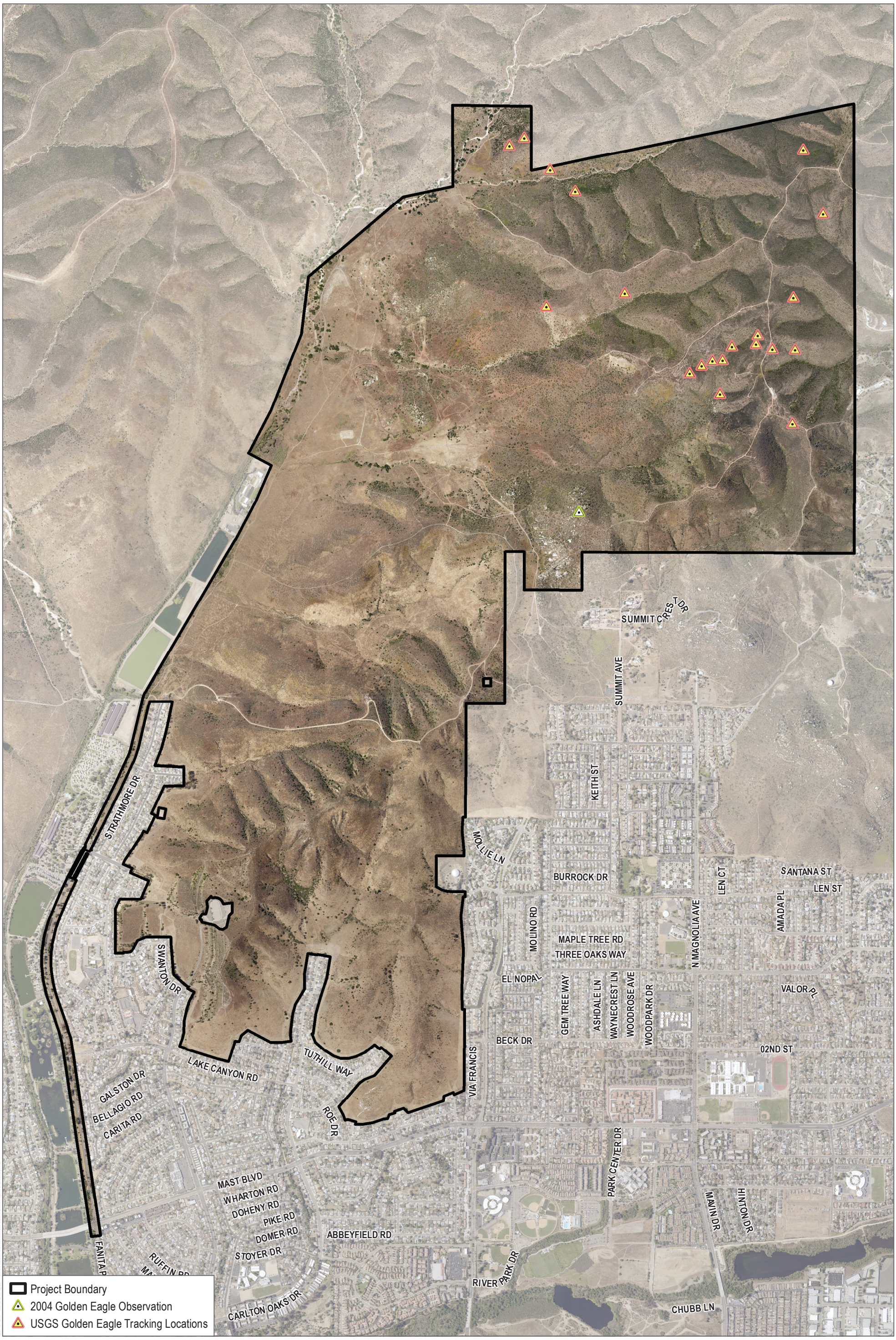
Golden eagle has been observed occasionally flying over the project area as noted during previous studies (Dudek 2007). In 2004, one golden eagle was recorded as flying over the project area. Although golden eagles have been seen flying over the project area, the project does not contain the appropriate nesting habitat for this species. The one historical observation is included in Figure 4-3, USGS Golden Eagle Location Data and Observations.

Based on the USGS data, GOEA-SD-F001 (active at least through February 2017) was captured on November 22, 2014, in the Boulder Oaks area and may occasionally fly over the project area; GOEA-SD-F002 (active until at least through February 2016) was captured on November 28, 2014, at Cedar Canyon and flies over the project area on occasion; and GOEA-SD-M003 (active at least through

February 2017) was captured on February 3, 2015, in the Rancho Canada area and has flown over the project area once. All of these flights are assumed to have been transit flights and likely not foraging efforts. There is no nesting habitat on site and the probable closest nesting location is in the Boulder Oaks area, which is buffered from the project area by topography, State Route 67, and abundant development. It is likely that the frequent and heavy use of the project area by hikers, bicyclists, helicopters, and others makes the project area relatively unattractive to golden eagle. The USGS tracking program determined that golden eagles prefer more rugged areas in higher elevation terrain, which is not found within the project area (Tracey et al. 2018).

Potential suitable foraging habitat for golden eagle includes open habitats, including grasslands, disturbed coastal scrub, coastal scrub/grassland, and marshes, which total approximately 834.23 acres in the project area. However, the USGS tracking program determined that potential suitable habitat may be unoccupied by golden eagles for the following reasons: habitat patches may be too small to support a territory, there may be a lack of functional connectivity to other golden eagle habitat, there may be disturbance from recreation or other human activities, and/or there may be a lack of prey (Tracey et al. 2018).

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SOURCE: USGS 2016, 2017; SANGIS 2017, 2019

DUDEK

0 750 1,500 Feet

FIGURE 4-3

USGS Golden Eagle Location Data and Observations

Fanita Ranch Biological Technical Report

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Bell's Sage Sparrow (*Artemisiospiza belli belli*), BCC/WL

Bell's sage sparrow is a BCC and a WL species. The recently designated Bell's sage sparrow (*Artemisiospiza belli*) consists of *A. b. belli* and *A. b. canescens*, both formerly considered subspecies of the sage sparrow (*Amphispiza belli*) and now split from the sagebrush sparrow (*A. nevadensis*) (Chesser et al. 2013). The nominate form of Bell's sage sparrow, as Bell's sage sparrow, is designated as a special-status species. This species occurs in chaparral and coastal scrub communities along the Coast Ranges of central California and in the Transverse Ranges of Southern California. This species occurs as a non-migratory resident on the western slope of the central Sierra Nevada Range, and in the coastal ranges of California, southward from Marin County and Trinity County, extending into north-central Baja California, Mexico (County of Riverside 2008). The range of this species overlaps with that of at least one other subspecies of sage sparrow (County of Riverside 2008). This species occupies semi-open habitats with evenly spaced shrubs that are 3.3 to 6.6 feet high (County of Riverside 2008). This species is uncommon to fairly common in dry chaparral and coastal sage scrub along the coastal lowlands, inland valleys, and lower foothills of the mountains within its range.

Occurrence in Project Area

Bell's sage sparrow was observed during previous studies (Dudek 2007) but has not been observed during more recent surveys. Bell's sage sparrow observation locations are all within chaparral and coastal scrub habitat in the northeastern portion of the project area (Figure 4-1 and Figures 4-1a through 4-1af). There are approximately 2,072.47 acres of suitable chaparral and coastal scrub habitat for Bell's sage sparrow in the project area.

Long-Eared Owl (*Asio otus*), SSC

Long-eared owl inhabits riparian habitat, including oak thickets and other dense stands of trees (Zeiner et al. 1990a). This species ranges throughout California, except for Central Valley and Southern California deserts, where the long-eared owl winters. The long-eared owl uses densely canopied trees for roosting and nesting.

Occurrence in Project Area

Long-eared owl was observed in 1997. This species was recorded in previous studies in coast live oak woodland in the northern portion of the project area (Figure 4-1 and Figures 4-1a through 4-1af). There are approximately 37.61 acres of suitable native riparian and oak woodland habitat for long-eared owl in the project area.

Oak Titmouse (*Baeolophus inornatus*), BCC

Oak titmouse inhabits montane hardwood–conifer; montane hardwood; blue, valley, and coastal oak woodlands; and montane and valley foothill riparian habitats (Zeiner et al. 1990a). This species ranges from Humboldt County to the U.S./Mexico border, and prefers open woodland of oak and pine. Oak titmouse builds nests of grass, moss, mud, and feathers in woodpecker holes or natural cavities, and often breeds near water (Harrison 1978).

Occurrence in Project Area

Although there were oak titmouse observed in the central and southern portions of the project area within Diegan coastal sage scrub, non-native grassland, and disturbed habitat, the species prefers oak woodland for nesting and was likely foraging when observed (Figure 4-1 and Figures 4-1a through 4-1af). One of the oak titmouse observations is in close proximity to oak woodland. There are approximately 29.63 acres of suitable oak woodland habitat for oak titmouse in the project area.

Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*), USFWS BCC/SSC/ Draft Santee MSCP Subarea Plan Covered Species

Coastal cactus wren is a locally common resident in the Mojave and Colorado Deserts, from Mexico to Inyo and Kern Counties. The coastal subspecies is found in arid parts of Southern California's westward-draining slopes. The coastal cactus wren occurs in desert succulent shrub, Joshua tree, and desert wash habitats. It forages for insects, spiders, and other small invertebrates; cactus fruits and other fruits; nectar; and seeds. The coastal cactus wren breeds from March to June, commonly with two broods per season and four to five eggs per clutch (Zeiner et al. 1990a).

Occurrence in Project Area

Coastal cactus wren was observed during 2017 focused surveys and incidental observations occurred during previous surveys conducted in 1997, 2004, and 2016. Occupied habitat that was mapped in 1997 and 2004 burned, but some patches are recovering. During the 2017 focused surveys, eight individuals were acoustically and visually detected and two active nests were observed at three locations in the central portion of the project area. Coastal cactus wrens were acoustically detected at three additional cactus patches. Overall, there are five clusters of coastal cactus wren observations on site based on the recent 2016/2017 data: in the southern portion of the project area along the eastern boundary, along the drainage east of Santee Lakes, two separate areas along the ridgeline trail east of Santee Lakes, and one on the slope north of this ridgeline (Figure 3-6). Clusters, rather than individual records, were considered for impacts given the localized familial groups that this species occurs in. There are approximately 0.99 acres of suitable cactus patches for coastal cactus wren in the project area based on the 2017 focused survey and cactus mapping.

Northern Harrier (*Circus cyaneus*), SCC

Northern harrier inhabits annual grassland, lodgepole pine, and pine meadow habitats in the Central Valley, Sierra Nevada, and northeastern California (Zeiner et al. 1990a). This species is less common in the Central Valley, and permanently resides on the northeastern plateau and coastal areas. Northern harrier breeds from sea level to 5,700 feet and nests on the ground in shrubby vegetation, within tall grasses and forbs in wetland (Brown and Amadon 1968).

Occurrence in Project Area

Northern harrier was observed foraging in several locations throughout the project area within Diegan coastal sage scrub (including disturbed), valley needlegrass grassland, and disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af). This species has low potential for nesting within the project area due to lack of preferred nesting habitat and lack of observations. There are approximately 1,879.23 acres of suitable coastal scrub and grassland habitat for foraging northern harrier in the project area.

Willow Flycatcher (*Empidonax traillii*), BCC/State Endangered

Willow flycatcher inhabits wet meadow and montane riparian habitats (Zeiner et al. 1990a). This species occurs between 2,000 feet and 8,000 feet in elevation in the Sierra Nevada and Cascade Range. Willow flycatcher nests and roots in dense willow thickets, and builds open, cup nests in upright forks of willows or other shrubs (Stein 1963).

Occurrence in Project Area

One willow flycatcher was observed on May 23, 2017, during focused surveys for southwestern willow flycatcher (Figure 3-5). The individual was not observed during subsequent visits. In accordance with the USFWS survey protocol for southwestern willow flycatcher, this individual was assumed to be a migrant and not the listed southwestern willow flycatcher (see Appendix F for details on the focused survey). Approximately 7.98 acres of native riparian habitat for willow flycatcher and southwestern willow flycatcher were surveyed within the project area (Appendix F).

Merlin (*Falco columbarius*), WL

Merlin inhabits annual grassland, savannahs, woodlands, lakes, wetlands, and pine and conifer habitats (Zeiner et al. 1990a). This species is a winter migrant from September to May throughout western California below 3,900 feet in elevation. Merlin does not breed in California; however, this species does winter and forage in dense tree stands near bodies of water.

Occurrence in Project Area

Merlin was observed during winter months in previous studies within non-native grassland (Figure 4-1 and Figures 4-1a through 4-1af). Since this species does not breed in California, this species does not have the potential to nest within the project area. There are approximately 437.45 acres of suitable marsh, grassland, and oak woodland habitat for merlin in the project area.

American Peregrine Falcon (*Falco peregrinus anatum*), BCC/Fully Protected

American peregrine falcon is a subspecies and inhabits riparian woodland, forest, inland wetlands, and coastal habitats (Zeiner et al. 1990a). This species migrates throughout California and breeds along the coast of central and Southern California, inland north coastal mountains, Klamath Mountains, Cascade Range, Sierra Nevada, and Channel Islands. The American peregrine falcon frequents bodies of water in open areas with cliffs.

Occurrence in Project Area

American peregrine falcon was occasionally observed flying over the project area, typically in pursuit of waterfowl at the nearby Santee Lakes and Padre Dam effluent ponds (Figure 4-1 and Figures 4-1a through 4-1af). However, suitable breeding habitat is not present in the project area. There are 8.52 acres of suitable foraging habitat for American peregrine falcon within the project area, including marsh and native riparian habitats.

Yellow-Breasted Chat (*Icteria virens*), SSC

Yellow-breasted chat inhabits riparian thickets of willow and other shrubs near water (Zeiner et al. 1990a). This species occurs in the foothills of Sierra Nevada at 4,800 feet to 6,500 feet in elevation. The yellow-breasted chat nests in dense shrubs along streams or rivers.

Occurrence in Project Area

Yellow-breasted chat was observed in three locations within the central portion and western boundary of the project area. Observations occured within coast live oak woodland, within Diegan coastal sage scrub (including disturbed), and adjacent to non-wetland waters, where the species was likely foraging (Figure 4-1 and Figures 4-1a through 4-1af). There are approximately 36.75 acres of suitable native riparian habitat and oak woodland for yellow-breasted chat in the project area**.**

Loggerhead Shrike (*Lanius ludovicianus*), BCC/SSC

Loggerhead shrike inhabits open-canopied riparian woodland habitats (Zeiner et al. 1990a). This species ranges throughout California in the lowlands and foothills. The loggerhead shrike is a resident and winter visitor, and prefers open habitats with perches, including scattered shrubs, trees, posts, fences, and utility lines.

Occurrence in Project Area

Loggerhead shrike was observed in 2015 and during previous studies (Dudek 1997, 2005). This species was observed within coastal sage scrub, granitic southern mixed chaparral, non-native grassland, and disturbed habitat (Figure 4-1 and Figures 4-1a through 4-1af). There are approximately 2,602.41 acres of suitable marsh, coastal scrub, chaparral, grassland, and disturbed habitat for loggerhead shrike in the project area**.**

Osprey (*Pandion haliaetus*), WL

Osprey is an uncommon winter visitor along the coast and inland lakes of Southern California (Garrett and Dunn 1981a). Osprey require open, clear water for foraging, and use large trees and snags in open forest habitat for cover and nesting. This species has been observed within San Diego County at Lake Hodges, Cuyamaca, Barratt, and Morena, but more widely in winter than during breeding season (SDNHM 2012).

Occurrence in Project Area

Osprey were observed in the southern portion of the project area within fire-recovered Diegan coastal sage scrub east of Settle Road (Figure 4-1 and Figures 4-1a through 4-1af). Osprey are occasionally observed perched on power line towers or tall poles eating fish captured from Santee Lakes. There are no foraging or nesting opportunities for osprey in the project area.

Coastal California Gnatcatcher (*Polioptila californica californica*); FT/SSC/Draft Santee MSCP Subarea Plan Covered Species

Coastal California gnatcatcher is distributed from eastern Orange and southwestern Riverside Counties south through the coastal foothills of San Diego County and along the coast at Palos Verdes Peninsula. It occurs in low numbers in the San Gabriel and San Bernardino Mountains of Los Angeles and San Bernardino Counties (Zeiner et al. 1990a). Coastal California gnatcatcher is considered an obligate resident of coastal scrub habitat in arid washes, on mesas, and on slopes of coastal hills; habitat areas dominated by California buckwheat, coastal sagebrush, and prickly pear patches are especially preferred (Zeiner et al. 1990a). Coastal California gnatcatcher is an insectivorous species that forages by gleaning.

Occurrence in Project Area

Focused presence and absence coastal California gnatcatcher surveys for the proposed project detected several coastal California gnatcatchers throughout the project area. Appendix D and Appendix E include the focused coastal California gnatcatcher survey reports from 2005 and 2016. During the 2016 focused survey, 39 coastal California gnatcatcher use areas were detected. A

coastal California gnatcatcher use area is defined as a specific area of habitat that each coastal California gnatcatcher pair was observed utilizing (i.e., nesting and/or foraging in) during the 2016 survey effort. In addition, 42 individual coastal California gnatcatchers were observed during the 2016 focused surveys, consisting of 29 juveniles, 7 capped (adult males), and 6 non-capped individuals. Non-capped coastal California gnatcatcher were mapped where it could not be determined if the bird was an adult female or juvenile coastal California gnatcatcher. The 39 coastal California gnatcatcher use areas occur throughout the project area, except for the central portion, with the majority located in the southern portion of the project area (Figure 3-4).

There are approximately 1,471.40 acres of suitable coastal scrub habitat for coastal California gnatcatcher within the project area. A total of 2,407.40 acres of USFWS-designated Critical Habitat for coastal California gnatcatcher occurs within the project area (Figure 2-1).

Rufous Hummingbird (*Selasphorus rufus*), BCC

Rufous hummingbird inhabits areas with nectar-producing flowers, including lowlands and foothills during northward and southward migration (Zeiner et al. 1990a). This species breeds in Oregon and Washington, and migrates south through the Cascade Range and Sierra Nevada to winter in Southern California (Garrett and Dunn 1981a; Grinnell and Miller 1944; McCaskie et al. 1979, 1988). The rufous hummingbird is found in habitats that provide cover, including lowland riparian, open woodlands, scrub, and chaparral (Grinnell and Miller 1944).

Occurrence in Project Area

Rufous hummingbird was observed during 2016 coastal California gnatcatcher focused surveys. This species' location was not mapped due to its low sensitivity. There are approximately 1,509.01 acres of suitable coastal scrub, oak woodland, and native riparian habitat for rufous hummingbird within the project area.

Yellow Warbler (*Setophaga petechia*), BCC/SSC

Yellow warbler inhabits riparian woodland in coastal and desert lowlands, montane chaparral, open ponderosa pine, and mixed conifer habitats (Zeiner et al. 1990a). This species breeds along the coast of California west of Sierra Nevada, and eastern California from Lake Tahoe south to Inyo County. The yellow warbler occurs in medium-density woodlands and forests with heavy brush understory, and migrates to sparse to dense woodland and forest habitats.

Occurrence in Project Area

Yellow warbler was observed at six locations: in the northern, western, and southern portions of the project area within coast live oak woodland; non-native grassland; southern arroyo willow

riparian forest; and southern sycamore–alder riparian woodland adjacent to non-wetland waters (Figure 4-1 and Figures 4-1a through 4-1af). There are approximately 36.75 acres of suitable oak woodland and native riparian habitat for yellow warbler within the project area.

Brewer's Sparrow (*Spizella breweri*), BCC

Brewer's sparrow inhabits desert scrub, croplands, and treeless shrub habitats with moderate canopy and sagebrush (Zeiner et al. 1990a). This species breeds east of the Cascade–Sierra Nevada crest, Mojave and Colorado deserts, and San Joaquin Valley. In recent years, the Brewer's sparrow rarely breeds in southwestern California (Garrett and Dunn 1981a). This species finds cover in sagebrush and nests in the center of sagebrush or other shrub up to 3.9 feet above the ground.

Occurrence in Project Area

Brewer's sparrow was observed during focused surveys for Quino Checkerspot butterfly in 2016. This species is unlikely to nest within the project area and this species' location was not mapped due to its low sensitivity. There are approximately 2,072.47 acres of suitable coastal scrub and chaparral habitat for Brewer's sparrow within the project area.

Least Bell's Vireo (*Vireo bellii pusillus*), FE/State Endangered/Draft Santee MSCP Subarea Plan Covered Species

Least Bell's vireo inhabits low, dense valley foothill riparian habitat (including willows) and desert riparian habitat (Zeiner et al. 1990a). This species is endemic to California and northern Baja California, Mexico, and common in coastal Southern California from Santa Barbara County south. Least Bell's vireo is a rare, summer resident found in elevations below 2,000 feet, inhabiting willow thickets adjacent to water or along dry parts of intermittent streams.

Occurrence in Project Area

One historic least Bell's vireo observation occurred during surveys in 1997; however, only one individual was observed early in the breeding season and it did not nest within the project area. Least Bell's vireo was observed during 2016 focused surveys for coastal California gnatcatcher. One least Bell's vireo nesting pair was observed within mixed chaparral and coastal sage scrub in a canyon outside of the designated survey areas for this species (Figure 3-5). The pair disbanded and the male was detected throughout the survey season, although the individual did not venture into the designated survey area. Least Bell's vireo were not detected during the 2016 focused surveys for the species. There are approximately 7.98 acres of suitable native riparian habitat for least Bell's vireo within the project area.

White-Tailed Kite (*Elanus leucurus*), State Fully Protected

White-tailed kite inhabits herbaceous and open cismontane habitats (Zeiner et al. 1990a). This species is a year-round resident in coastal and valley lowlands, and forages in undisturbed, open grasslands; meadows; farmlands; and emergent wetlands. The white-tailed kite finds cover in trees with dense canopies and makes a nest using loosely piled sticks and twigs with grass and straw.

Occurrence in Project Area

White-tailed kite was observed foraging four times in the northern and southern portion of the project area within coast live oak woodland and Diegan coastal sage scrub (Figure 4-1 and Figures 4-1a through 4-1af). This species has low potential to nest within the project area. There are approximately 2,029.58 acres of suitable wetland, coastal scrub, grassland, disturbed, and oak woodland habitat for foraging within the project area.

California Horned Lark (*Eremophila alpestris actia*), WL

California horned lark inhabits grasslands and other open habitats with low, sparse vegetation, such as open desert scrub and alpine dwarf-shrub habitat. It is occasionally found in coniferous or chaparral habitats. California horned larks nest in depressions on the ground and feed on insects, snails, and spiders during breeding season, adding grass and forb seeds in other seasons. California horned larks are year-round residents in lowland areas throughout California, except the northern coastal area. The eastern Sierra Nevada also provides habitat in summer, with most birds in these montane habitats moving downslope in the winter. Winter migrants from out of state may join flocks in the southeastern deserts. California horned larks breed from March through July, with peak activity in May (Zeiner et al. 1990b).

Occurrence in Project Area

This species was observed within the project area in winter during previous studies (Dudek 2007), but has not been observed in more recent surveys. This species' location was not mapped due to its low sensitivity. California horned lark is unlikely to breed on site based on observations only occurring during the winter months. There are 527.92 acres of suitable foraging habitat (disturbed habitat and grasslands) within the project area for California horned lark.

4.5.3.3 Mammals

San Diego Black-Tailed Jackrabbit (*Lepus californicus bennettii*), SSC

San Diego black-tailed jackrabbit is found in coastal scrub and chaparral areas in San Diego, Riverside, San Bernardino, and Los Angeles Counties (Zeiner et al. 1990b). The San Diego black-

tailed jackrabbit is herbivorous, grazes on grasses and forbs, and uses shrubs for cover (Zeiner et al. 1990b). This species breeds throughout the year, and young are born beneath vegetation (Zeiner et al. 1990b). A litter of three to four offspring is produced four times throughout the year, depending on environmental conditions (Zeiner et al. 1990b).

Occurrence in Project Area

San Diego black-tailed jackrabbit was observed throughout the project area in coastal sage and chaparral communities (Figure 4-1 and Figures 4-1a through 4-1af). There are approximately 2,630.02 acres of suitable upland habitats and disturbed habitat for San Diego black-tailed jackrabbit in the project area.

Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*), SSC

Northwestern San Diego pocket mouse is a subspecies and inhabits sandy herbaceous areas in association with rocks and course gravel (Grinnell 1933; Miller and Stebbins 1964). This subspecies occurs in arid coastal and desert border areas in southwestern California (Zeiner et al. 1990a). Typical habitats for the northwestern San Diego pocket mouse include coastal scrub, chamise–redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland.

Occurrence in Project Area

Northwestern San Diego pocket mouse was commonly observed in shrub habitat on site and documented during the 1997 trapping study. There are approximately 2,479.75 acres of suitable chaparral, coastal scrub, and non-native grassland habitat for northwestern San Diego pocket mouse within the project area.

San Diego Desert Woodrat (*Neotoma lepida intermedia*), SSC

San Diego desert woodrat is found in coastal Southern California into Baja California, Mexico (Reid 2006). Marginal eastern records for the San Diego desert woodrat in the United States include San Luis Obispo, San Fernando in Los Angeles County, the San Bernardino Mountains and Redlands in San Bernardino County, and Julian in San Diego County (Hall 1981). Desert woodrats are found in a variety of shrub and desert habitats and are primarily associated with rock outcroppings, boulders, cacti, or areas of dense undergrowth.

Occurrence in Project Area

San Diego desert woodrat were recorded during the small mammal trapping (Dudek 2007) in low numbers. Woodrat middens were also observed in 2016, which are signs that the species is present;

however, locations were not mapped due to the species' low sensitivity. There are approximately 2,072.47 acres of suitable coastal scrub and chaparral habitat within the project area.

Bat Species Survey Summary

Data collected from passive acoustic bat surveys were reviewed and it was determined that bat species were present within the project area in July and August 2016. The passive acoustic bat survey results were also used to evaluate the level of bat activity at each survey station. Ten bat species were identified within the project area using the Anabat passive surveys, including seven special-status species: pallid bat, Townsend's big-eared bat, western red bat, western yellow bat, western small-footed myotis, Yuma myotis, and pocketed free-tailed bat.

Table 4-6 shows the number of minutes of bat activity for each survey location and species richness across all survey locations. Exact numbers of individuals cannot be determined because the difference between single vocalization files made by different individuals or multiple vocalization files made by the same individual cannot be distinguished. Instead, the sum of 1-minute time increments for which a species was detected as present is used to calculate index of abundance (IA), or the magnitude of each species' contribution to spatial use (Miller 2001) (Table 4-6). See Figure 3-9 and Appendix O, 2016 Focused Bat Survey Results at Fanita Ranch, for detailed survey locations and results. Survey Location 1 (within coast live oak woodland adjacent to an unvegetated channel) and Location 3 (within coastal sage scrub adjacent to a hillside with a rocky outcrop) are within the Habitat Preserve. Survey Location 5 (within mulefat scrub adjacent to Santee Lakes) and Location 8 (within southern mixed chaparral adjacent to a rocky outcrop) are within the village development. Survey Location 2 (located at the interface of coastal sage scrub and coast live oak woodland) is outside of the northwest project boundary. Although bat species were detected via acoustic methods within the project boundaries, it is difficult to confirm that the bat species roost on site based on this survey. The bat species may have been passing over the project area.

Table 4-6
Bat Survey Results by Location in Minutes of Detection

Species		Survey Location (minutes recorded)					Total Minutes Recorded
Species Name	*Status*[1]	*1*	*2*	*3*	*5*	*8*	
Pallid bat (*Antrozous pallidus*)	SSC/WBWG:H	—	1	—	—	—	1
Townsend's big-eared Bat (*Corynorhinus townsendii*)	SSC/WBWG:H	—	—	4	1	—	5
Big brown bat (*Eptesicus fuscus*)	None	55	334	19	3	23	434
Western red bat (*Lasiurus blossevillii*)	SSC/WBWG:H	—	3	—	—	—	3

Table 4-6
Bat Survey Results by Location in Minutes of Detection

Species		Survey Location (minutes recorded)					Total Minutes Recorded
Species Name	*Status*[1]	*1*	*2*	*3*	*5*	*8*	
Western yellow bat (*Lasiurus xanthinus*)	SSC/WBWG:H	2	24	9	8	7	50
Western small-footed myotis (*Myotis ciliolabrum*)	WGWB: M	1	2	4	—	8	15
Yuma myotis (*Myotis yumanensis*)	WBWG: LM	116	93	207	72	19	507
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	SSC/WBWG:M	15	62	37	7	111	232
Canyon Bat (*Parastrellus hesperus*)	None	37	68	121	122	194	542
Mexican free-tailed bat (*Tadarida brasiliensis*)	None	652	615	150	340	427	2,184
	Total	**878**	**1,202**	**551**	**553**	**789**	**3,973**

[1] **Status Notes:**
SSC: California Species of Special Concern
WBWG: Western Bat Working Group
H: High
M: Medium
LM: Low-Medium

Table 4-7 displays the IA by species across all recording locations and all sampling nights. The IA number is the number of minutes the species was observed, divided by the total number of sampling nights, and then multiplied by 100. This allows for a comparison of number of individuals (i.e., abundance) between species.

Table 4-7
Index of Species Abundance in Minutes of Detection

IA	Common Name	Scientific Name
23,830	Mexican free-tailed bat	*Tadarida brasiliensis*
6,959	Canyon bat	*Parastrellus hesperus*
5,309	Yuma myotis	*Myotis yumanensis*
2,984	Big brown bat	*Eptesicus fuscus*
1,786	Pocketed free-tailed bat	*Nyctinomops femorosaccus*
550	Western yellow bat	*Lasiurus xanthinus*
104	Western small-footed myotis	*Myotis ciliolabrum*
60	Townsend's big-eared bat	*Corynorhinus townsendii*
20	Western red bat	*Lasiurus blossevillii*
7	Pallid bat	*Antrozous pallidus*

Note: IA = index of abundance.

As shown in Table 4-6, in minutes of detection, Survey Location 2 was the most active at 1,202 minutes, and Survey Location 3 was the least active at 551 minutes. Overall, the relative species abundance across all recording locations in minutes of detection indicated that the Mexican free-tailed bat was the most abundant at over 2,000 minutes, and the pallid bat was the least abundant at 1 minute (Table 4-6). The canyon bat, Yuma myotis, big brown bat, and pocketed free-tailed bat have relative high abundance with IA in the hundreds of minutes.

Pallid Bat (*Antrozous pallidus*), SSC/ Western Bat Working Group (WBWG): High

Pallid bat inhabits grasslands, shrublands, woodlands, and forests in low elevations in California (Zeiner et al. 1990a). This species occurs throughout California in open, dry habitats with rocky areas for roosting. Pallid bat requires protected areas for day roosting, including caves, crevices, and hollow trees, and may roost at night in more open sites, including buildings.

Occurrence in Project Area

Pallid bat was detected during the 2016 focused bat surveys at Survey Location 2 for a duration of 1 minute (Table 4-6) (Figure 3-9). This species had the lowest detection abundance within the project area (Table 4-7). There are approximately 2,657.30 acres of suitable habitat, including all vegetation communities and land covers except development, for pallid bat foraging within the project area.

Townsend's Big-Eared Bat (*Corynorhinus townsendii*), SSC/WBWG: High

Townsend's big-eared bat inhabits mesic and riparian habitats throughout California (Zeiner et al. 1990a). This species requires caves, tunnels, buildings, or other built structures for roosting. This species hibernates in cold habitats.

Occurrence in Project Area

Townsend's big-eared bat was detected during the 2016 focused bat surveys at Survey Locations 3 and 5 for a total of 5 minutes (Table 4-6) (Figure 3-9). This species had relatively low detection abundance within the project area (Table 4-7). There are approximately 2,657.30 acres of suitable habitat, including all vegetation communities and land covers except development, for Townsend's big-eared bat foraging within the project area.

Western Red Bat (*Lasiurus blossevillii*), SSC/WBWG: High

Western red bat inhabits grasslands, shrublands, open woodlands, forests, and croplands throughout California (Zeiner et al. 1990a). This species migrates between summer and winter ranges, and commonly winters in western lowlands and coastal regions south of San Francisco Bay. Western red bat primarily roosts in trees and shrubs.

Occurrence in Project Area

Western red bat was detected during the 2016 focused bat surveys at Survey Location 2 for 3 minutes (Table 4-6) (Figure 3-9). This species had relatively low detection abundance within the project area (Table 4-7). There are approximately 2,657.30 acres of suitable habitat, including all vegetation communities and land covers except development, for western red bat foraging within the project area.

Western Yellow Bat (*Lasiurus xanthinus*), SSC/WBWG: High

Western yellow bat inhabits valley foothill riparian, desert riparian, desert wash, and palm oasis habitats in Los Angeles and San Bernardino Counties (Zeiner et al. 1990a). This species occurs in elevations below 2,000 feet. Western yellow bat primarily roosts in trees.

Occurrence in Project Area

Western yellow bat was detected during the 2016 focused bat surveys at all five survey locations for a total of 50 minutes (Table 4-6) (Figure 3-9). This species had relatively low detection abundance within the project area (Table 4-7). There are approximately 2,657.30 acres of suitable habitat, including all vegetation communities and land covers except development, for western yellow bat foraging within the project area.

Western Small-Footed Myotis (*Myotis ciliolabrum*), WBWG: Medium

Western small-footed myotis inhabits arid wooded and brushy uplands near water in coastal and desert California (Zeiner et al. 1990a). This species occurs in elevations below 8,900 feet. Western small-footed myotis seeks cover in caves and built structures, including buildings, mines, and bridges.

Occurrence in Project Area

Western small-footed myotis was detected at Survey Locations 1, 2, 3, and 8 for a total of 15 minutes (Table 4-6) (Figure 3-9). This species had relatively low detection abundance within the project area (Table 4-7). There are approximately 2,657.30 acres of suitable habitat, including all vegetation communities and land covers except development, for western small-footed myotis foraging within the project area.

Yuma Myotis (*Myotis yumanensis*), WBWG: Low to Medium

Yuma myotis inhabits open forests and woodlands with water sources throughout California (Zeiner et al. 1990a). This species occurs in elevations below 11,000 feet, but is uncommon above 8,000 feet. Yuma myotis roosts in buildings, mines, caves, or crevices.

Occurrence in Project Area

Yuma myotis was detected at all five survey locations for a total of 507 minutes (Table 4-6) (Figure 3-9). This species had relatively high detection abundance with IA in the hundreds of minutes (Table 4-7). There are approximately 2,657.30 acres of suitable habitat, including all vegetation communities and land covers except development, for Yuma myotis foraging within the project area.

Pocketed Free-Tailed Bat (*Nyctinomops femorosaccus*), SSC/WBWG: Medium

Pocketed free-tailed bat inhabits pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis in Riverside, San Diego, and Imperial Counties (Zeiner et al. 1990a). This species primarily roosts in rock crevices.

Occurrence in Project Area

Pocketed free-tailed bat was detected at all five survey locations for a total of 232 minutes (Table 4-6) (Figure 3-9). This species had relatively high detection abundance with IA in the hundreds of minutes (Table 4-7). There are approximately 2,657.30 acres of suitable habitat, including all vegetation communities and land covers except development, for pocketed free-tailed bat foraging within the project area.

4.5.3.4 Invertebrates

San Diego Fairy Shrimp (*Branchinecta sandiegonensis*), FE/Draft Santee MSCP Subarea Plan Covered Species

San Diego fairy shrimp were detected as a result of focused surveys in 2004, 2004/2005, and 2015/2016. No other branchiopod species were identified in any seasonal basin on the project area, except for two features during the 2015/2016 surveys that were occupied by either immature or female branchiopods and were unidentifiable to species level (*Branchinecta sp*.).

A total of 229 features were identified during the 2004 and 2004/2005 wet season surveys. Surveys conducted in 2004 included observations of 71 seasonal basins. Surveys conducted in 2004/2005 included observations of an additional 158 seasonal basins, with one occurring outside the project area, for a total of 228 basins observed within the project area. In 2004, San Diego fairy shrimp were identified in 27 seasonal basins. These basins were not resurveyed in 2005 because of the positive findings in 2004. In 2004/2005, an additional 31 seasonal basins were identified with San Diego fairy shrimp. Over the 2 years of surveys, 58 seasonal basins were documented to contain San Diego fairy shrimp; the remaining 170 basins within the project area were determined to lack San Diego fairy shrimp.

The features detected on site were either road ruts, depressions that are typically formed by vehicular traffic within or immediately adjacent to roadways, generally lack aquatic vegetation, and are heavily disturbed by vehicular traffic; ephemeral basins, surface depressions that retain sufficient water level, support aquatic vegetation, and generally lack vehicle disturbance; or vernal pools, depressions that retain sufficient water level, support vernal pool indicator plant species, and likely support vernal pool branchiopods.

A total of 35 features were identified as suitable habitat for vernal pool branchiopods and were surveyed during the 2015/2016 wet survey season. Of the 35 features that were surveyed in 2015/2016, 21 features were identified during previous surveys conducted in 2004 and 2004/2005, and 14 features were identified as new in 2015/2016. As directed by Stacey Love (USFWS), only pools that had not been occupied or were never previously documented were sampled during the 2015/2016 survey (Love, pers. comm. 2015). Twelve features (2a, 3a, 4a, 5a, 7a, 8a, 10a, 49, 62, 65, 111, and 140) were found to support San Diego fairy shrimp and two features (9a and 161) were found with immature or female branchiopod individuals that were unidentifiable to species (*Branchinecta* sp.). Feature 161 had both immature (e.g., 10s of individuals) and one female, neither of which allow for identification to species. Of the 14 features supporting branchiopods, 8 were new features identified in 2015 and 2016 (features 2a, 3a, 4a, 5a, 7a, 8a, 9a, 10a), and 6 features were previously identified during surveys conducted in either 2004 or 2004/2005 (features 49, 62, 65, 111, 140, and 161).

The 35 features surveyed during the 2015/2016 season were distributed randomly throughout the project area located alongside or within existing dirt roads on site and are moderately disturbed in character. Many of the features detected show evidence of historical and current off-highway vehicle disturbance (i.e., shaped like tire tracks). The features detected on site were either road ruts or ephemeral basins. No vernal pools were detected on site during the 2015/2016 survey effort, only road ruts or ephemeral basins.

Occurrence in Project Area

San Diego fairy shrimp occupy a total of 72 out of 242 features located throughout the project area. This species was recorded as present within 58 seasonal basins within the project area during the 2004/2005 wet season surveys. San Diego fairy shrimp was observed in an additional 12 features during 2015/2016 wet season surveys (Figures 3-1a through 3-1o). Two other features had immature or female branchiopod individuals that were unidentifiable to species. It occurs as the only identified branchiopod, mainly within dirt roads on site but also within 6 vernal pools. A total of 170 features were determined absent for all listed vernal pool branchiopod species.

Quino Checkerspot Butterfly (*Euphydryas editha quino*), FE/Draft Santee MSCP Subarea Plan Covered Species

Quino checkerspot butterflies are found on sparsely vegetated hilltops, ridgelines, and occasionally on rocky outcrops in open chaparral and coastal sage scrub habitat (typically at less than 3,000 feet above mean sea level). This species is found only in western Riverside County, southern San Diego County, and northern Baja California, Mexico (USFWS 2003). Quino checkerspot butterflies require host plants within these vegetation communities for feeding and reproduction. The primary larval host plant is dotseed plantain; however, other species documented as important larval host plants include desert plantain, sometimes called woolly plantain; rigid bird's beak; Coulter's snapdragon; purple owl's-clover; and purple Chinese houses (USFWS 2014).

Occurrence in Project Area

Although not observed within the project area during focused surveys conducted in 2016, this species is described in more detail herein because it has previously been recorded within the project area and is known from the vicinity. The Quino checkerspot butterfly focused surveys conducted in 2004 covered approximately 2,421 acres and were conducted under fairly typical environmental conditions. Surveys conducted in 2005 were conducted over approximately 796 acres of the best habitat on site, including hilltops, ridges, and areas with known host and nectar plants. The 2004 survey failed to detect Quino checkerspot butterfly, but the 2005 survey resulted in a single Quino checkerspot butterfly observation. This observation was made on March 18, 2005, at the top of a knoll toward the center of the project area. This observation was made under windy Santa Ana conditions while a number of butterfly species were flying northeast to southwest. Only one Quino checkerspot butterfly was detected on site despite repeated extra visits to the observation location and other high potential locations in the vicinity. During the 2005 season, Quino checkerspot butterflies were also detected at Mission Trails Regional Park, which is located in the vicinity of proposed project.

However, no Quino checkerspot butterflies were observed during the 2016 Quino checkerspot butterfly focused survey on the project area either within the Habitat Preserve or village development areas (Figure 3-2). Based on the review of the USFWS website reporting observations of Quino checkerspot butterfly and on the observation of other co-occurring butterfly species, the conditions and timing were appropriate for the survey. The project applicant asked the USFWS if surveys should be performed in 2017 and received a response that indicated that the USFWS had no recommendations for additional studies in 2017 (Goebel, pers. comm. 2017).

Based on habitat, host plants observed in the project area, and observations within the vicinity, Quino checkerspot butterfly has a moderate potential to occur within the project area. Suitable

modeled habitat will be discussed at the following two levels: the 2009 extrapolation method (County of San Diego 2009) and the current USFWS 1-kilometer method. Previously, the project was requested to perform an analysis that originated at the one Quino checkerspot butterfly observation within the project area, then radiated out to connect patches of nectar resources, hilltops, and ridgelines with appropriate vegetation as discussed below. Currently, the USFWS is assuming that suitable habitat within 1-kilometer of documented Quino checkerspot butterfly observations is occupied.

The 2009 extrapolation model that was previously used to determine the extent of occupied habitat was the suggested method in the MSCP Quino Checkerspot Butterfly Amendment Proposed Conservation Policies (County of San Diego 2009). This model involved buffering certain habitat features on the property (e.g., nectar resources, host plant resources, ridgelines, and hilltops). For the extrapolation model, all host plant locations and polygons, hilltops, and ridgelines are combined and used as the base layer for the model. A 300-meter (656 feet) buffer is applied from species data points. Where the buffer intersects mapped populations of host plants, nectar plants, hilltops, or ridgelines, the buffer is continued. Each time the applied buffer intersects one of these features, the buffer is re-applied. This continues until the buffer no longer intersects with a feature or the edge of the project area is reached. This model was reprised as an optional analysis method for this report.

The current method, which has been applied to a variety of projects in the County and was recently recommended by the USFWS, involves the creation of a 1-kilometer buffer around each known Quino checkerspot butterfly observation. All areas that are suitable habitat in accordance with the USFWS December 15, 2014, survey protocol (i.e., all areas that are not excluded) within that 1-kilometer buffer are considered to be occupied. Excluded areas include orchards, developed areas, or small in-fill parcels (plots smaller than 1 acre completely surrounded by urban development) largely dominated by non-native vegetation; active/in-use agricultural fields without natural or remnant inclusions of native vegetation or that are completely without any fallowed or unplowed areas; and closed-canopy woody vegetation including forests, riparian areas, shrub-lands, and chaparral. “Closed-canopy woody vegetation” describes shrubs or trees growing closely together in which the upper portions of the vegetation converge (are touching) to the point that the open space between two or more plants is not significantly different than the open space within a single plant. Closed canopy shrub-land and chaparral are defined as vegetation so thick that it is inaccessible to humans except by destruction of woody vegetation (branches).

Based on the two approaches described above, Dudek prepared three models for evaluating suitable habitat for Quino checkerspot butterfly, (1) the 2009 extrapolation method (Figure 4-4a), (2) 1-kilometer buffer around all known observations (Figure 4-4b), and (3) 1-kilometer buffer without the 2005 Quino checkerspot butterfly observation (Figure 4-4c). While there was one observation in 2005, a repeated survey in 2016 did not find any Quino checkerspot butterfly and

the habitat at the observed location had become much less suitable due to the presence of dense grass mats and weeds that precluded the growth of, and access to, many of the host plant resources.

Based on these models, there are approximately 1,724.71 acres of suitable modeled habitat for Quino checkerspot butterfly using the 2009 extrapolation model (Figure 4-4a), 634.55 acres of suitable habitat based on the 1-kilometer model (all observations) (Figure 4-4b), and 11.21 acres of suitable habitat based on the 1-kilometer model, but excluding the 2005 historic observation (Figure 4-4c). The Quino checkerspot butterfly observations located outside the project area that were used in the 1-kilometer models (Figures 4-4b and 4-4c) are from USFWS occurrence records (USFWS 2017). These include one observation from 2001 (north of San Vicente Reservoir), one observation from 2005 (Goodan Ranch Preserve to the north), 3 observations from 2009 (Miramar Naval Air Station and south of San Vicente Reservoir), 1 observation from 2016 (San Vicente Reservoir), 5 observations from 2017 (Miramar Naval Air Station), 3 observations from 2018 (Miramar Naval Air Station), and 6 observations from 2019 (Miramar Naval Air Station and Goodan Ranch Preserve) (see Figures 4-4b and 4-4c for the 2019 observations included in the analysis).

During the 2016 Quino checkerspot butterfly focused survey (Appendix C and Figure 3-2), the location and size of host plants were recorded. Four Quino larval host plants—dot-seed plantain, purple owl's-clover, Chinese houses, and purple Chinese houses—were observed within the project area during focused surveys. Dot-seed plantain is the dominant host plant observed and is commonly found in open patches and ridgetops. Purple owl's-clover is densely populated on the central and northern edge of the project area. Chinese houses and purple Chinese houses make up only a small portion of the host plants mapped and occur mainly within the southern portion of the project area. Overall habitat quality declined during the interval between the 2005 observation and the 2016 survey due to a large increase in the density and distribution of non-native grasses, weeds, and the longer-term accumulation of duff. These combined to make it less feasible for host plants to grow and/or be available to Quino checkerspot butterfly. A total of 5,223 locations of Quino checkerspot butterfly host plants were mapped within the project area, summarized as follows:

- 1,395 locations were mapped as **very low density** (1–19 individuals), including 56% dot-seed plantain, 42% purple owl's-clover, 1% Chinese houses, and <1% purple Chinese houses
- 2,281 locations were mapped as **low density** (20–99 individuals), including 72% dot-seed plantain, 27% purple owl's-clover, <1% Chinese houses, and <1% purple Chinese houses
- 1,331 locations were mapped as **medium density** (100–999 individuals), including 90% dot-seed plantain, 9% purple owl's-clover, and 1% purple Chinese houses
- 216 locations were mapped as **high density** (1,000+ individuals), including 99% dot-seed plantain, <1% purple owl's-clover, and <1% purple Chinese houses

Based on the single observation within the project area, the known population at San Vicente Reservoir, and low detections elsewhere in the general vicinity (i.e., Mission Trails Regional Park, Goodan Ranch), it appears that the species occurs in low densities around the east–central portion of the County, and that dispersal movements may only occur during good flight years. Given the single observation out of 213 site visits over two seasons, Dudek believes that the individual was only dispersing through the project area and settled elsewhere. The recent amendment to the Recovery Plan for Quino Checkerspot Butterfly (USFWS 2019) identifies the Quino checkerspot butterflies in the area proximate to Fanita Ranch as Non-Core Occurrence Complexes. Although Dudek believes that the site currently only functions as a dispersal corridor, the project area contains potentially abundant resources for the species if managed appropriately. It is therefore possible, though unlikely, that the project area could be occupied by a low-density population. To be cautious, and in recognition of the metapopulation dynamics of this species, the assessment of effects of the project on this species and the proposed mitigation will be based on the assumption that a low-density population of the species is present on the project area. It is also important to note that the Goodan Ranch, Mission Trails Regional Park, and Fanita Ranch sightings were all made within 2 years after the October 2003 Cedar fire and all three locations were impacted by the fire. Therefore, it may be surmised that Quino checkerspot may be able to survive significant fire events.

Hermes Copper Butterfly (*Lycaena hermes*), FC/Draft Santee MSCP Subarea Plan Covered Species

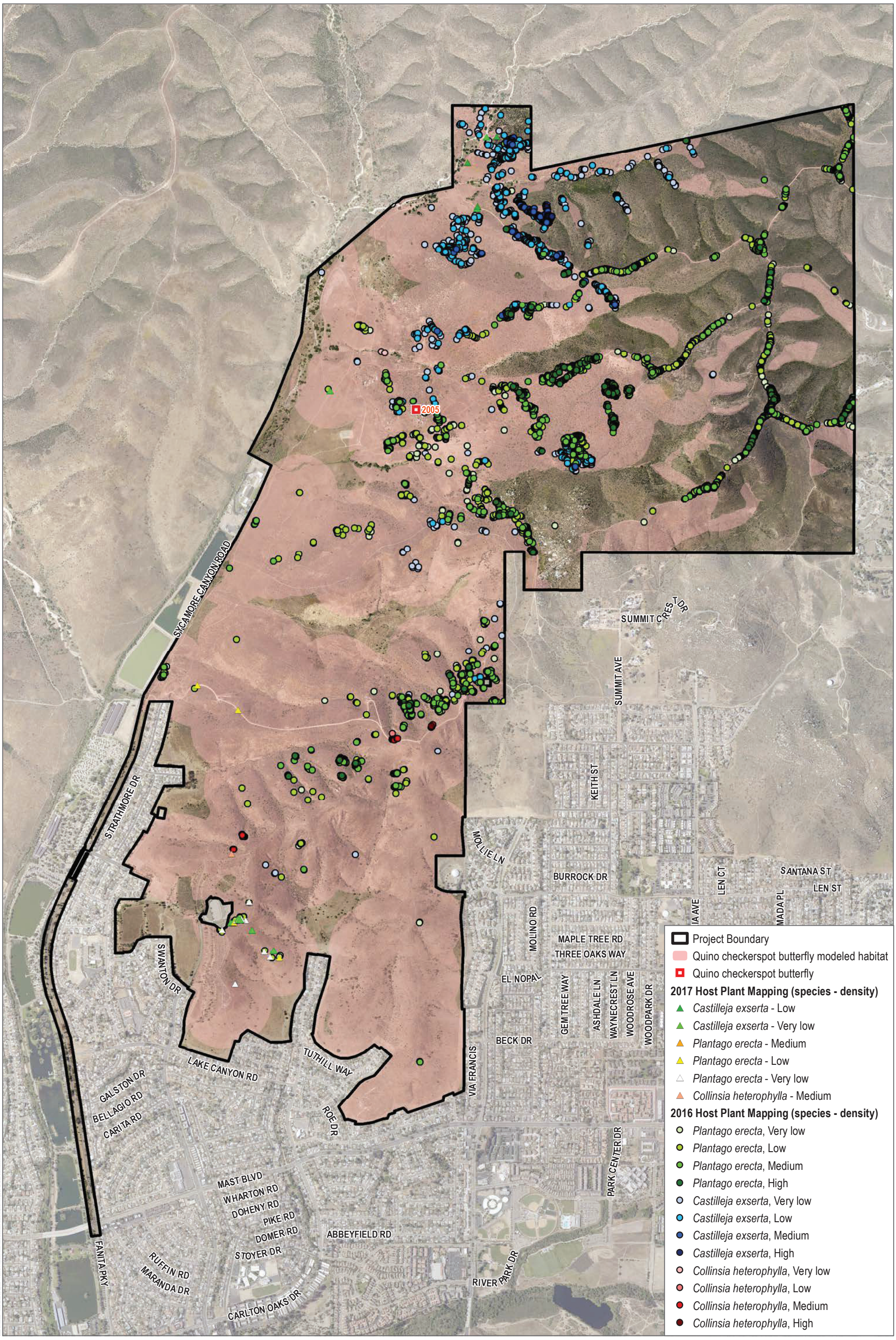
Hermes copper butterfly inhabits patches of spiny redberry buckthorn in relation to California buckwheat that grows in southern mixed chaparral and coastal sage scrub (County of San Diego 2010). Hermes copper butterfly is endemic to San Diego County and northern Baja California, Mexico. This species' adult flight period is from mid-May through early July. Nectaring species observed on site include chamise, California sunflower (*Encelia californica*), slender sunflower (*Helianthus gracilentus*), poison oak, and short-podded mustard (*Hirschfeldia incana*).

Occurrence in Project Area

Based on habitat and occurrence data, there is a moderate potential for Hermes copper butterfly to occur within the project area in both the Habitat Preserve and village development area. Although surveys were conducted during appropriate time of year (i.e., when both perennial species were showing new growth and in bloom), Hermes copper butterfly was not observed during focused protocol surveys in 2016. However, one individual was observed during each survey year in 2003, 2004, and 2005 (three observations total) by Dudek biologists (Figure 3-7). A single adult individual was located in the southern portion of the site, feeding on California buckwheat during a reconnaissance survey conducted by Dudek biologists in May 2003. The 2004 observation occurred during the protocol-level surveys conducted by Dudek and an additional incidental observation was

recorded in 2005. There are approximately 148.44 acres of potentially suitable habitat consisting of areas with redberry buckthorn within 15 feet of California buckwheat within the project area (Figure 3-7). Of that total, there are 23.73 acres of potentially suitable habitat previously occupied by the Hermes copper butterfly (Figure 3-7). As defined in the Draft Santee MSCP Subarea Plan, previously occupied habitat includes areas of potentially suitable habitat within 500 feet of a previously known occurrence of Hermes copper butterfly that was not identified during subsequent and more recent focused surveys (City of Santee 2018).

In January 2020, the USFWS proposed to list the Hermes copper butterfly as a threatened species under the FESA and to designate 35,211 acres of critical habitat in San Diego County essential to the survival and recovery of this species. The proposed critical habitat consists of three units (Lopez Canyon, Miramar/Santee, and Southeast San Diego) focused on areas of known current and historical occurrences. Fanita Ranch falls within the Miramar/Santee unit, which surrounds the eastern portion of the MCAS Miramar and includes the presumed extant North Santee core occurrence in the Coastal Hills California Ecological Unit. A total of 2,426.06 acres of proposed USFWS Critical Habitat for Hermes copper butterfly occur within the project area (Figure 2-1).



SOURCE: SANGIS 2017, 2019

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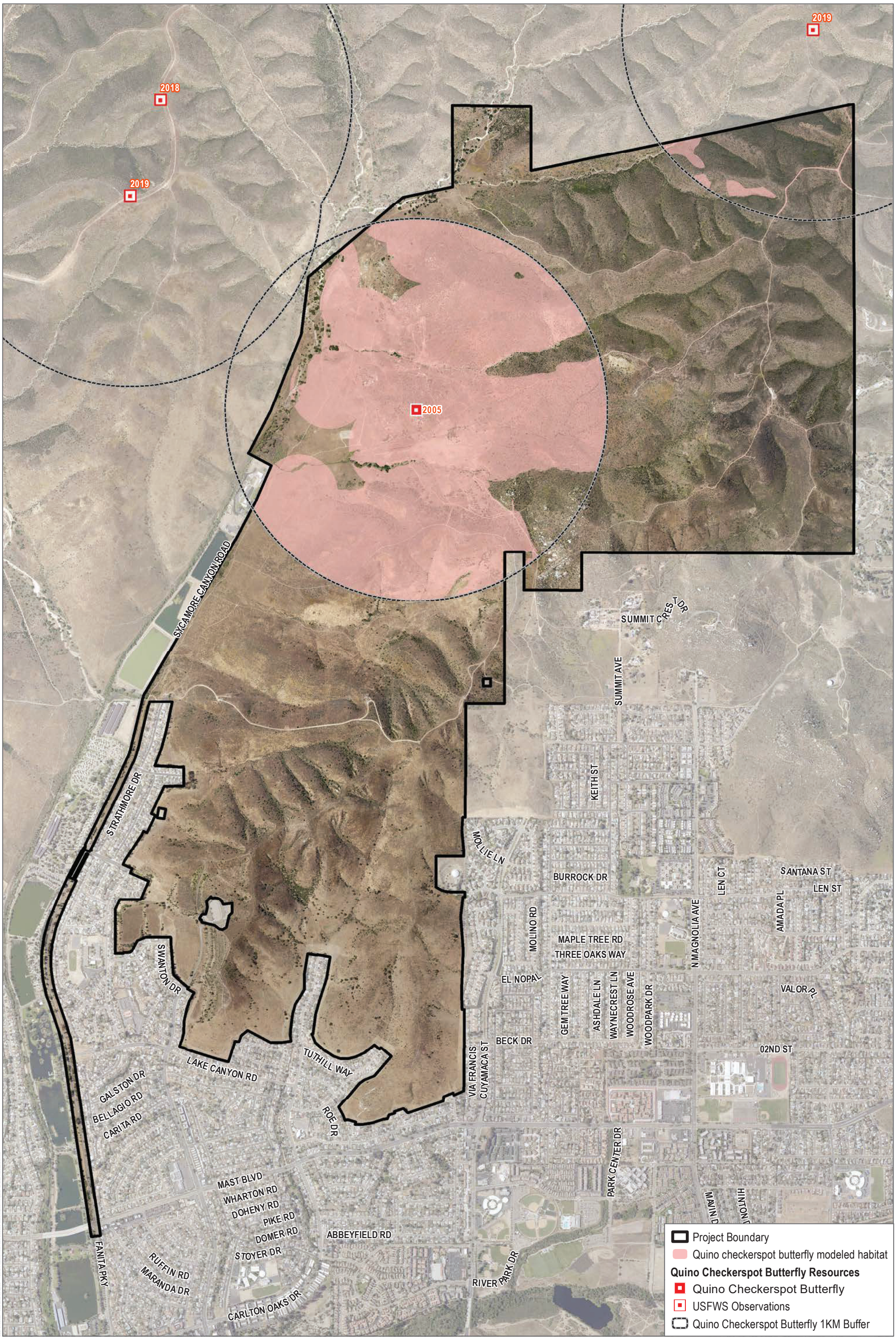
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FIGURE 4-4A

Quino Checkerspot Butterfly 2009 Model

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SOURCE: USFWS 2019; SANGIS 2017, 2019

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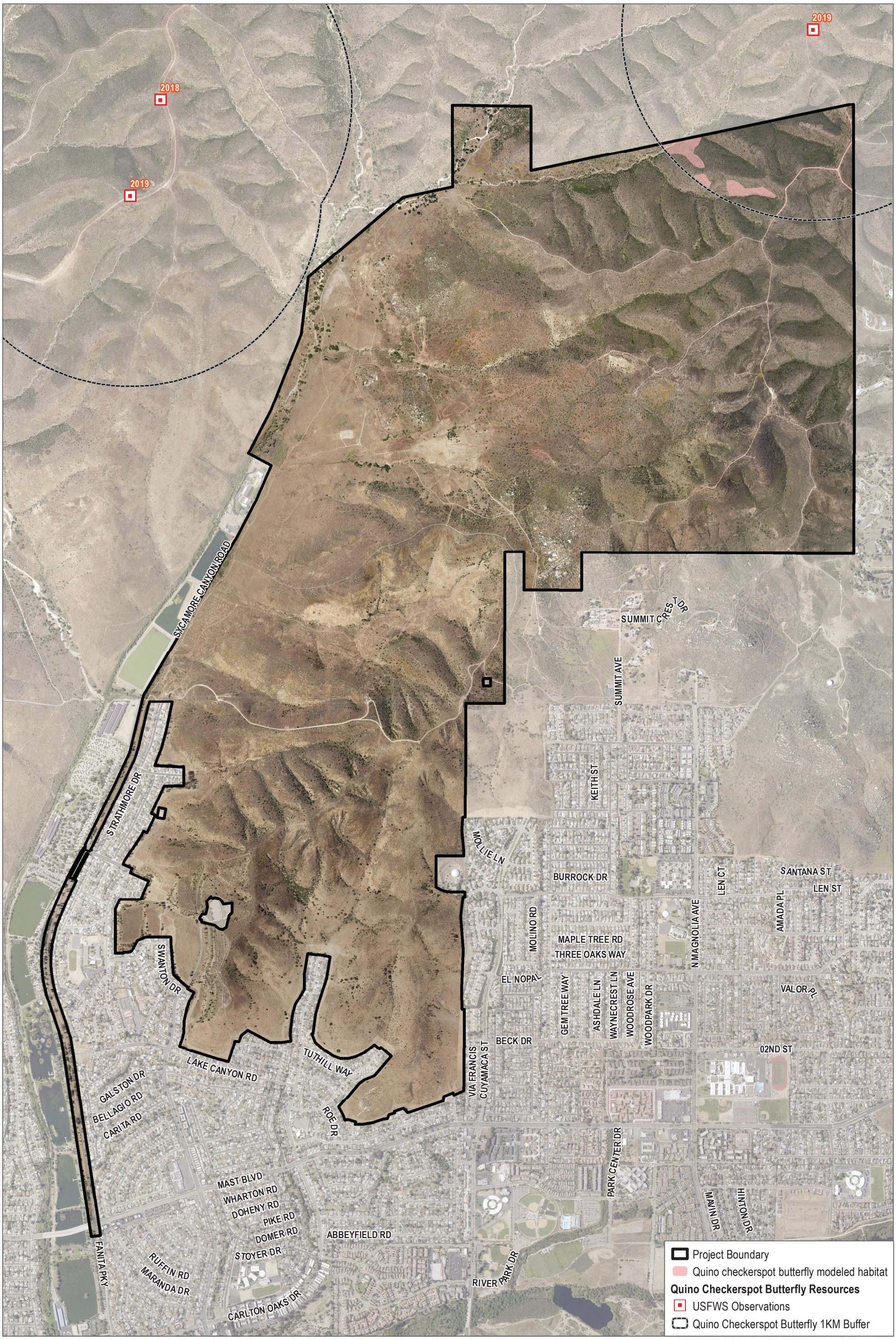
0 750 1,500 Feet

FIGURE 4-4B

Quino Checkerspot Butterfly Model (All Locations)

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SOURCE: USFWS 2019; SANGIS 2017, 2019

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0 750 1,500 Feet

FIGURE 4-4C

Quino Checkerspot Butterfly Model (Current Locations)

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4.5.4 Wildlife Movement

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the immigration and emigration of animals. Wildlife corridors contribute to population viability in several ways: they allow the continual exchange of genes between populations, which helps maintain genetic diversity; they provide access to adjacent habitat areas, representing additional territory for foraging and mating; they allow for a greater carrying capacity of wildlife populations by including "live-in" habitat; and they provide routes for recolonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes (e.g., fires).

Habitat linkages are patches of native habitat that function to join two substantially larger patches of habitat. They serve as connections between distinct habitat patches and help reduce the adverse effects of habitat fragmentation. Although individual animals may not move through a habitat linkage, the linkage does represent a potential route for gene flow and long-term dispersal. Habitat linkages may serve both as habitat and as avenues of gene flow for small animals, such as reptiles and amphibians. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat "islands" that function as "stepping-stones" for dispersal.

The entire project area currently functions as a habitat block with no distinct wildlife corridors or linkages. Wildlife crisscross up and down slopes and use existing trails, ridges, and valleys throughout the project area, as shown in Figure 4-5, Sample Game Trails. This figure depicts examples across the project area where game trails crisscross up and down slope. Since the project area is adjacent to both Goodan Ranch/Sycamore Canyon County Park and MCAS Miramar, which are large patches of natural open space that provide avenues for the immigration and emigration of wildlife, the purpose of this study was to assess the degree to which the project area functions as a regional wildlife movement corridor and to evaluate wildlife movement within the project area and off-site lands adjacent to the proposed project.

Nine wildlife species were recorded on the wildlife corridor cameras: desert cottontail (*Sylvilagus audubonii*), coyote, domestic dog (*Canis lupus familiaris*), mule deer, striped skunk (*Mephitis mephitis*), San Diego black-tailed jackrabbit, bobcat (*Lynx rufus*), domestic horse (*Equus caballus*), and greater roadrunner (*Geococcyx californianus*) (Table 4-8). Camera Location 5 had the highest frequency of wildlife movement, including over 600 captured wildlife photos; however, the majority (90%) were domestic dogs. Camera locations with the highest species diversity, totaling 7 species at each location, include Camera Locations 13, 17, 19, and 20 (Table 4-8). All camera locations distributed throughout the project area are shown on Figure 3-10.

Table 4-8
Wildlife Movement Camera Study Results

Camera Name[1]	Crossing Type/Location/ Surrounding Vegetation	Wildlife Species Observed (2017) and Total Number of Records	
Central Western Portion of Project Area			
Camera Location 1	Located at end of a dirt road. Surrounding habitat primarily includes valley needlegrass grassland (including disturbed), coastal sage scrub, and non-native grassland. In addition, non-wetland waters occur north of Camera Location 1.	*Species*	*Total Number of Records*
		Desert cottontail	18
		Coyote	45
		Domestic dog	48
		Mule deer	10
		Striped skunk	2
Central Eastern Portion of Project Area			
Camera Location 3[2]	Located adjacent to an intersection of dirt roads. Surrounding habitat primarily includes coastal sage scrub, coastal sage scrub–valley needlegrass grassland, and coastal sage scrub–non-native grassland.	*Species*	*Total Number of Records*
		Desert cottontail	5
		Coyote	15
		Domestic dog	16
		Mule deer	16
Camera Location 4	Located adjacent to an intersection of dirt roads. Surrounding habitat includes coastal sage scrub and valley needlegrass grassland.	*Species*	*Total Number of Records*
		Desert cottontail	5
		Coyote	3
		Domestic dog	8
		San Diego black-tailed jackrabbit	7
		Mule deer	4
		Striped skunk	1
Camera Location 5	Located adjacent to an intersection of dirt roads. Surrounding habitat includes coastal sage scrub (including disturbed).	*Species*	*Total Number of Records*
		Coyote	19
		Domestic dog	613
		San Diego black-tailed jackrabbit	49
		Mule deer	1
Camera Location 13[3]	Located adjacent to an intersection of dirt roads. Surrounding habitat includes disturbed coastal sage scrub.	*Species*	*Total Number of Records*
		Bobcat	1
		Desert cottontail	128
		Coyote	24
		Domestic dog	10
		San Diego black-tailed jackrabbit	217
		Greater roadrunner	7
		Striped skunk	3
Camera Location 14[3]	Located adjacent to an intersection of dirt roads. Surrounding habitat includes disturbed coastal sage scrub, coastal sage scrub–valley needlegrass grassland, valley needlegrass grassland, and granitic southern mixed chaparral.	*Species*	*Total Number of Records*
		Domestic dog	10

Table 4-8
Wildlife Movement Camera Study Results

Camera Name[1]	Crossing Type/Location/ Surrounding Vegetation	Wildlife Species Observed (2017) and Total Number of Records	
Camera Location 15	Located adjacent to an intersection of three dirt roads. Surrounding habitat includes valley needlegrass grassland, disturbed coastal sage scrub, and granitic southern mixed chaparral.	*Species*	*Total Number of Records*
		Desert cottontail	2
		Coyote	3
		Domestic dog	9
		San Diego black-tailed jackrabbit	8
Northwestern Portion of Project Area			
Camera Location 6	Located adjacent to a dirt road. Surrounding habitat includes coast live oak woodland, non-native grassland, and valley needlegrass grassland. In addition, non-wetland waters occur north and east of Camera Location 6.	*Species*	*Total Number of Records*
		Desert cottontail	4
		Coyote	130
		Domestic dog	2
		San Diego black-tailed jackrabbit	116
		Mule deer	15
Camera Location 7	Located adjacent to a dirt road. Surrounding habitat includes coast live oak woodland and valley needlegrass grassland (including disturbed). In addition, non-wetland waters occur south and west of Camera Location 7.	*Species*	*Total Number of Records*
		Coyote	24
		Domestic dog	2
		Mule deer	21
Camera Location 8	Located adjacent to a dirt road. Surrounding habitat includes coast live oak woodland, coastal sage scrub (including disturbed), and non-native grassland.	*Species*	*Total Number of Records*
		Desert cottontail	21
		Coyote	41
		Domestic dog	7
		San Diego black-tailed jackrabbit	1
		Mule deer	20
Camera Location 9	Located adjacent to a dirt road. Surrounding habitat includes coast live oak woodland, coastal sage scrub (including disturbed), and valley needlegrass grassland. In addition, non-wetland waters occur north and east of Camera Location 9.	*Species*	*Total Number of Records*
		Desert cottontail	37
		Coyote	33
		San Diego black-tailed jackrabbit	41
		Mule deer	61
Camera Location 10	Located adjacent to an intersection of dirt roads. Surrounding habitat includes valley needlegrass grassland (including disturbed), coastal sage scrub (including disturbed), and coast live oak woodland. In addition, non-wetland waters occur west of Camera Location 10.	*Species*	*Total Number of Records*
		Desert cottontail	2
		Coyote	17
		Mule deer	1
Camera Location 11	Located adjacent to a drainage surrounded by non-wetland waters. Surrounding habitat includes coastal sage scrub (including disturbed), coast live oak woodland, and disturbed habitat.	*Species*	*Total Number of Records*
		Desert cottontail	10
		Coyote	29
		Domestic dog	5
		San Diego black-tailed jackrabbit	3
		Mule deer	43

Table 4-8
Wildlife Movement Camera Study Results

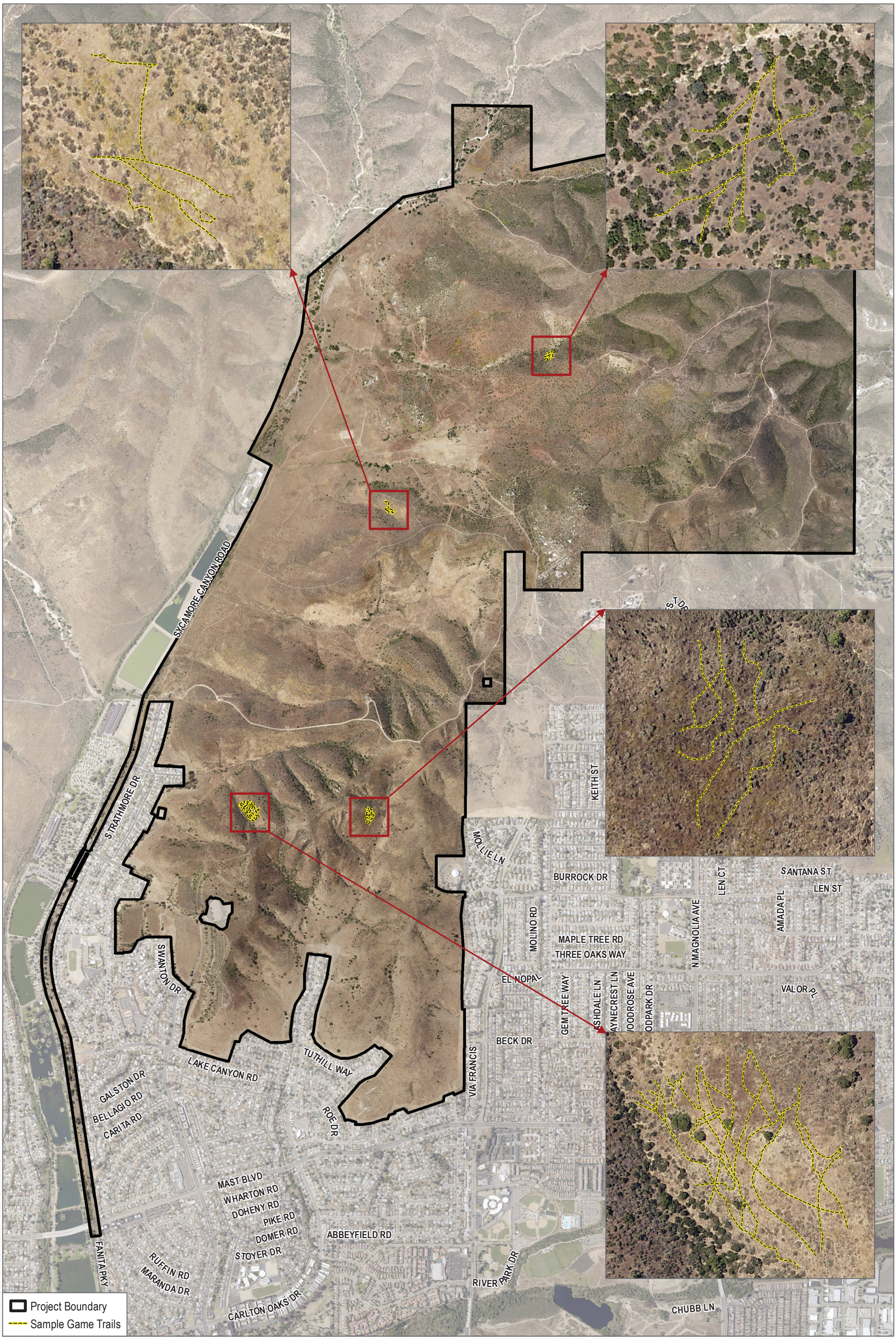
Camera Name[1]	Crossing Type/Location/ Surrounding Vegetation	Wildlife Species Observed (2017) and Total Number of Records	
Camera Location 16	Located adjacent to a dirt road. Surrounding habitat includes coastal sage scrub and granitic southern mixed chaparral. In addition, non-wetland waters occur southwest of Camera Location 16.	*Species*	*Total Number of Records*
		Desert cottontail	4
		Coyote	8
		San Diego black-tailed jackrabbit	34
		Mule deer	19
		Greater roadrunner	1
Northeastern Portion of Project Area			
Camera Location 12	Located adjacent to an intersection of dirt roads. Surrounding habitat includes granitic southern mixed chaparral.	*Species*	*Total Number of Records*
		Bobcat	1
		Coyote	109
		Domestic dog	22
		Domestic horse	4
		San Diego black-tailed jackrabbit	3
		Mule deer	5
Camera Location 17	Located adjacent to an intersection of dirt roads. Surrounding habitat includes granitic southern mixed chaparral. In addition, non-wetland waters occur northeast and southwest of Camera Location 17.	*Species*	*Total Number of Records*
		Bobcat	10
		Desert cottontail	3
		Coyote	203
		Domestic dog	17
		San Diego black-tailed jackrabbit	43
		Mule deer	20
		Striped skunk	1
Camera Location 18	Located adjacent to an intersection of dirt roads. Surrounding habitat includes granitic southern mixed chaparral and coastal sage scrub. In addition, non-wetland waters occur northeast of Camera Location 18.	*Species*	*Total Number of Records*
		Bobcat	4
		Desert cottontail	4
		Coyote	55
		Domestic dog	11
		San Diego black-tailed jackrabbit	51
		Mule deer	1
Camera Location 19	Located adjacent to an intersection of dirt roads. Surrounding habitat includes granitic southern mixed chaparral and coastal sage scrub (including disturbed). In addition, non-wetland waters occur northwest of Camera Location 19.	*Species*	*Total Number of Records*
		Bobcat	2
		Desert cottontail	2
		Coyote	84
		Domestic dog	3
		San Diego black-tailed jackrabbit	177
		Mule deer	8
		Greater roadrunner	2

Table 4-8
Wildlife Movement Camera Study Results

Camera Name[1]	Crossing Type/Location/ Surrounding Vegetation	Wildlife Species Observed (2017) and Total Number of Records	
Camera Location 20	Located adjacent to an intersection of dirt roads. Surrounding habitat includes granitic southern mixed chaparral and coastal sage scrub. In addition, non-wetland waters occur north of Camera Location 20.	*Species*	*Total Number of Records*
		Bobcat	5
		Desert cottontail	1
		Coyote	162
		Domestic dog	22
		San Diego black-tailed jackrabbit	11
		Mule deer	13
		Striped skunk	1
Camera Location 21	Located adjacent to a dirt road. Surrounding habitat includes granitic southern mixed chaparral and coastal sage scrub. In addition, non-wetland waters occur northwest and east of Camera Location 21.	*Species*	*Total Number of Records*
		Bobcat	9
		Coyote	121
		Domestic dog	25
		Mule deer	31
		Greater roadrunner	1
Camera Location 22	Located adjacent to a dirt road. Surrounding habitat includes granitic southern mixed chaparral and coastal sage scrub. In addition, non-wetland waters occur northwest of Camera Location 22.	*Species*	*Total Number of Records*
		Bobcat	5
		Coyote	91
		Domestic dog	1
		San Diego black-tailed jackrabbit	40
		Mule deer	44

Notes:
1 Camera at Camera Location 23 was stolen when checked on 1/4/2017.
2 Camera at Camera Location 3 was tampered with; however the SD card was retrieved on 12/20/2016.
3 Cameras at Camera Locations 13 and 14 were stolen when checked on 1/31/2017.

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SOURCE: SANGIS 2017, 2019

DUDEK

0 750 1,500 Feet

FIGURE 4-5

Sample Game Trails

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5 ANTICIPATED PROJECT IMPACTS

This section addresses direct, indirect, and cumulative impacts to biological resources that would result from implementation of the proposed project and provides an analysis of significance for each. Mitigation will include open space land dedication incorporated into the MSCP Habitat Preserve.

Direct impacts were quantified by overlaying the anticipated limits of grading on the biological resources map and quantifying impacts. The limits of grading are presumed to encompass all future development and use areas (i.e., worst-case scenario), including off-site impacted areas, basins, easement, FMZs, roads, the Farm, and the Special Use Area (Figure 5-1, Impacts to Biological Resources – Legend, and Figures 5-1a through 5-1af, Impacts to Biological Resources). FMZs may be located on the perimeters of all structures and adjacent open space areas, and are also located internally to the project. Fuel modification is proposed for the entire exterior perimeter of the project, along roadways, and also on interior landscaped areas adjacent to natural open space. Permanent impacts are those that would be permanently impacted and include proposed trails within the Habitat Preserve, detention basins, the Farm, FMZs 1–2 and associated roads, grading buffer, manufactured slopes occurring internally within the development footprint, neighborhood development, roads, and the Special Use Area. Temporary impacts include manufactured slopes adjacent to the Habitat Preserve and grading buffers that would be revegetated following construction. It should be noted that although the Habitat Preserve totals 1,518.50 acres in Table 5-1a, the final acreage will include the proposed trails (10.52 acres), the SDG&E access road (6.88 acres), and on-site temporary impact areas (114.47 acres) for a total of 1,650.38 acres. Impact neutral areas, which are areas that are not impacted but for which the project will not be requesting preservation credit, include the following: passive park, riparian areas surrounded by development, and the FMZ adjacent to existing development. Table 5-1a summarizes all project components with the project area.

Table 5-1a
Impact Categories within the Project Area

Category	On-Site Acreage	Off-Site Acreage[1]	Total Acreage
Impact Neutral			
FMZ-adjacent Owner Easement/FMZ Zone Interim	54.59	—	54.59
Passive Park	10.51	—	10.51
Riparian Open Space	12.10	—	12.10
Impact Neutral Total	*77.20*	—	*77.20*

Table 5-1a
Impact Categories within the Project Area

Category	On-Site Acreage	Off-Site Acreage[1]	Total Acreage
Habitat Preserve			
Habitat Preserve	1,518.50	—	1,518.50
Temporary Impacts			
Grading Buffer	—	<0.01	<0.01
Manufactured Slopes	114.47	7.28	121.75
Temporary Impact Total	*114.47*	*7.29*	*121.75*
Permanent			
Proposed Habitat Preserve Trails[2,3]	10.94	—	10.94
SDG&E Access Road[4]	7.14	—	7.14
Detention Basin	37.36	—	37.36
Farm	26.93	—	26.93
FMZ 1	45.79	—	45.79
FMZ 2	70.82	0.21	71.03
FMZ Connecting Road	7.12	—	7.12
FMZ Road	—	12.96	12.96
Manufactured Slopes	24.23	—	24.23
Neighborhood Development	444.73	—	444.73
Road	180.81	12.14	192.95
Special Use Area	31.87	—	31.87
Water Tank and Access Road	4.86	—	4.86
Permanent Impact Total	*927.90*	*25.32*	*953.22*
Grand Total	**2,638.07**	**32.60**	**2,670.67**

Notes: FMZ = fuel modification zone; SDG&E = San Diego Gas & Electric.
Totals may not sum due to rounding.

1 "Off-Site" includes the impacts associated with the Cuyamaca Street and Magnolia Avenue road extensions.

2 See Table 5-1b for a detailed breakdown of trails within the project area.

3 Of the 10.94 acres of permanent impacts from trails, only 10.52 acres will be included within the Habitat Preserve. The remaining portion totaling 0.41 acres are within Impact Neutral or other permanent impact areas and therefore are not counted toward the Habitat Preserve total.

4 Only a portion (6.88 acres) of the SDG&E road will be included within the Habitat Preserve. The remaining portion (0.25 acres) would be considered a permanent impact occurring outside the Habitat Preserve.

The proposed Habitat Preserve currently contains an extensive existing trail system, much of which is subject to frequent unauthorized off-road vehicular traffic and unauthorized human activities that have been detrimental to the sensitive habitats on site. These effects were greater around the time the MSCP Plan was finalized (see Figures 1-5 and 1-6, which show the site in 1994 and include an overlay of the current baseline mapping of trails on the project area), but a variety of reasons resulted in consolidation and elimination of use in several areas (e.g., different ownership and management, fencing and control, increased first responder presence, fire and subsequent annual grass growth masking historical disturbances, and other factors). As a result, the current baseline is less disturbed than the existing condition when the MSCP Plan was analyzed and approved. The project proposes to do the following regarding the trail system within the

Habitat Preserve: (1) close off and revegetate a large proportion of the existing trails, (2) retain a portion of the existing trails for pedestrian and bicycle use, and (3) create new trails within the Habitat Preserve. It should be noted that in some cases, existing trails have been realigned to avoid sensitive resources (e.g., 100-foot buffer around vernal pools, willowy monardella locations, and Quino checkerspot butterfly suitable ridges and hilltops), thus creating the need for a new proposed trail in the vicinity. Where these realignments were made, the old trails will be closed and restored. After project implementation, a total of 10.52 acres of trails, including 6.00 acres of created trails and 4.52 acres of existing trails, would occur within the Habitat Preserve. The Habitat Preserve would also include a portion of the existing SDG&E access road (6.88 acres of the 7.14-acre total). A total of 34.31 acres of existing trails within the Habitat Preserve would be closed and restored. The trail category breakdown within the project area is summarized in Table 5-1b.

Table 5-1b
Trail Categories within the Project Area

Category	Habitat Preserve (Acres)	Impact Neutral (Acres)	Permanent (Acres)	Temporary (Acres)	Total (Acres)
Existing Trails					
Existing Trails (Off Site)	—	—	0.12	—	**0.12**
Habitat Preserve Trails[1]	4.52	—	—	—	**4.52**
SDG&E Access Road[1]	6.88	—	0.25	—	**7.14**
Interior Development Trails	—	—	1.06	—	**1.06**
Proposed Trail Creation (New)					
Habitat Preserve Trails[1]	6.00	—	—	—	**6.00**
Multipurpose Trail (Off Site)	—	—	1.35	—	**1.35**
Interior Development Trail	—	—	28.73	—	**28.73**
Existing Trails (Closed)					
Closed and Restored Trails	34.31	2.09	0.30	—	**36.69**
Closed Trails (Permanently Impacted by Development)	—	—	27.24	—	**27.24**
Closed (Impacted by Off-Site Development)	—	—	1.88	0.87	**2.75**
Total	**51.73**	**2.09**	**60.93**	**0.87**	**115.62**

Note: SDG&E = San Diego Gas & Electric.

[1] Habitat Preserve existing and proposed trails (10.52 acres) and the SDG&E access road (6.88 acres) are considered permanent impacts but will be included in the final Habitat Preserve boundary.

Trails are known to be a source of indirect effect on surrounding natural resources. Quinn and Chernoff (2010) summarizes the issue as follows: "The significance of . . . undesirable changes to the receiving environment is a function of the activity (type, timing, intensity, duration and spatial distribution) and the sensitivity of the environment (resistance and resilience) including the morphological characteristics of vegetation, the nature of the substrate and the behavioral ecology of the species of interest." It has been hypothesized that there is a non-linear pattern (curvilinear use-impact relationship) in effect to habitat from use. That is, the most impact occurs with the first

few uses and then levels off thereafter (Quinn and Chernoff 2010; Cole 2004; Pickering et al. 2010). Effects on wildlife vary widely by species due to varying sensitivities of species, ability to desensitize to disturbance, season, daily activity patterns, and likely other factors. Sudden encounters between grizzly bears (*Ursos arctos*) and speedy and relatively silent mountain bikes in Banff National Park led to negative encounters (Simic 2007) where bikers approached closer than 50 meters before bears detected them. Schmor (1999) determined that mountain bikes added between 1 decibel and 12.75 decibels above the ambient condition.

Reed et al. (2019) performed studies intended to determine the effects of human use on NCCP reserves on reptile and mammal species in San Diego. Overall, reptile species richness was negatively correlated to human use, but that only applied to lizards and not snakes or specialist species and was weighted towards pedestrian use. Based on their camera trap and cover board studies, some species such as western fence lizard, coyote, jack rabbit, rabbit, and California ground squirrel don't appear to be affected by human presence on trails. Some species show varied response—for example, Belding's orange-throated whiptail exhibited negative response to hikers, but a positive response to cyclists. Coyotes were found at every location so could not be assessed for effects. Human activity was negatively associated to habitat use by bobcat, gray fox (*Urocyon cinereoargenteus*), mule deer, raccoon (*Procyon lotor*), and striped skunk, but only bobcat and mule deer had confidence intervals above zero—meaning that their overall unified response was negative, while the other species varied more with some individuals being affected while others were not. Interestingly though, cyclist activity had a mostly positive effect on bobcat, mule deer, raccoon, and striped skunk.

These analyses presuppose that the activity is novel; however, in this case there is an existing level of activity and disturbance from historical and current uses. As shown on Figures 1-5 and 1-6, there was and is more off-road vehicle activity and trail-related disturbance on site than is proposed. While the current levels of activity and estimated post-project use levels are not known, it is probable that at least some portions of the trail system will receive more use than they do now. For instance, trail segments closer to access points are more likely to receive use and trail segments more distant from access locations will receive less use—possibly significantly less use.

While no studies were located that provided an evaluation of indirect effect buffer distances, Reed et al. (2019) provide some relative activity table results to identify when species' use was predicted to fall below 50% of the unaffected use—13 people per day affected gray fox, 39 people per day affected mule deer, 156 people per day affected raccoon, and bobcat was predicted to fall below that threshold at over 1,000 people per day, with mule deer being affected by pedestrians, but not cyclists. Reserves in San Diego experience on average 190 visits per day and 0.23 visits/hectare/day, with most being hikers (89%) and most visitations on weekends (285 persons per day) versus weekdays (152 persons per day) (Larson et al. 2018). As indicated, there is no data on the existing and potential use of the proposed Fanita Ranch Preserve, but Sycamore Canyon

County Park receives between 11 and 20 visits per day, and Mission Trails Regional Park receives over 251 visits per day. It is reasonable to assume that the Fanita Ranch Preserve will receive use somewhere between, and closer to, the Crestridge Ecological Reserve (between 51 and 100 persons per day) and the Sycamore Canyon County Park. Given these rates, it is likely that there is currently an indirect effect from use and that there will continue to be an indirect effect due to use.

Indirect impacts result from adverse edge effects, either short-term, temporary indirect impacts related to construction, or long-term, permanent indirect impacts associated with the location of urban development in proximity to biological resources within natural open space. During construction of the project, temporary indirect impacts may include dust and noise, which could disrupt habitat and species vitality temporarily, and construction-related soil erosion and runoff; however, all project grading is subject to established restrictions and requirements that restrict erosion and runoff, including the federal Clean Water Act and National Pollution Discharge Elimination System, as well as preparation of a SWPPP. These programs minimize project impacts to erosion/runoff. Long-term or permanent indirect impacts to adjacent open space may include intrusions by humans and domestic pets, noise, lighting, invasion by exotic plant and wildlife species, effects of toxic chemicals (e.g., fertilizers, pesticides, herbicides, and other hazardous materials), urban runoff from developed areas, soil erosion, litter, fire, and hydrological changes (e.g., changes in groundwater level and quality).

Cumulative impacts refer to incremental individual environmental effects of two or more projects when considered together. These impacts taken individually may be minor, but may be collectively significant as they occur over a period of time.

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- Project Boundary
- Mapbook Grid
- Permanent Impacts
- Temporary Impacts
- Proposed Trail
- Impact Neutral
- Habitat Preserve
- Immature Fairy Shrimp *(Branchinecta Sp.)*
- San Diego Fairy Shrimp *(Branchinecta sandiegonensis)*
- Cactus Patches
- Coastal California Gnatcatcher Use Areas

Special-Status Wildlife

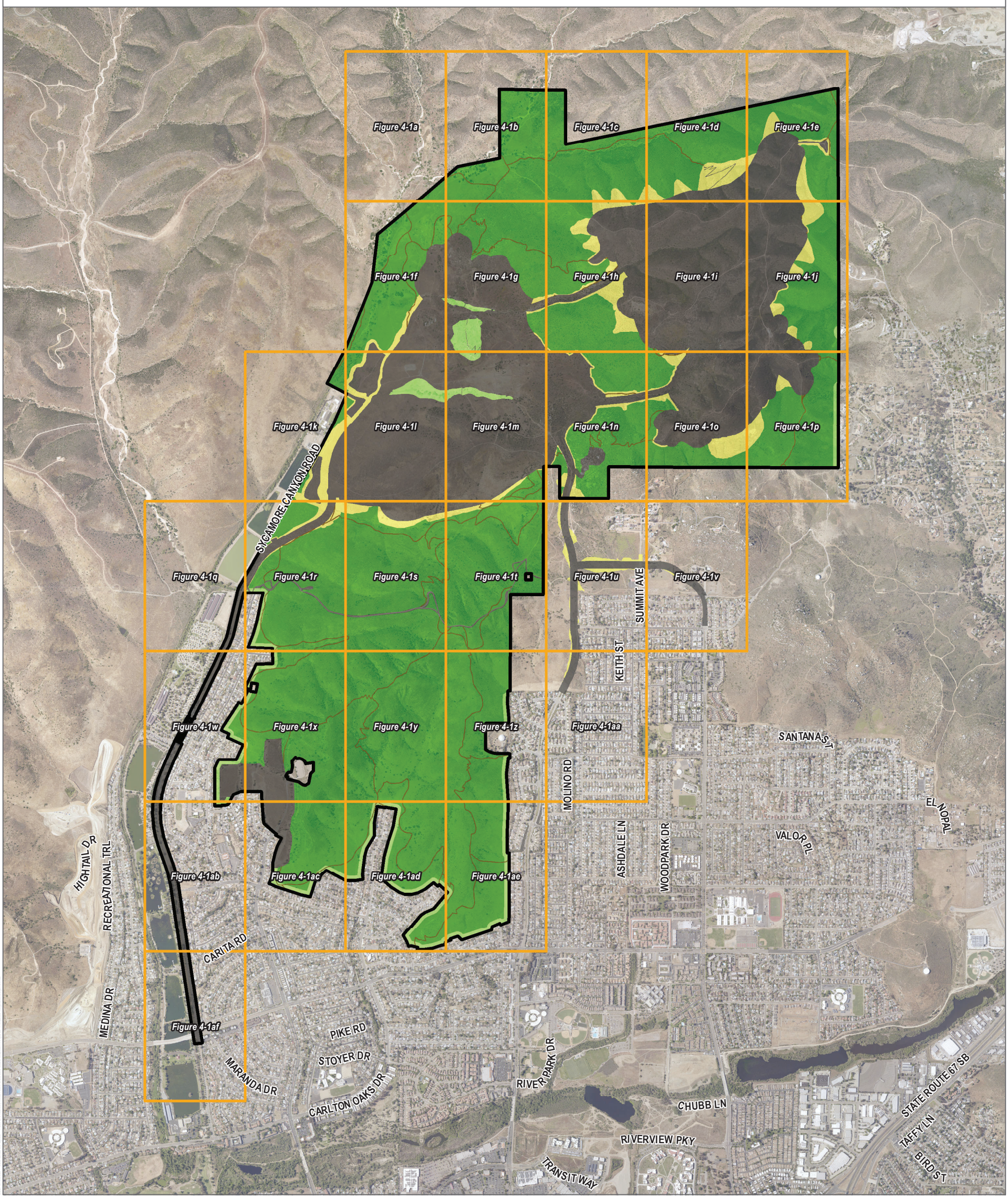
- American peregrine falcon
- Bell's Sage sparrow
- Blainville's horned lizard
- coastal California gnatcatcher
- Cooper's hawk
- Hermes Copper Butterfly
- Merlin
- Quino Checkerspot Butterfly
- San Diegan tiger whiptail
- coastal cactus wren
- golden eagle
- grasshopper sparrow
- least Bell's vireo
- loggerhead shrike
- long-eared owl
- northern harrier
- oak titmouse
- Belding's Orange-throated whiptail
- osprey
- red diamond rattlesnake
- southern California rufous-crowned Sparrow
- two-striped garter snake
- white-tailed kite
- willow flycatcher
- yellow warbler
- yellow-breasted chat

Special-Status Plants

- *Artemisia palmeri*
- *Bloomeria clevelandii*
- *Convolvulus simulans*
- *Dudleya variegata*
- *Ferocactus viridescens*
- *Harpagonella palmeri*
- *Holocarpha virgata ssp. elongata*
- *Monardella viminea*
- *Ophioglossum californicum*
- *Piperia cooperi*
- *Quercus engelmannii*
- *Viguiera laciniata*
- *Atriplex coulteri*
- *Bloomeria clevelandii*

Vegetation Communities and Land Cover Types

ARU - Arundo-Dominated Riparian
CAM - Cismontane Alkali Marsh
CLOW - Coast Live Oak Woodland
CSS - Diegan Coastal Sage Scrub
CSS/VGL - Diegan Coastal Sage Scrub/VGL
CSSB - Diegan Coastal Sage Scrub: Baccharis-dominated
DEV - Developed Land
DH - Disturbed Habitat
DW - Disturbed Wetlands
FWM - Freshwater Marsh
GSMX - Granitic Southern Mixed Chaparral
HW - Herbaceous Wetlands
MFS - Mule Fat Scrub
NNG - Non-Native Grassland
NNG/NNV - Non-Native Grassland/Non-native Vegetation
NNV - Non-native Vegetation
NVC - Non-Vegetated Channel or Floodway
SARW - Southern Sycamore-Alder Riparian Woodland
SWRF - Southern Arroyo Willow Riparian Forest
SWS - Southern Willow Scrub
VGL - Valley Needlegrass Grassland
VP - Vernal Pool
dCSS - Disturbed Diegan Coastal Sage Scrub
dCSS/NNG - Disturbed Diegan Coastal Sage Scrub/NNG
dCSS/VGL - Disturbed Diegan Coastal Sage Scrub/VGL
dFWM - Disturbed Freshwater Marsh
dHW - Disturbed Herbaceous Wetlands
dSWS - Disturbed Southern Willow Scrub
dVGL - Disturbed Valley Needlegrass Grassland
rCSS - Revegetated Diegan Coastal Sage Scrub



SOURCE: Hunsaker 2019; SANGIS 2017, 2019

DUDEK

0 750 1,500 Feet

FIGURE 5-1

Impacts to Biological Resources - Legend

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dCSS
NNG
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110
VP
VP
109
dCSS
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DH
NNG
VP
B-LOSH
37
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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1a

Impacts to Biological Resources

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1b

Impacts to Biological Resources

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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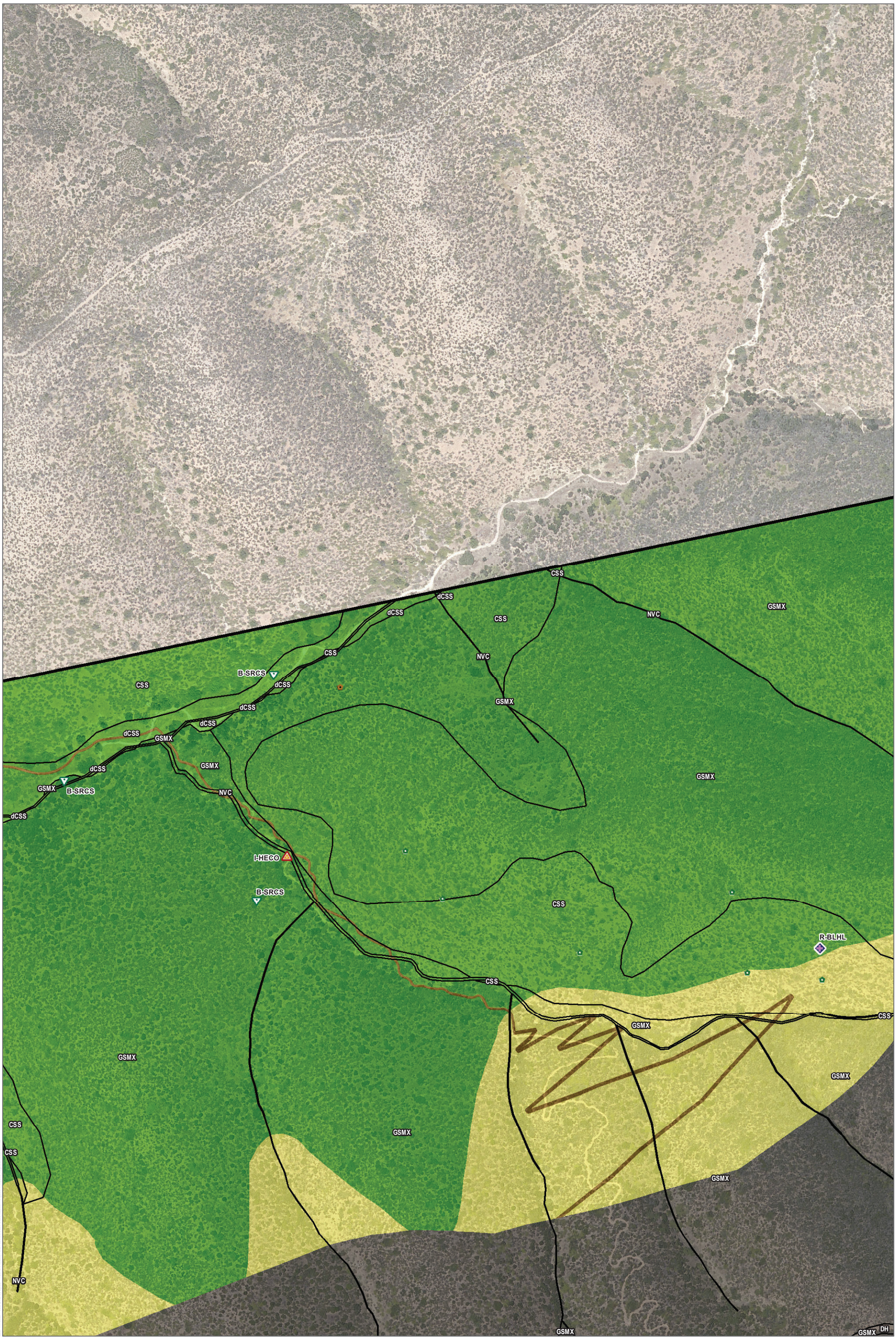
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FIGURE 5-1c

Impacts to Biological Resources

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1d

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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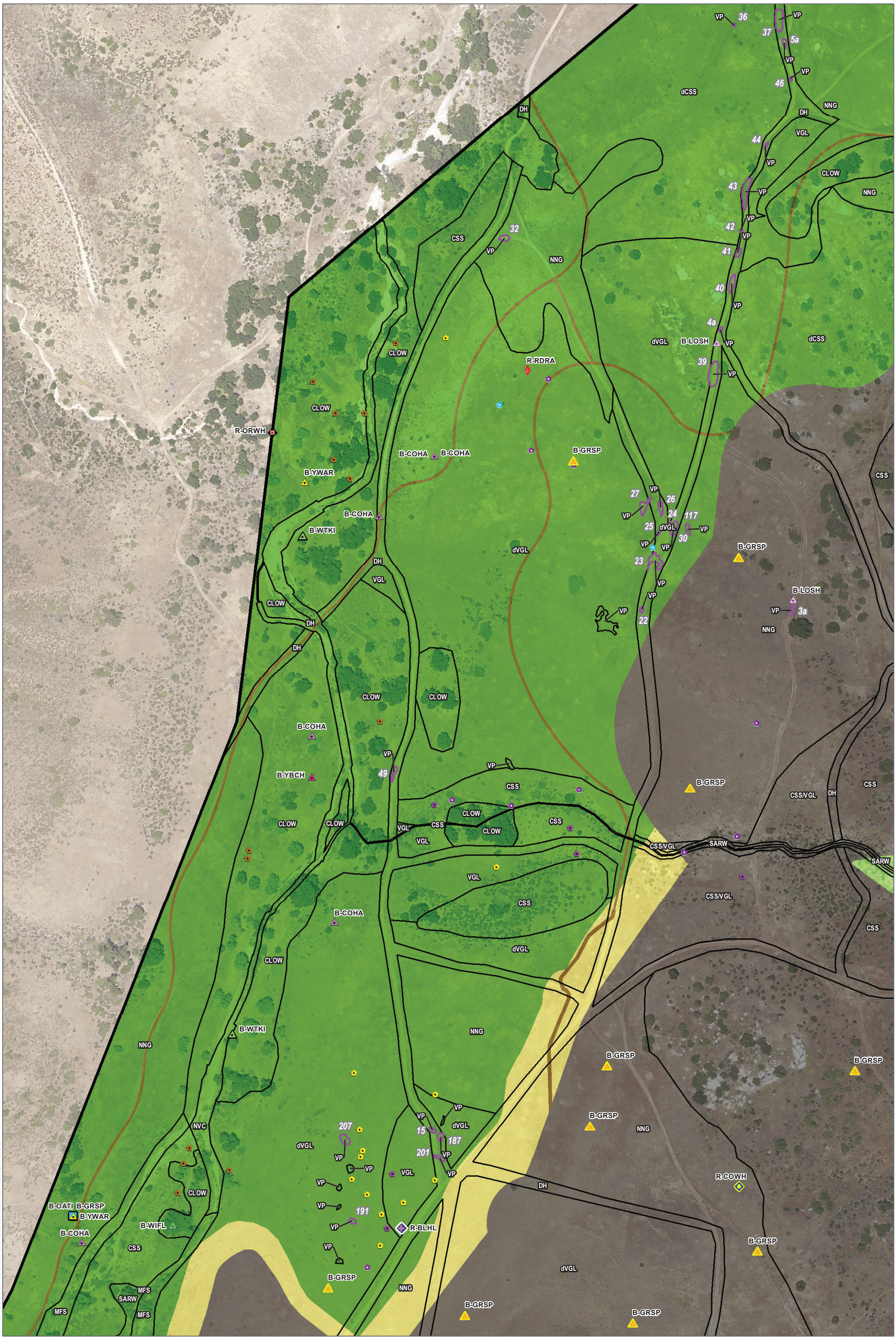
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FIGURE 5-1e

Impacts to Biological Resources

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1f

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1g

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1h

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1i

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1j

Impacts to Biological Resources

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1k

Impacts to Biological Resources

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B-GRSP
dVGL
NNG
DH
B-COHA
VGL
ARU
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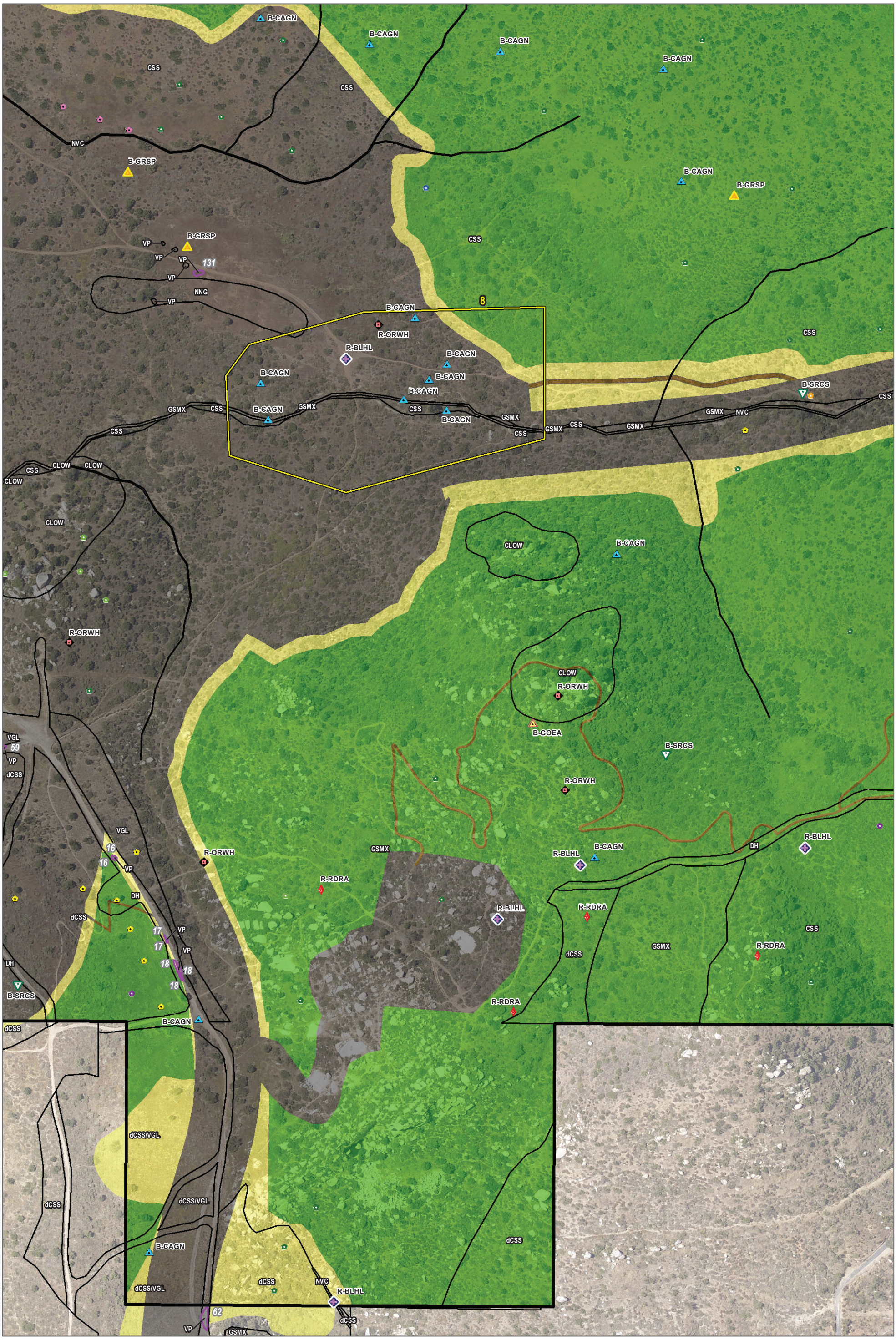
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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1n

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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FIGURE 5-1p

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FIGURE 5-1q

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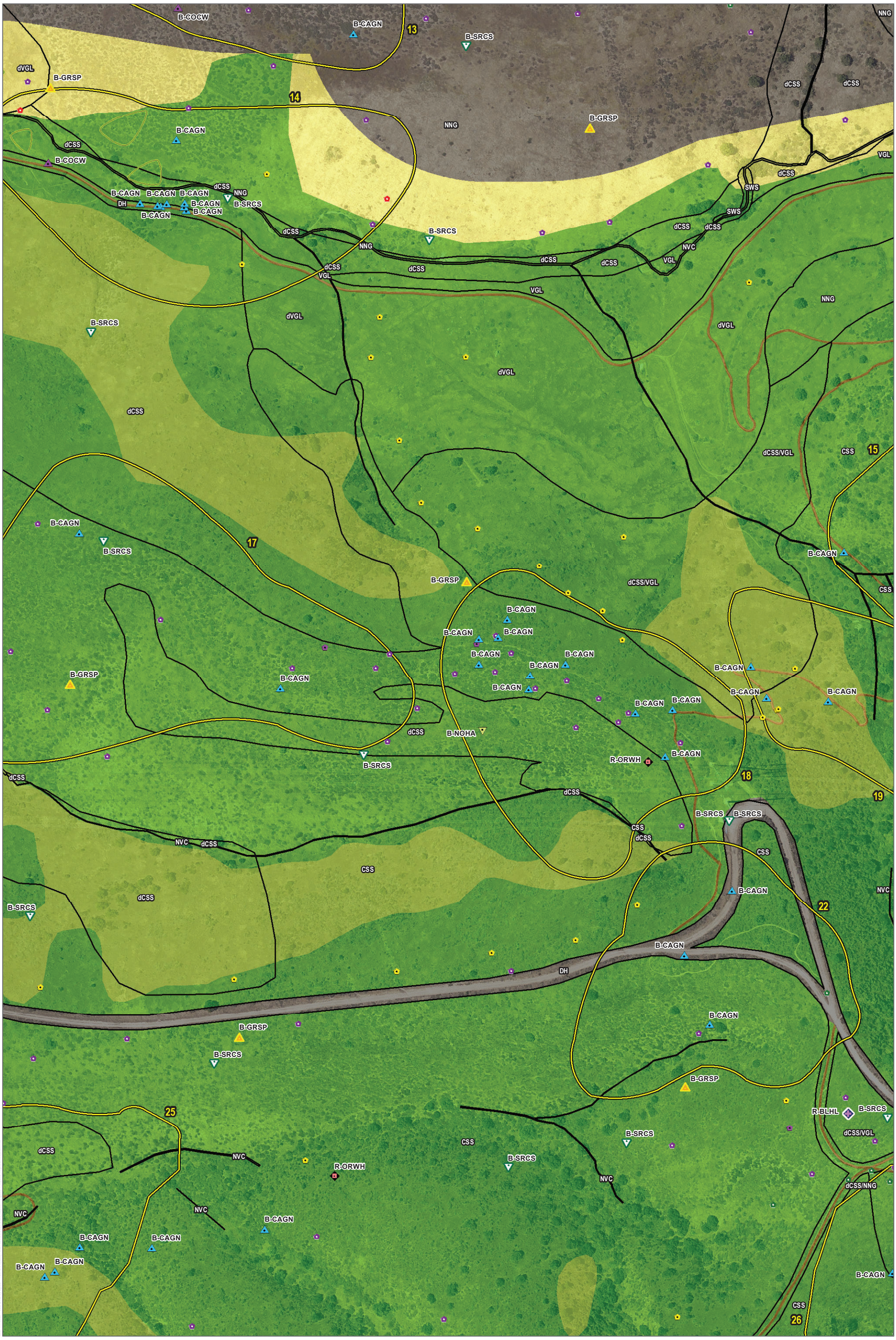
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FIGURE 5-1r

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FIGURE 5-1s

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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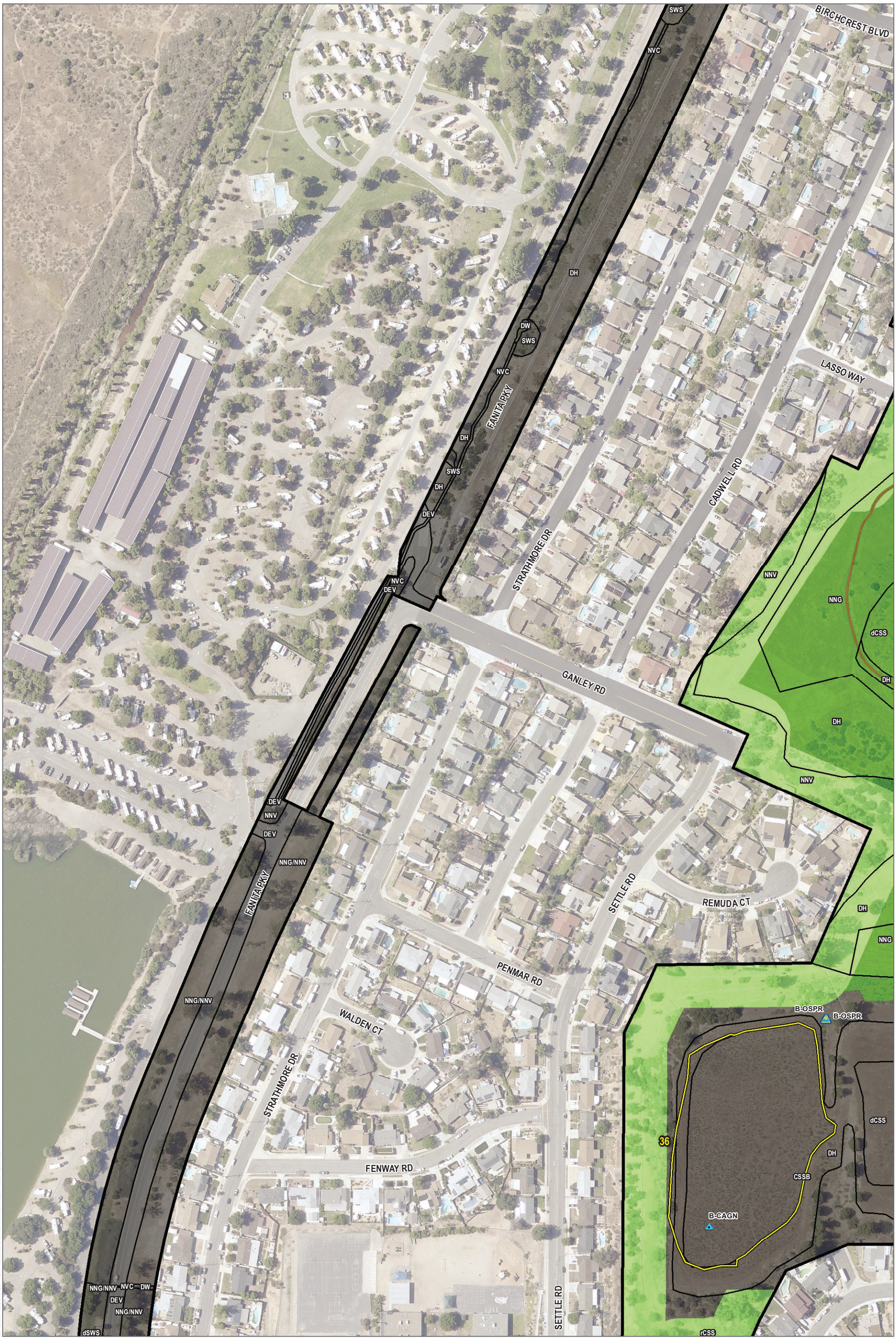
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FIGURE 5-1v

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FIGURE 5-1w

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FIGURE 5-1x

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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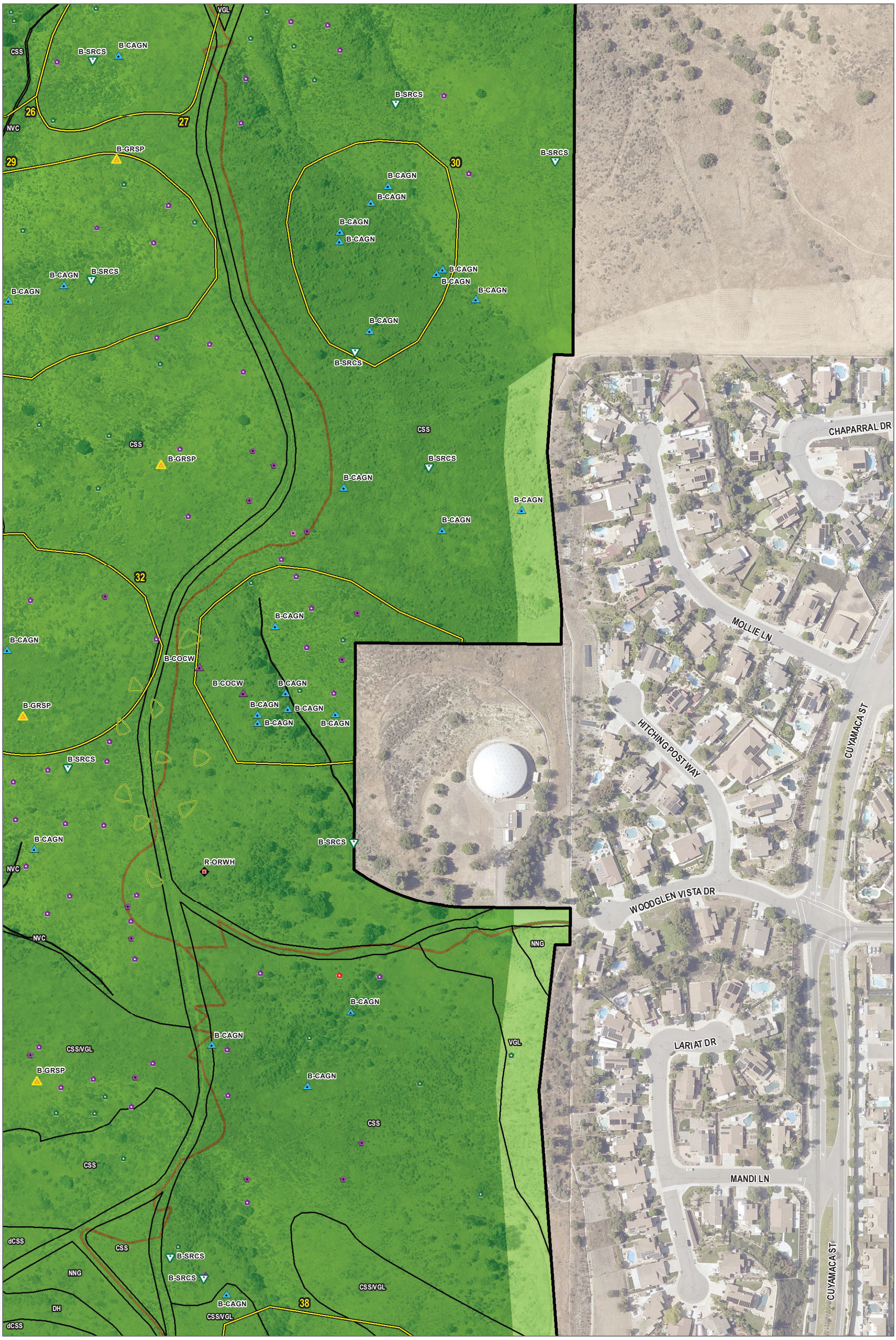
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FIGURE 5-1y

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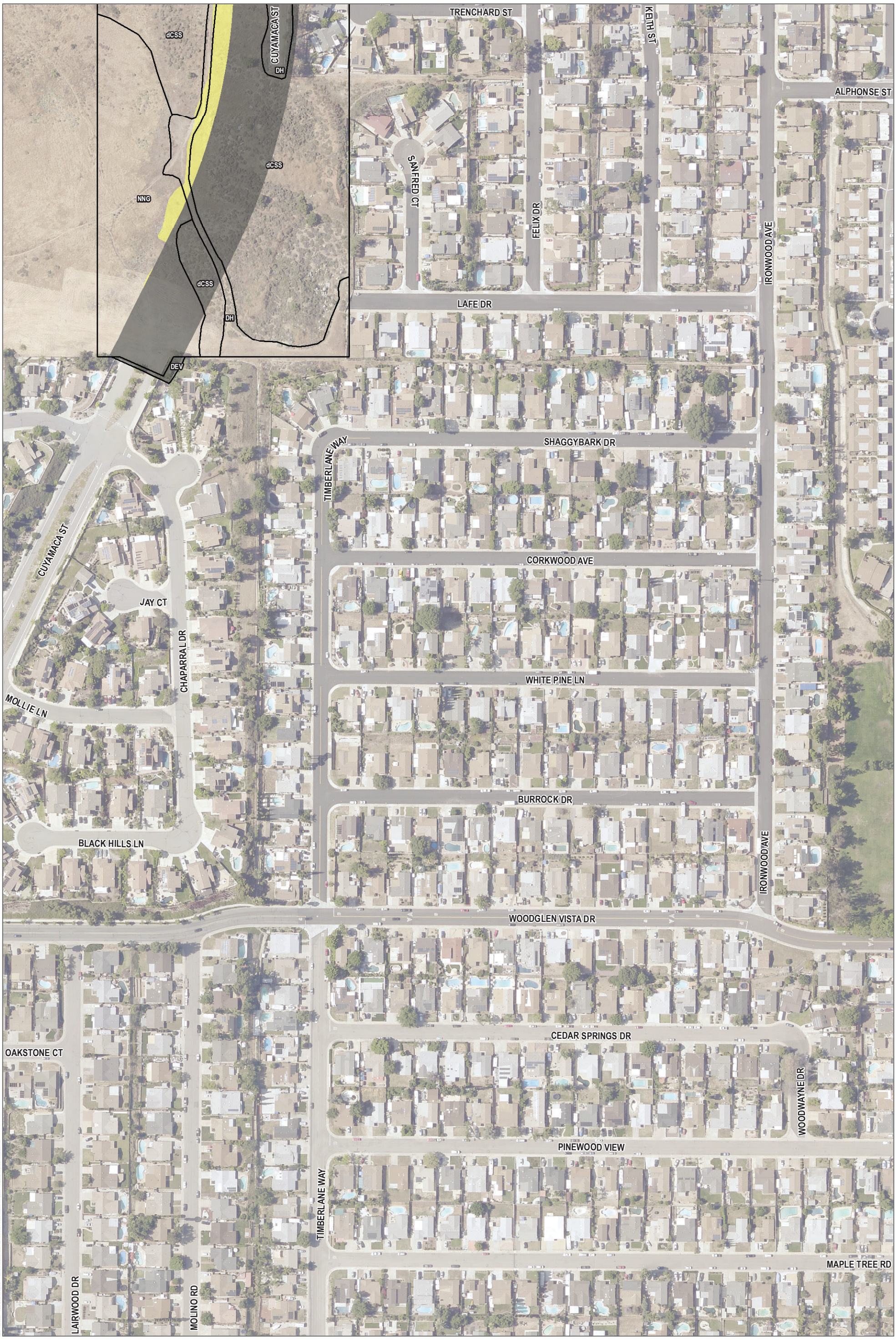
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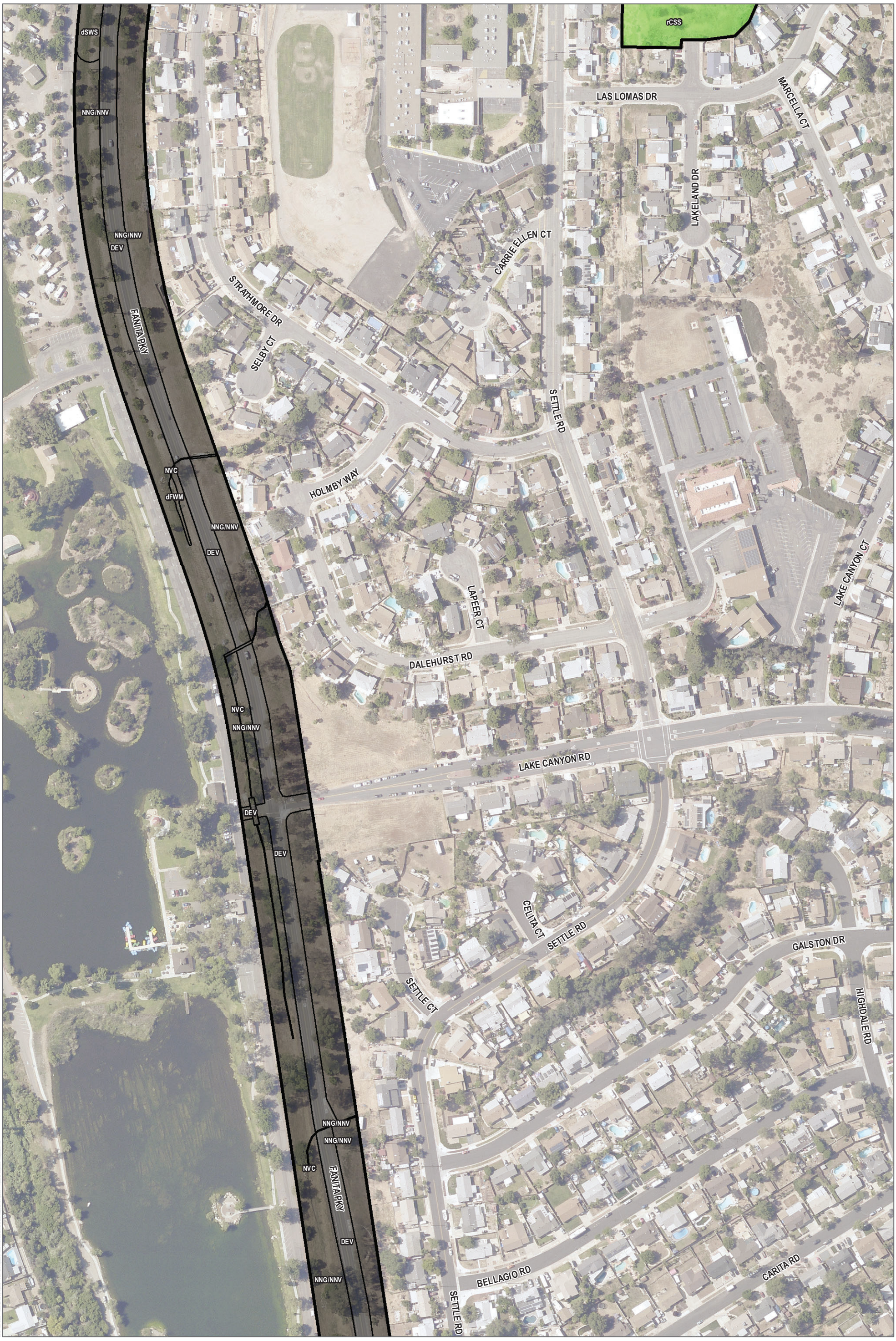
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Impacts to Biological Resources

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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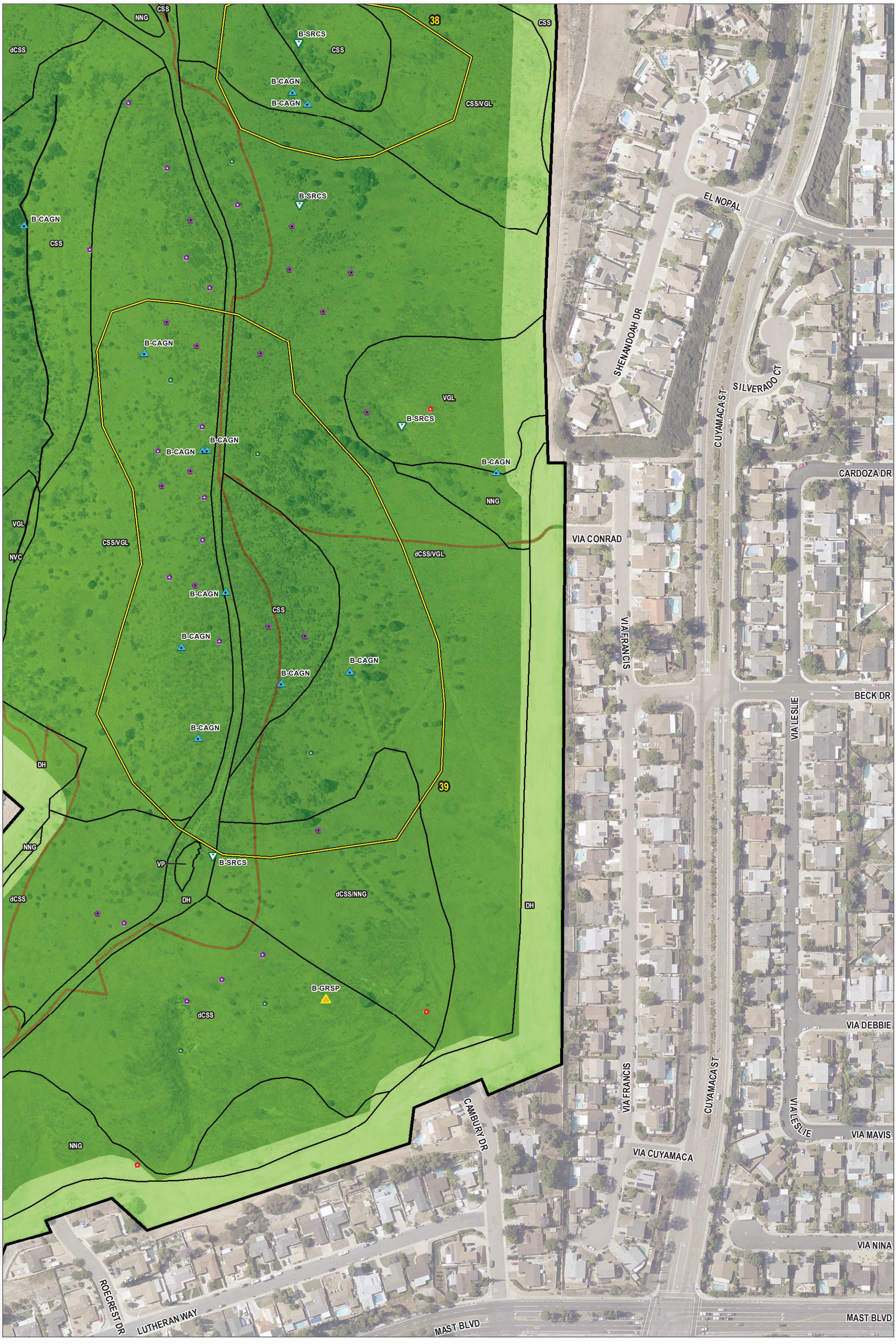
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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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Impacts to Biological Resources

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5.1 Direct Impacts

5.1.1 Vegetation Communities

Implementation of the proposed project would result in permanent impacts to approximately 927.90 acres on site and temporary impacts to approximately 114.47 acres on site (Table 5-2a). Of these on-site permanent impacts, approximately 10.52 acres would result from new trail creation and retention of some existing trails. The acreages shown in parentheses in Table 5-2a include the portion of the permanent impact total generated by the proposed trails. The proposed project would also impact a total of 32.60 acres off site, including 25.32 acres of permanent impacts and 7.29 acres of temporary impacts (Table 5-2b). See Figure 5-1 and Figures 5-1a through 5-1af for all impacts to vegetation communities and land cover types. Impacts would occur as a result of the project components listed in Table 5-1. All temporary impact areas would be revegetated to pre-existing conditions following construction.

Sensitive vegetation communities to be impacted on site include scrub and chaparral, grasslands, vernal pools, bog and marsh, riparian and bottomland habitat, and woodland communities (Table 5-2a). Sensitive vegetation communities to be impacted off site include scrub and chaparral, grasslands, vernal pools, bog and marsh, riparian and bottomland habitat, and woodland communities (Table 5-2b). Within both on- and off-site areas, the project would permanently or temporarily impact 988.77 acres of sensitive habitats, including 978.54 acres of sensitive uplands, 0.41 acres of vernal pools, and 9.81 acres of wetland habitats.

Table 5-2a
On-Site Impacts to Vegetation Communities and Land Covers
within the Fanita Ranch Project Area

Vegetation Type (Holland/Oberbauer Code)	Impacts		Habitat Preserve	Impact Neutral	Total Acreage	Total Impacts (Percent of Total On-Site Acreage)
	Perm[1]	*Temp*				
Disturbed and Developed Areas						
Disturbed Habitat (11300)	49.05 (2.18)	2.11	35.54	28.51	115.21	51.16 (2%)
Disturbed Wetland[3] (11200)	0.03	—	0.06	—	0.09	0.03 (<1%)
Non-native Vegetation (11000)	1.57 (0.01)	—	0.60	3.89	6.05	1.57 (<1%)
Urban/Developed (12000)	9.07 (<0.01)	—	0.81	—	9.88	9.07 (<1%)
Disturbed and Developed Areas Subtotal[2]	*59.71 (2.19)*	*2.11*	*37.01*	*32.40*	*131.23*	*61.82 (2%)*
Scrub and Chaparral						
Diegan Coastal Sage Scrub[3] (32500)	215.13 (3.30)	33.09	751.93	16.98	1,017.13	248.22 (9%)

Table 5-2a
On-Site Impacts to Vegetation Communities and Land Covers within the Fanita Ranch Project Area

Vegetation Type (Holland/Oberbauer Code)	Impacts		Habitat Preserve	Impact Neutral	Total Acreage	Total Impacts (Percent of Total On-Site Acreage)
	Perm[1]	*Temp*				
Diegan Coastal Sage Scrub (disturbed)[3] (32500)	86.23 (1.40)	4.20	168.46	0.97	259.85	90.43 (3%)
Diegan Coastal Sage Scrub (fire recovered)[3] (32500)	4.72	—	1.29	3.56	9.57	4.72 (<1%)
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland[3] (32500/42110)	7.95 (0.15)	0.50	54.36	0.98	63.79	8.45 (<1%)
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (disturbed)[3] (32500/42110)	18.18 (0.22)	1.48	28.56	2.88	51.10	19.66 (1%)
Diegan Coastal Sage Scrub–Non-native Grassland (disturbed)[3] (32500/42200)	19.18 (0.09)	—	8.28	—	27.47	19.18 (1%)
Diegan Coastal Sage Scrub–Baccharis-dominated[3] (32530)	15.66 (0.01)	0.62	4.74	0.57	21.60	16.29 (1%)
Granitic Southern Mixed Chaparral[3] (37121)	308.95 (0.96)	45.53	246.03	0.55	601.07	354.48 (13%)
Scrub and Chaparral Subtotal[2]	*676.01 (6.14)*	*85.43*	*1,263.65*	*26.49*	*2,051.58*	*761.44 (29%)*
Grasslands, Vernal Pools, Meadows, and Other Herb Communities						
Valley Needlegrass Grassland[3] (42110)	36.69 (0.69)	7.92	64.18	5.04	113.82	44.61 (2%)
Valley Needlegrass Grassland (disturbed)[3] (42110)	22.14 (0.57)	5.84	36.03	0.13	64.14	27.98 (1%)
Non-native Grassland[3] (42200)	109.46 (1.21)	11.40	81.31	9.49	211.65	120.85 (5%)
Non-native Grassland–Non-native Vegetation (42200/11000)	14.96	—	—	—	14.96	14.96 (1%)
Vernal Pool[3] (44000)	0.39	0.01	0.40	—	0.80	0.40 (<1%)
Grasslands, Vernal Pools, Meadows, and Other Herb Communities Subtotal[2]	*183.63 (2.47)*	*25.17*	*181.91*	*14.65*	*405.36*	*208.80 (8%)*
Bog and Marsh						
Cismontane Alkali Marsh[3] (52310)	—	—	—	0.40	0.40	—
Coastal and Valley Freshwater Marsh[3] (52410)	0.02	—	—	—	0.02	0.02 (<1%)
Coastal and Valley Freshwater Marsh (disturbed)[3] (52410)	0.12	—	—	—	0.12	0.12 (<1%)
Bog and Marsh Subtotal[1]	*0.14*	—	—	*0.40*	*0.54*	*0.14 (<1%)*
Riparian and Bottomland Habitat						
Arundo-Dominated Riparian[4] (65100)	1.47	0.44	0.02	—	1.93	1.91 (<1%)
Mulefat Scrub[3] (63310)	0.15	0.40	1.16	0.16	1.86	0.55 (<1%)
Non-vegetated Channel or Floodway[3] (64200)	2.94 (0.04)	0.83	5.84	0.22	9.82	3.77 (<1%)

Table 5-2a
On-Site Impacts to Vegetation Communities and Land Covers within the Fanita Ranch Project Area

Vegetation Type (Holland/Oberbauer Code)	Impacts		Habitat Preserve	Impact Neutral	Total Acreage	Total Impacts (Percent of Total On-Site Acreage)
	Perm[1]	*Temp*				
Southern Arroyo Willow Riparian Forest[3] (61320)	—	—	1.54	—	1.54	—
Southern Sycamore–Alder Riparian Woodland[3] (62400)	0.17	0.04	0.96	2.07	3.23	0.21 (<1%)
Southern Willow Scrub[3] (63320)	0.79	0.03	0.04	—	0.86	0.81 (<1%)
Southern Willow Scrub (disturbed)[3] (63320)	0.48	—	—	—	0.48	0.48 (<1%)
Riparian and Bottomland Habitat Subtotal[2]	*5.99 (0.04)*	*1.73*	*9.57*	*2.44*	*19.73*	*7.72 (<1%)*
Woodland						
Coast Live Oak Woodland[3] (71160)	2.42 (0.09)	0.03	26.36	0.82	29.63	2.45 (<1%)
Woodland Subtotal[2]	*2.42 (0.09)*	*0.03*	*26.36*	*0.82*	*29.63*	*2.45 (<1%)*
Sensitive Vegetation (including Wetlands) Subtotal[2]	*852.74 (8.75)*	*112.36*	*1,481.55*	*44.81*	*2,491.44*	*965.09 (39%)*
Grand Total[2]	**927.90 (10.94)**	**114.47**	**1,518.50**	**77.20**	**2,638.07**	**1,042.37 (40%)**

Notes:
1 Acreage in parentheses includes the portion of the total permanently impacted by the proposed trails.
2 Totals may not sum due to rounding.
3 Sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).
4 Since this is a non-native vegetation community, only the portion under CDFW jurisdiction (1.40 acres) is considered sensitive.

Table 5-2b
Off-Site Impacts to Vegetation Communities and Land Covers within the Fanita Ranch Project Area

General Vegetation Community/Land Cover Category	Vegetation Type (Holland/ Oberbauer Code)	Off-Site Impacts		Total Off-Site Impacts (% of Total)
		Perm	*Temp*	
Disturbed and Developed Areas (10000)	Disturbed Habitat (11300)	4.36	1.07	5.43 (14%)
	Urban/Developed (12000)	3.16	0.34	3.50 (9%)
Disturbed and Developed Areas Subtotal[1]		*7.51*	*1.41*	*8.93 (22%)*

Table 5-2b
Off-Site Impacts to Vegetation Communities and Land Covers within the Fanita Ranch Project Area

General Vegetation Community/Land Cover Category	Vegetation Type (Holland/ Oberbauer Code)	Off-Site Impacts		Total Off-Site Impacts (% of Total)
		Perm	*Temp*	
Scrub and Chaparral (30000)	Diegan Coastal Sage Scrub[2] (32500)	4.93	1.33	6.26 (16%)
	Diegan Coastal Sage Scrub (fire recovered)[2] (32500)	0.17	—	0.17 (<1%)
	Diegan Coastal Sage Scrub (disturbed)[2] (32500)	8.70	3.28	11.99 (30%)
	Diegan Coastal Sage Scrub–Valley Needlegrass Grassland[2] (32500/42110)	0.01	0.09	0.10 (<1%)
	Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (disturbed)[2] (32500/42110)	1.44	0.94	2.38 (6%)
Scrub and Chaparral Subtotal[1]		*15.25*	*5.64*	*20.89 (53%)*
Grasslands, Vernal Pools, Meadows, and Other Herb Communities (40000)	Non-native Grassland[2] (42200)	2.50	0.21	2.72 (7%)
	Vernal Pool (44000)[2]	0.01	—	0.01 (<1%)
Grasslands, Vernal Pools, Meadows, and Other Herb Communities Subtotal[1]		*2.52*	*0.21*	*2.73 (7%)*
Riparian and Bottomland Habitat (60000)	Non-vegetated Channel or Floodway[2] (64200)	0.04	0.02	0.06 (<1%)
Riparian and Bottomland Habitat Subtotal[1]		*0.04*	*0.02*	*0.06 (<1%)*
Sensitive Vegetation (including Wetlands) Subtotal[1]		*17.80*	*5.87*	*23.68 (60%)*
Grand Total[1]		**25.32**	**7.29**	**32.60**

Notes:
1 Totals may not sum due to rounding.
2 Sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

All direct permanent and temporary impacts to sensitive upland communities in both on- and off-site areas are considered significant and would be reduced to less than significant with implementation of Mitigation Measure (MM) BIO-1 and MM-BIO-2, which would provide for the long-term management of sensitive upland communities within the Habitat Preserve and restore temporary impacts to sensitive upland communities. A total of 1,448.84 acres of sensitive upland vegetation communities shall be conserved within the Habitat Preserve and 110.59 acres of on-site temporary impacts to sensitive upland habitats shall become part of the Habitat Preserve once restored.

Vernal pools would be mitigated to less than significant through implementation of MM-BIO-3, which would require rehabilitation or enhancement and creation of new seasonal basin resources within the Habitat Preserve. A total of 0.40 acres of vernal pool shall be conserved within the Habitat Preserve.

According to the Draft Santee MSCP Subarea Plan, all impacts to individual mature oak trees (i.e., oak trees with at least one trunk of 6 inches or more diameter at breast height [DBH] or multitrunked native oak trees with aggregate diameter of 10 inches DBH) would be significant and require mitigation. There are approximately 17 mature oak trees within the impact footprint, occurring mainly within the coast live oak woodland vegetation community. This impact would be reduced to less than significant through MM-BIO-5, which would replant seedling oak trees at a 3:1 ratio.

Direct permanent and temporary impacts to wetland vegetation communities would be reduced to less than significant through implementation of MM-BIO-13, which would require permits from the agencies that have jurisdiction over wetlands (i.e., ACOE, RWQCB, and/or CDFW), and a Wetlands Mitigation Plan. Wetland vegetation communities are discussed further in Section 5.1.5, Jurisdictional Aquatic Resources.

5.1.2 Special-Status Plant Species

Implementation of the proposed project would result in the direct loss of special-status plant species occurring on site and along the off-site Cuyamaca Street extension; locations of individuals of special-status plant species are identified on Figure 5-1 and Figures 5-1a through 5-1af and described in Section 4.5.2, Special-Status Plant Species. The Magnolia Avenue extension is highly disturbed and the potential for special-status plant species to occur is low. This area was not surveyed for special-status plant species due to lack of legal access to the parcels. Preconstruction surveys will be conducted when legal access is provided. Table 5-3 summarizes impacts to special-status plants. Impacts to special-status plants include plants recorded in all years, since comprehensive focused surveys for rare plants were not conducted in 2016/2017.

Table 5-3
Summary of Direct Impacts to Special-Status Plant Species within the Project Area

Plant Species	Status (Federal/State/ CNPS/Draft Santee MSCP Subarea Plan)	Impacts (Individuals)			Habitat Preserve	Impact Neutral	Total Individuals
		On Site[1]	*Off Site*	*Total Impact (Percent Impacted)*			
San Diego Sagewort (*Artemisia palmeri*)	None/None/4.2/ None	190	—	190 (86%)	30	—	220
Coulter's Saltbush (*Atriplex coulteri*)	None/None/1B.2/ None	15	—	15 (23%)	—	50	65
San Diego Goldenstar (*Bloomeria clevelandii*)	None/None/1B.1/ Covered	7,964 (67)	—	7,964 (44%)	10,354	—	18,318
Small-flowered Morning-glory (*Convolvulus simulans*)	None/None/4.2/ None	3	—	3 (23%)	7	3	13

Table 5-3
Summary of Direct Impacts to Special-Status Plant Species within the Project Area

Plant Species	Status (Federal/State/ CNPS/Draft Santee MSCP Subarea Plan)	Impacts (Individuals)			Habitat Preserve	Impact Neutral	Total Individuals
		On Site[1]	*Off Site*	*Total Impact (Percent Impacted)*			
Variegated Dudleya (*Dudleya variegata*)	None/None/1B.2/ Covered NE	781	5	786 (9%)	8,156	—	8,942
San Diego Barrel Cactus (*Ferocactus viridescens*)	None/None/2B.1/ Covered	585 (10)	—	585 (12%)	4,270	1	4,856
Palmer's Grapplinghook (*Harpagonella palmeri*)	None/None/4.2/ None	384	10	394 (86%)	16	50	460
Graceful Tarplant (*Holocarpha virgata* ssp. *elongata*)	None/None/4.2/ None	2	—	2 (33%)	4	—	6
Willowy Monardella (*Monardella viminea*)	FE/CE/1B.1/ Covered	1*	—	1* (<1%)	1,621	—	1,622
California Adder's-tongue (*Ophioglossum californicum*)	None/None/4.2/ None	—	—	— (0%)	250	—	250
Chaparral Rein Orchid (*Piperia cooperi*)	None/None/4.2/ None	—	—	— (0%)	1	—	1
Engelmann Oak (*Quercus engelmannii*)	None/None/4.2/ None	5	—	5 (100%)	—	—	5
Ashy Spike-Moss (*Selaginella cinerascens*)	None/None/4.1/ None	*Not mapped due to low ranking and prevalence within the project area.*					
San Diego County Viguiera (*Viguiera laciniata*)	None/None/4.2/ None	84	5	89 (4%)	1,959	3	2,051

Notes: CNPS = California Native Plant Society; MSCP = Multiple Species Conservation Program; NE = narrow endemic.

[1] Acreage in parentheses includes the portion of the total permanently impacted by the proposed trails.

* It should be noted that there are 49 individuals occurring along existing retained trails and adjacent to proposed trail creation areas. All impacts to these individuals would be avoided through the maintenance and management of trails as outlined in the Public Access Plan (Appendix T).

Status Legend
Federal
FE: Federally listed as endangered.
State
CE: State listed as endangered.
CRPR: California Rare Plant Rank (previously known as the CNPS List)
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
4: Plants of limited distribution – a watch list

Threat Rank
.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 – Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
Draft Santee MSCP Subarea Plan (City of Santee 2018)
Covered: Draft Santee MSCP Subarea Plan Covered Species

Under the Draft Santee MSCP Subarea Plan, direct impacts to Covered special-status plant species include the following species: San Diego goldenstar, variegated dudleya, San Diego barrel cactus, and willowy monardella. All permanent and temporary impacts, in both on- and off-site areas, to these species are considered significant and would be reduced to less than significant with implementation of MM-BIO-1 and MM-BIO-2, which would provide for the long-term management of the Habitat Preserve and restore suitable habitat for these species. For the purposes of this analysis, it is assumed that this project would be covered under the Draft Santee MSCP Subarea Plan. As such, impacts to covered narrow endemic species would be subject to the narrow endemic species policy identified in the Draft Santee MSCP Subarea Plan, which requires 100% conservation within open space (i.e., hardline preserve) and 80% conservation through translocation within permanent impact (i.e., take-authorized) areas (MM-BIO-4). Direct impacts to the non-covered CRPR 1B species Coulter's saltbush would also be subject to the narrow endemic species policy (MM-BIO-4).

Direct impacts to non-covered species—including San Diego sagewort, small-flowered morning-glory, Palmer's grapplinghook, graceful tarplant, Engelmann oak, ashy spike-moss, and San Diego County viguiera—would also occur. Each of these species is a CRPR 4 species, which are relatively common in this portion of the County and therefore are not considered significantly rare. Although impacts to these species are not considered significant, MM-BIO-1 and MM-BIO-2 would preserve or restore suitable habitat for these species.

According to the Draft Santee MSCP Subarea Plan, all impacts to individual mature oak trees (i.e., oak trees with at least one trunk of 6-inch or more DBH or multitrunked native oak trees with aggregate diameter of 10-inch DBH) would be significant and require mitigation. Permanent impacts to Engelmann oak trees (5 individuals) would be reduced to less than significant through MM-BIO-5, which would replant seedling oak trees at a 3:1 ratio.

Since the Magnolia Avenue road extension was not surveyed, MM-BIO-6, which would require preconstruction special-status plant surveys in all impact areas containing suitable habitat, would be implemented. If any covered narrow endemic species are detected during the preconstruction surveys, impacts would be subject to the narrow endemic species policy (MM-BIO-4) and avoidance, minimization, and mitigation measures outlined in MM-BIO-6 would be implemented.

5.1.3 Special-Status Wildlife Species

Implementation of the proposed project would result in the direct loss of habitat, including foraging habitat, for the majority of the special-status wildlife species described in Section 4.5.3. These

species include the following: western spadefoot, Southern California legless lizard (*Anniella stebbinsi*), California glossy snake (*Arizona elegans occidentalis*), San Diegan tiger whiptail, red diamondback rattlesnake, Blainville's horned lizard, Coronado Island skink (*Plestiodon skiltonianus interparietalis*), Belding's orange-throated whiptail, coast patch-nosed snake (*Salvadora hexalepis virgultea*), two-striped gartersnake, Cooper's hawk, Southern California rufous-crowned sparrow, grasshopper sparrow, golden eagle, Bell's sage sparrow, northern harrier, American peregrine falcon, long-eared owl, oak titmouse, coastal cactus wren, merlin, yellow-breasted chat, prairie falcon (*Falco mexicanus*), loggerhead shrike, coastal California gnatcatcher, rufous hummingbird, Brewer's sparrow, yellow warbler, least Bell's vireo, white-tailed kite, California horned lark, San Diego black-tailed jackrabbit, Dulzura pocket mouse (*Chaetodipus californicus femoralis*), northwestern San Diego pocket mouse, San Diego desert woodrat, pallid bat, western mastiff bat (*Eumops perotis californicus*), Townsend's big-eared bat, western red bat, western yellow bat, long-eared myotis (*Myotis evotis*), western small-footed myotis, Yuma myotis, big free-tailed bat (*Nyctinomops macrotis*), pocketed free-tailed bat, San Diego fairy shrimp, Quino checkerspot butterfly, and Hermes copper butterfly. No direct impacts are expected to osprey, as this species was observed perched on site, but foraging within nearby Santee Lakes, and there is no suitable foraging or nesting habitat for this species on site. Willow flycatcher has a low potential to nest on site, since only one willow flycatcher was observed on May 23, 2017, during focused surveys, and it was not observed during subsequent visits. In accordance with the survey protocol guidelines, this individual was determined to be a migrant subspecies and not southwestern willow flycatcher. Therefore, direct impacts to breeding willow flycatchers is not expected. For the purposes of this analysis, it is assumed that this project would be a hardline Covered Project under the Draft Santee MSCP Subarea Plan. As such, impacts to covered narrow endemic species would be subject to the narrow endemic species policy identified in the Draft Santee MSCP Subarea Plan, which requires 100% conservation within open space (i.e., hardline preserve) and 80% conservation through translocation within permanent impact (i.e., take-authorized) areas.

Species locations are shown on Figure 5-1 and Figures 5-1a through 5-1af. Species-specific impact figures include western spadefoot shown on Figure 5-2, Quino checkerspot butterfly shown on Figures 5-3a through 5-3c, and Hermes copper butterfly shown on Figure 5-4. Table 5-4a outlines the impacts to occurrences and suitable habitat (including foraging habitat), the significance determination, and the mitigation measure proposed to reduce the impact to less than significant for each species. Table 5-4b summarizes the direct impacts to modeled suitable habitat for Quino checkerspot butterfly (based on the three models discussed in Section 4.5.3.4) and the one historical Quino checkerspot butterfly occurrence within the project area. Table 5-4c summarizes the direct impacts to suitable habitat for Hermes copper butterfly and the three historical occurrences.

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
Amphibians and Reptiles				
Western spadefoot (*Spea hammondii*)	None/SSC/Covered	395.24 acres[2] and 242 features with the potential to support this species; 38 occupied features[2]	230.36; 14 occupied features. See Figure 5-2.	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would conserve 24 occupied features and 146.24 acres of suitable habitat in a configuration that preserves genetic exchange and species viability; **MM-BIO-3**, which would require a Vernal Pool Mitigation Plan for enhancing and restoring 0.50 acres of vernal pool resources; and **MM-BIO-8**, which would relocate individuals within impact areas to suitable breeding habitat outside of impact areas.
Southern California legless lizard (*Anniella stebbinsi*)	None/SSC/None	638.67 acres; moderate potential to occur	358.98	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 276.10 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this potentially occurring species to less than significant.
California glossy snake (*Arizona elegans occidentalis*)	None/SSC/None	2,072.47 acres; moderate potential to occur	782.33	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,263.65 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*)	None/SSC/None	638.67 acres; two locations (pre-2016)	358.98	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 276.10 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
Red diamondback rattlesnake (*Crotalus ruber*)	None/SSC/None	2,331.42 acres; 9 locations (pre-2016) and 1 location (2016/2017)	923.30	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,371.31 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Blainville's horned lizard (*Phrynosoma blainvillii*)	None/SSC/Covered	2,309.77 acres; 24 locations (pre-2016) and 3 locations (2016/2017)	922.90; 17 locations	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would conserve 10 known locations and provide 1,348.66 acres of suitable habitat in a configuration that preserves genetic exchange and species viability; and **MM-BIO-2**, which would restore 103.15 acres of temporary impacts to suitable habitat for this species.
Coronado Island skink (*Plestiodon skiltonianus interparietalis*)	None/WL/None	2,110.08 acres; moderate potential to occur	786.82	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,293.72 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*)	None/SSC/Covered	2,102.10 acres; 48 locations (pre-2016; 1 off site) and 6 locations (2016/2017)	784.78; 23 locations	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would conserve 30 known locations and provide 1,290.01 acres of suitable habitat in a configuration that preserves genetic exchange and species viability; and **MM-BIO-2**, which would restore 91.10 acres of temporary impacts to suitable habitat for this species.

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	None/SSC/None	2,072.47 acres; moderate potential to occur	782.33	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,263.65 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Two-striped garter snake (*Thamnophis hammondii*)	None/SSC/None	18.66 acres; 1 location (pre-2016)	6.28	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 9.94 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Birds				
Cooper's hawk (*Accipiter cooperii*) (nesting)	None/WL/None	34.41 acres nesting; 2,640.56 acres foraging; 12 locations (pre-2016; 1 off site) and 4 locations (2016/2017)	2.65 nesting; 1,056.61 foraging	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would provide 28.87 acres of suitable nesting habitat and 1,510.85 acres of suitable foraging habitat in a configuration that preserves genetic exchange and species viability; **MM-BIO-7**, which would require preconstruction nesting bird surveys in suitable habitat and appropriate buffers if active nests are found; and **MM-BIO-13**, which would restore temporary impacts in wetland areas.
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	None/WL/None	2,072.47 acres nesting/foraging; 127 locations (pre-2016; 1 off-site) and 28 locations (2016/2017)	782.33	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would provide 1,263.65 acres of suitable nesting and foraging habitat in a configuration that preserves genetic exchange and species viability, and through implementation of **MM-BIO-7**, which would require preconstruction nesting bird surveys in suitable habitat.

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
Grasshopper sparrow (*Ammodramus savannarum*) (nesting)	None/SSC/None	552.11 acres nesting/foraging; 68 locations (pre-2016) and 19 locations (2016/2017)	260.89	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would provide 272.71 acres of suitable nesting and foraging habitat in a configuration that preserves genetic exchange and species viability, and through implementation of **MM-BIO-7**, which would require preconstruction nesting bird surveys.
Golden eagle (*Aquila chrysaetos*) (nesting and wintering)	BCC/FP, WL/None	834.23 acres; 1 flyover (pre-2016)	368.33 foraging	The project area does not contain suitable nesting habitat for this species. Potential suitable foraging habitat does occur; however, the site is unoccupied by golden eagles. The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 442.46 acres of potential suitable foraging habitat that would reduce impacts to this species to less than significant.
Bell's sage sparrow (*Artemisiospiza belli belli)*	BCC/WL/None	2,072.47 acres; 15 individuals (pre-2016)	782.33	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would provide 1,263.65 acres of suitable nesting habitat in a configuration that preserves genetic exchange and species viability, and through implementation of **MM-BIO-7**, which would require preconstruction nesting bird surveys in suitable habitat.
Long-eared owl (*Asio otus*)	None/SSC/None	37.61 acres; 1 individual (pre-2016)	4.49	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would provide 30.07 acres of suitable nesting habitat in a configuration that preserves genetic exchange and species viability, and through implementation of **MM-BIO-7**, which would require preconstruction nesting bird surveys in suitable habitat.

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
Oak titmouse (*Baeolophus inornatus*)	BCC/None/None	29.63 acres; 3 individuals (pre-2016)	2.45	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would provide 26.36 acres of suitable habitat in a configuration that preserves genetic exchange and species viability, and through implementation of **MM-BIO-7**, which would require preconstruction nesting bird surveys in suitable habitat.
Coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)	None/SSC/Covered	0.99 acre; 5 clusters[3]	0.57; 3 clusters	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve outlined in **MM-BIO-1**, which would conserve 0.42 acres of suitable habitat containing two coastal cactus wren clusters; **MM-BIO-2**, which would restore 0.02 acres of temporary impacts to cactus patch areas; **MM-BIO-7**, which would require nesting bird surveys; **MM-BIO-12**, which would require a coastal cactus wren management plan; and **MM-BIO-19**, which would require planting of cactus patches along brush management zones.
Northern harrier (*Circus cyaneus*)	None/SCC/None	1,879.23 foraging; 6 individuals (pre-2016)	639.10	This species has low potential for nesting within the project area due to lack of preferred nesting habitat and lack of observations. The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,199.13 acres of suitable foraging habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
Willow flycatcher (*Empidonax traillii*)	BCC/SE/None	7.98 acres; one individual observed but low potential to nest	2.05	Individual observed during focused surveys for southwestern willow flycatcher on May 23, 2017. The individual was not observed during subsequent visits and assumed to be a migrant. Direct impacts to nesting willow flycatchers are not expected.
Merlin (*Falco columbarius*) Foraging/wintering habitat	None/WL/None	437.45 acres foraging; observed during winter months	213.71	Since this species does not breed in California, this species does not have the potential to nest within the project area. The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 207.88 acres of suitable foraging or wintering habitat that would reduce impacts to this species to less than significant.
Prairie falcon (*Falco mexicanus*)	BCC/WL/None	420.90 acres; moderate potential to forage	216.92	Suitable breeding habitat is not present within the project area. The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 188.56 acres of suitable foraging habitat that would reduce impacts to this species to less than significant.
American peregrine falcon (*Falco peregrinus anatum*)	BCC/FP/None	8.52 acres foraging; 1 pre-2016 observation and 2 observations during 2016/2017	2.19	Suitable breeding habitat is not present within the project area. The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 3.71 acres of suitable foraging habitat that would reduce impacts to this species to less than significant.
Yellow-breasted chat (*Icteria virens*)	None/SSC/None	36.75 acres; 2 pre-2016 observation and 1 observation during 2016/2017	3.68	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve outlined in **MM-BIO-1**, which would provide 30.03 acres of suitable habitat in a configuration that preserves genetic exchange and species viability; **MM-BIO-7**, which would require preconstruction nesting bird surveys in suitable habitat and appropriate buffers if active nests are found; **MM-BIO-10**, which would

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
				remove brown-headed cowbirds from the project area; and **MM-BIO-13**, which would restore temporary impacts in wetland areas.
Loggerhead shrike (*Lanius ludovicianus*) (nesting)	BCC/SSC/None	2,602.41 acres; 8 individuals observed in 2015 and during previous studies	1,051.97	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,480.78 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant. Impacts to nesting birds would be reduced to less-than significant through implementation of **MM-BIO-7**, which would require preconstruction nesting bird surveys in suitable habitat and appropriate buffers if active nests are found.
Osprey (*Pandion haliaetus*)	None/WL/None	N/A; observed in 2016, species has low potential to nest or forage due to lack of suitable habitat.	N/A	No direct impacts to osprey are expected.
Coastal California gnatcatcher (*Polioptila californica californica*)	FT/SSC/Covered	1,471.40 acres; 39 Use Areas[4]	427.85; 14 Use Areas	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would conserve 1,017.61 acres of suitable habitat containing 25 Use Areas[4] (64% preserved); **MM-BIO-2**, which would restore 45.54 acres of temporary impacts to suitable habitat areas; **MM-BIO-7**, which would require preconstruction nesting bird surveys in suitable habitat; and **MM-BIO-10**, which would remove brown-headed cowbirds from the project area.

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
Rufous hummingbird (*Selasphorus rufus*)	BCC/None/None	1,509.01 acres; one observation (2016/2017)	432.34	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,047.68 acres of suitable foraging habitat in a configuration that preserves species viability and would reduce impacts to this species to less than significant.
Brewer's Sparrow (*Spizella breweri*)	BCC/None/None	2,072.47 acres; one observation (2016/2017)	782.33	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,263.65 acres of suitable habitat in a configuration that preserves species viability and would reduce impacts to this species to less than significant.
Yellow warbler (*Setophaga petechial*)	BCC/SSC/None	36.75 acres; 3 locations (in both 2016 and 1997)	3.68	Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would provide 30.03 acres of suitable nesting habitat in a configuration that preserves genetic exchange and species viability; **MM-BIO-7**, which would require preconstruction nesting bird surveys in suitable habitat and appropriate buffers if active nests are found; **MM-BIO-10**, which would remove brown-headed cowbirds from the project area; and **MM-BIO-13**, which would restore temporary impacts in wetland areas.
Least Bell's vireo (*Vireo bellii pusillus*)	FE/SE/Covered	7.98 acres; three individuals[5]	2.05; two individuals	One pair was observed within coastal sage scrub/chaparral during the 2016 focused survey; however, the pair disbanded and no nesting least Bell's vireo were observed during focused surveys. The individual observed during the 1997 survey is located within riparian habitat within the Habitat Preserve. Impacts to suitable nesting habitat would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would conserve 3.71 acres of suitable habitat

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
				(46% preserved); **MM-BIO-7**, which would require preconstruction nesting bird surveys in suitable habitat; **MM-BIO-10**, which would remove brown-headed cowbirds from the project area; and **MM-BIO-13**, which would restore 0.46 acres of temporary impacts in suitable wetland habitat areas.
White-tailed kite (*Elanus leucurus*)	None/FP/None	2,029.58 acres foraging; 4 observations pre-2016	698.17	This species is unlikely to nest within the project area. The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,261.09 acres of suitable foraging habitat in a configuration that preserves species viability and would reduce impacts to this species to less than significant.
California horned lark (*Eremophila alpestris actia*)	None/WL/None	527.92 acres foraging; prevalent within project area	267.71	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 217.06 acres of suitable foraging habitat in a configuration that preserves species viability and would reduce impacts to this species to less than significant.
Mammals				
Pallid bat (*Antrozous pallidus*)	None/SSC/None	2,657.30 acres; acoustically detected	1,062.41	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,517.69 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Dulzura pocket mouse (*Chaetodipus californicus femoralis*)	None/SSC/None	2,630.02 acres; moderate potential to occur	1,052.48	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,507.06 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
Townsend's big-eared bat (*Corynorhinus townsendii*) foraging habitat	None/SSC/None	2,657.30 acres; acoustically detected	1,062.41	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,517.69 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Western mastiff bat (*Eumops perotis californicus*)	None/SSC/None	2,657.30 acres; moderate potential to occur	1,062.41	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,517.69 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Western red Bat (*Lasiurus blossevillii*)	None/SSC/None	2,657.30 acres; acoustically detected	1,062.41	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,517.69 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Western yellow bat (*Lasiurus xanthinus*) foraging habitat	None/SSC/None	2,657.30 acres; acoustically detected	1,062.41	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,517.69 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Long-eared myotis (*Myotis evotis*) foraging habitat	None/SSC/None	2,657.30 acres; moderate potential to occur	1,062.41	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,517.69 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
Western small-footed myotis (*Myotis ciliolabrum*) foraging habitat	None/None/None	2,657.30 acres; acoustically detected	1,062.41	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,517.69 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Yuma myotis (*Myotis yumanensis*)	None/None/None	2,657.30 acres; acoustically detected	1,062.41	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,517.69 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*) foraging habitat	None/SSC/None	2,657.30 acres; acoustically detected	1,062.41	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,517.69 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Big free-tailed bat (*Nyctinomops macrotis*)	None/SSC/None	2,657.30 acres; moderate potential to occur	1,062.41	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,517.69 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	None/SSC/None	2,630.02 acres; prevalent within project area	1,052.48	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,507.06 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
Northwestern San Diego Pocket Mouse (*Chaetodipus fallax fallax*)	None/SSC/None	2,479.75 acres; prevalent within project area	993.44	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,445.16 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
San Diego desert woodrat (*Neotoma lepida intermedia*)	None/SSC/None	2,072.47 acres; prevalent within project area	782.33	The project's on-site Habitat Preserve, outlined in **MM-BIO-1**, would provide 1,263.65 acres of suitable habitat in a configuration that preserves genetic exchange and species viability and would reduce impacts to this species to less than significant.
Invertebrates				
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	FE/None/Covered	242 potential features; 72 occupied features[6]	34 occupied features impacted (33 on site and 1 off site).	Impacts to 34 features occupied by San Diego fairy shrimp, a Draft Santee MSCP Subarea Plan Covered Species, would be significant absent mitigation. Impacts to San Diego fairy shrimp would be reduced to less than significant through **MM-BIO-3**, which would require a Vernal Pool Mitigation Plan for enhancing and restoring 0.50 acres of vernal pool resources, and through the preservation of 38 occupied features (**MM-BIO-1**).
Quino checkerspot butterfly (*Euphydryas editha quino*)	FE/None/Covered	1,724.71 acres of potential habitat based on the 2009 extrapolation model,[7] 634.55 acres based on the 1-kilometer model (all locations),[8] and 11.21 acres based on the 1-	581.39 acres of potential suitable habitat (2009 model), 396.53 acres of potential suitable habitat (1-kilometer model), and 3.82 acres of potential suitable habitat (1-kilometer model excluding the 2005 location). See Figures 5-3a through 5-3c and Table 5-4b below.	Suitable habitat associated with this Covered Species would be directly impacted by project implementation. However, the 2016 focused surveys for this species were negative. Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, which would conserve 1,096.57 acres of suitable habitat, and **MM-BIO-9**, which would restore/enhance suitable habitat within the Habitat

Table 5-4a
Direct Impacts to Special-Status Wildlife Species Present or with Moderate Potential to Occur within the Project Area (Including Off-Site Areas)

Wildlife Species	Regulatory Status: Federal/ State/Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations for Covered Species)	Significance Determination
		kilometer model (excluding the 2005 location);[9] 1 individual from 2005 (not observed during focused surveys in 2016)		Preserve and through habitat management, including success criteria, specifically for this species.
Hermes copper butterfly (Lycaena hermes)	FC/None/Covered	148.44 acres;[10] a total of 3 individuals (1 individual per year) were observed in 2003, 2004, and 2005 (not observed during focused surveys in 2016)	52.98 acres of suitable habitat; 1 historic location (2004). See Figure 5-4 and Table 5-4c below.	Suitable habitat associated with this Covered Species would be directly impacted by project implementation. However, the 2016 focused surveys for this species were negative. Impacts would be reduced to less than significant through the project's on-site Habitat Preserve, outlined in **MM-BIO-1**, and **MM-BIO-9**, which would conserve 94.77 acres of potential suitable habitat containing two historic locations.

Notes: MSCP = Multiple Species Conservation Program.

1 Impacts include permanent, temporary, and proposed trails unless otherwise noted.

2 The following criteria was used for western spadefoot habitat modeling: within 300 meters of an occupied features, within vernal pool, non-native grassland, native grassland, or coastal sage scrub, and less than 20% slope. Based on occupied features rather than number of records/individuals. Number of occupied features for western spadefoot includes those recorded in 2004, 2005, 2016, and 2017.

3 The habitat for historical occurrences of coastal cactus wren burned and is in the process of recovery. Five clusters of coastal cactus wrens were observed during surveys in 2017. Clusters rather than individual records were considered for impacts given the localized groups that this species occurs in.

4 Based on Use Areas documented during 2016 focused surveys. With the exception of one Use Area (impacts are less than 1 acre), only Use Areas 100% within the Habitat Preserve are considered preserved. Proposed trails are not considered impacts to Use Areas within the Habitat Preserve.

5 Records for least Bell's vireo include one from 1997 and a single pair from 2016.

6 Number of San Diego fairy shrimp includes features that had immature or female brachiopods that could not be identified to species and is based on the protocol-level survey results from 2004, 2004/2005, and 2015/2016.

7 The model includes areas within 656 feet (200 meters) of mapped host plants within coastal scrub, grassland, vernal pools, and disturbed habitat.

8 This model includes all suitable habitat (i.e., coastal scrub, grassland, vernal pools, and disturbed habitat) within a 1-kilometer buffer around all known Quino checkerspot observations that overlap the project area.

9 This model includes all suitable habitat (i.e., coastal scrub, grassland, vernal pools, and disturbed habitat) within a 1-kilometer buffer around known Quino checkerspot observations (excluding the 2005 on-site observation) that overlap the project area.
10 Suitable habitat for Hermes copper butterfly based on presence of redberry buckthorn within 15 feet of California buckwheat.

Status Legend
Federal
FE: Federally Endangered
FT: Federally Threatened
FC: Federal Candidate
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
State
SSC: California Species of Special Concern
FP: California Fully Protected Species
WL: California Watch List Species
SE: State Endangered
ST: State Threatened
Draft Santee MSCP Subarea Plan (City of Santee 2018)
Covered: Draft Santee MSCP Subarea Plan Covered Species

Table 5-4b
Quino Checkerspot Butterfly Direct Impact Summary

Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations)
• Figure 5-3a: 1,724.71 acres of potential habitat based on the 2009 extrapolation model[2] • Figure 5-3b: 634.55 acres based on the 1-kilometer model (all locations) (Figure 5-3b)[3] • Figure 5-3c: 11.21 acres based on the 1-kilometer model (excluding the 2005 location)[4] • 1 individual from 2005 (not observed during focused surveys in 2016)	• Figure 5-3a: 581.39 acres of potential suitable habitat (2009 model)[2] • Figure 5-3b: 396.53 acres of potential suitable habitat (1-kilometer model with all locations)[3] • Figure 5-3c: 3.82 acres of potential suitable habitat (1-kilometer model excluding the 2005 location)[4] • No impacts to observation locations[5]

Notes:
1 Impacts include permanent, temporary, and proposed trails.
2 The model includes areas within 656 feet (200 meters) of mapped host plants within coastal scrub, grassland, vernal pools, and disturbed habitat.
3 This model includes all suitable habitat (i.e., coastal scrub, grassland, vernal pools, and disturbed habitat) within a 1-kilometer buffer around all known Quino checkerspot observations that overlap the project area.
4 This model includes all suitable habitat (i.e., coastal scrub, grassland, vernal pools, and disturbed habitat) within a 1-kilometer buffer around known Quino checkerspot observations that overlap the project area (excluding the 2005 on-site observation).
5 The one observation within the project area from 2005 is located within an impact neutral area and will not be impacted by the project.

Table 5-4c
Hermes Copper Butterfly Direct Impact Summary

Suitable Habitat and Occurrence in Project Area	Impacts[1] (acres/locations)
• Figure 5-4: 148.44 acres[2] • A total of 3 individuals (1 individual per year) were observed in 2003, 2004, and 2005 (not observed during focused surveys in 2016)	• 52.98 acres of suitable habitat[2] • 1 historic location (2004)

Notes:
1 Impacts include permanent, temporary, and proposed trails unless otherwise noted.
2 Suitable habitat for Hermes copper butterfly based on presence of redberry buckthorn within 15 feet of California buckwheat.

5.1.4 Critical Habitat

There are two species with USFWS-designated Critical Habitat within the project area: willowy monardella and coastal California gnatcatcher. Additionally, the USFWS has proposed Critical Habitat for the Hermes copper butterfly. All three species are discussed in the sections below.

5.1.4.1 Willowy Monardella

A total of 117.56 acres of USFWS-designated Critical Habitat for willowy monardella occur along the northwestern boundary of the project area (Figure 5-5a, Impacts to USFWS Designated Critical Habitat – Willowy Monardella). The majority of the Critical Habitat—110.54 acres—would be within the Habitat Preserve, and only 7.02 acres would be impacted through project implementation. Although 7.02 acres of Critical Habitat for willowy monardella will be both permanently (4.39 acres) and temporarily (2.63 acres) impacted, only 1.39 acres of that is suitable habitat for this species. Table 5-5a summarizes the vegetation communities impacted within the Critical Habitat area. Impacts would occur to one willowy monardella individual within the Critical Habitat area, adjacent to the detention basin (temporary impact). All impacts to the 49 individuals along the existing retained trails and adjacent to proposed trail creation areas would be avoided (Figure 5-5a).

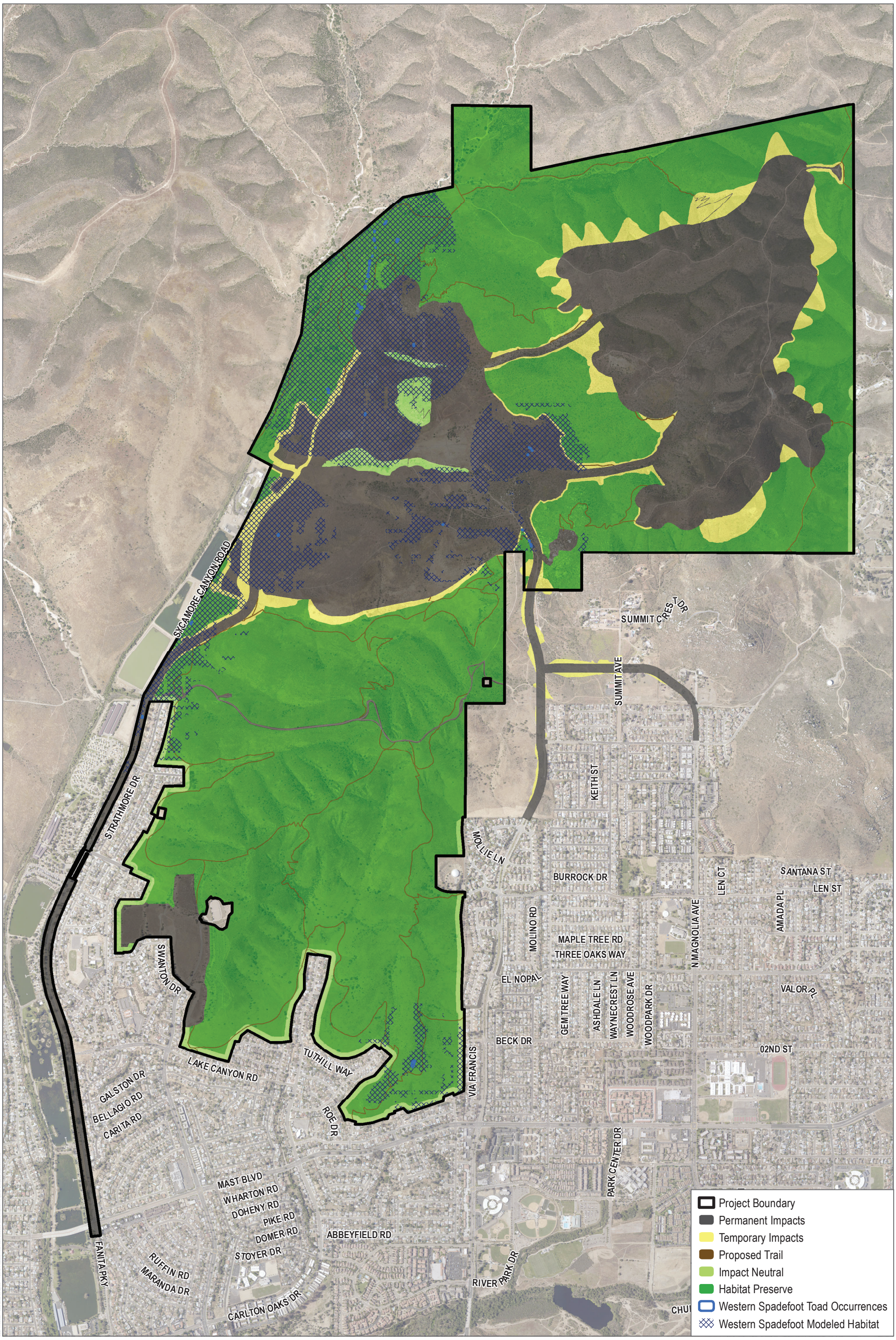
Table 5-5a
Impacts to Vegetation Communities and Land Cover Types within Willowy Monardella Critical Habitat Areas

Vegetation Type	Total Acreage	On-Site Impacts (acres)		Total Impacts
		Perm	*Temp*	
Suitable Critical Habitat for Willowy Monardella				
Coast Live Oak Woodland	21.99	0.04	—	0.04
Diegan Coastal Sage Scrub	18.89	0.21	0.84	1.05
Diegan Coastal Sage Scrub (Disturbed)	18.98	0.28	—	0.28
Granitic Southern Mixed Chaparral	16.19	—	—	—
Non-Vegetated Channel or Floodway	2.85	0.01	0.01	0.02
Southern Arroyo Willow Riparian Forest	1.53	—	—	—
Southern Sycamore–Alder Riparian Woodland	0.95	—	<0.01	<0.01
Suitable Critical Habitat Acreage	*81.38*	*0.53*[1]	*0.86*	*1.39*
Non-Suitable Critical Habitat for Willowy Monardella				
Arundo-dominated Riparian	1.17	0.89	0.25	1.15
Disturbed Habitat	3.59	0.23	—	0.23
Valley Needlegrass Grassland	1.78	<0.01	—	<0.01
Valley Needlegrass Grassland (Disturbed)	13.81	1.76	1.46	3.22
Disturbed Wetlands	0.06	—	—	—
Mulefat Scrub	1.07	0.04	0.06	0.10

Table 5-5a
Impacts to Vegetation Communities and Land Cover Types within Willowy Monardella Critical Habitat Areas

Vegetation Type	Total Acreage	On-Site Impacts (acres)		Total Impacts
		Perm	*Temp*	
Non-native Grassland	14.63	0.94	—	0.94
Vernal Pool	0.07	—	—	—
Non-Suitable Critical Habitat Acreage	*36.18*	*3.86*	*1.77*	*5.63*
Total Acreage	**117.56**	**4.39**	**2.63**	**7.02**

Note:
[1] All permanent impacts within suitable habitat, except for 0.10 acres to Diegan coastal sage scrub, occur within the existing and proposed trails.



SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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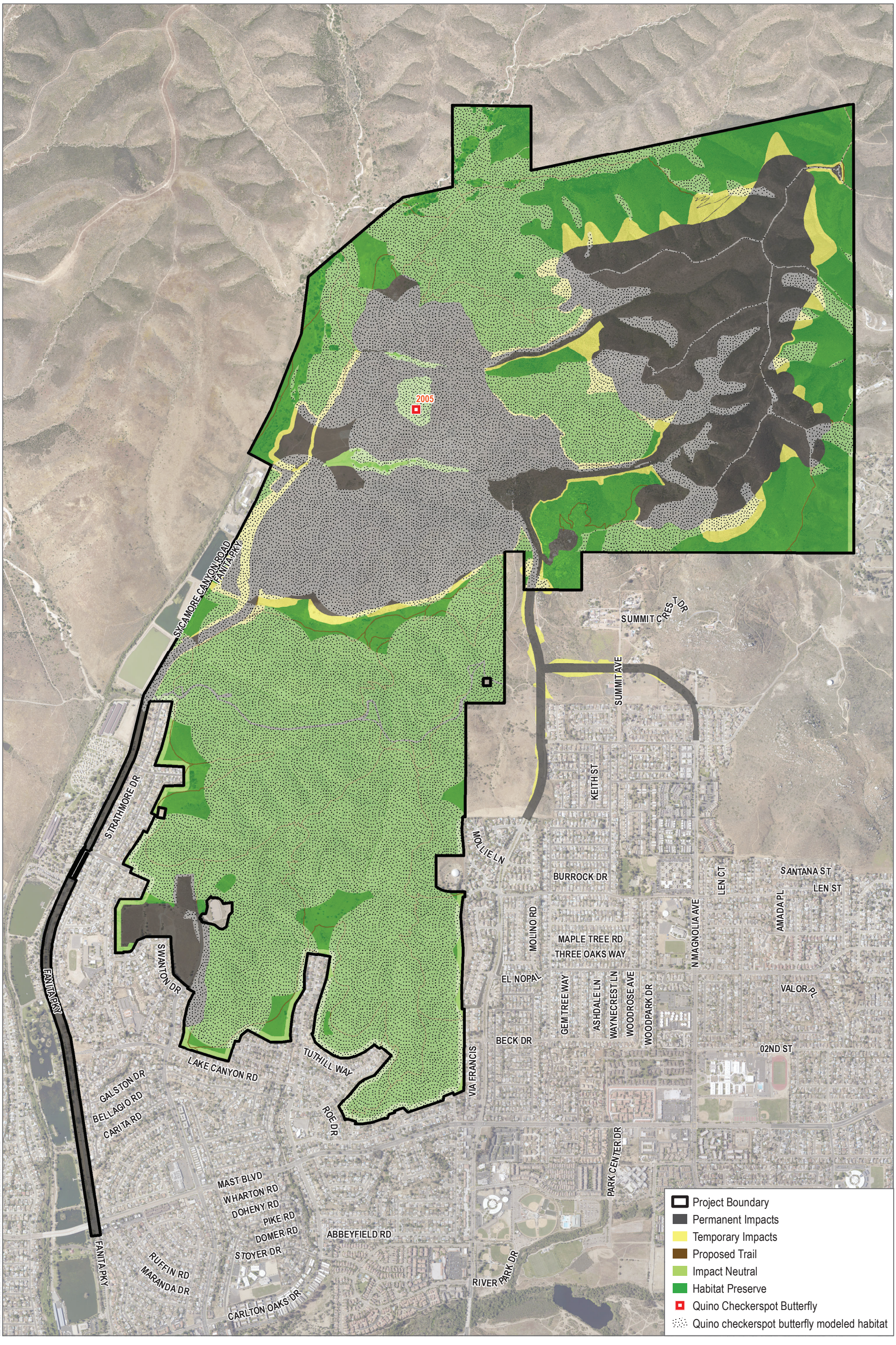
0 750 1,500 Feet

FIGURE 5-2

Impacts to Spadefoot Toad

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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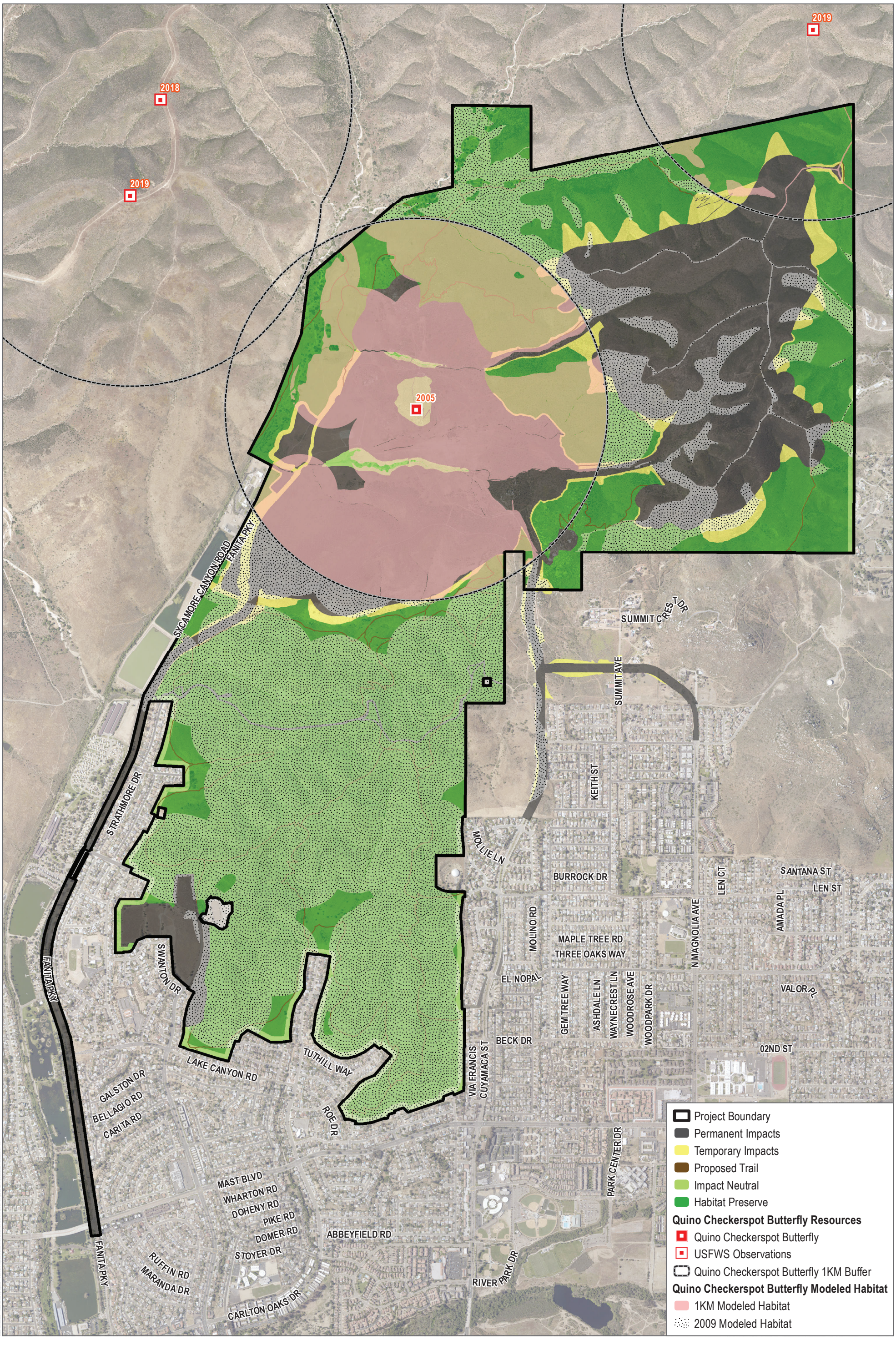
0 750 1,500 Feet

FIGURE 5-3a

Impacts to Quino Checkerspot Butterfly 2009 Model

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SOURCE: Hunsaker 2019; USWS 2019; SANGIS 2017, 2019

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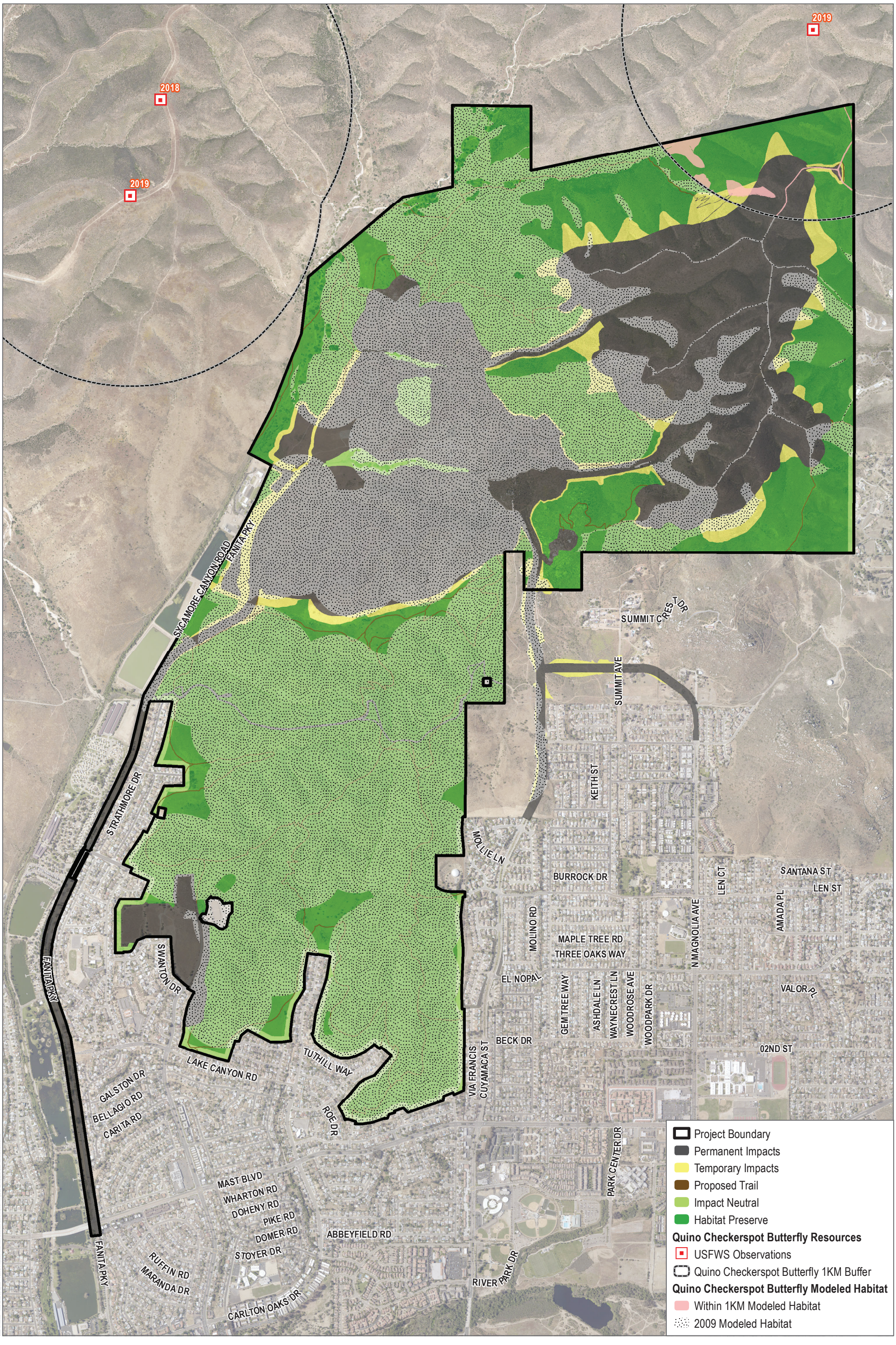
0 750 1,500 Feet

FIGURE 5-3b

Impacts to Quino Checkerspot Butterfly Model (All Locations)

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SOURCE: Hunsaker 2019; USWS 2019; SANGIS 2017, 2019

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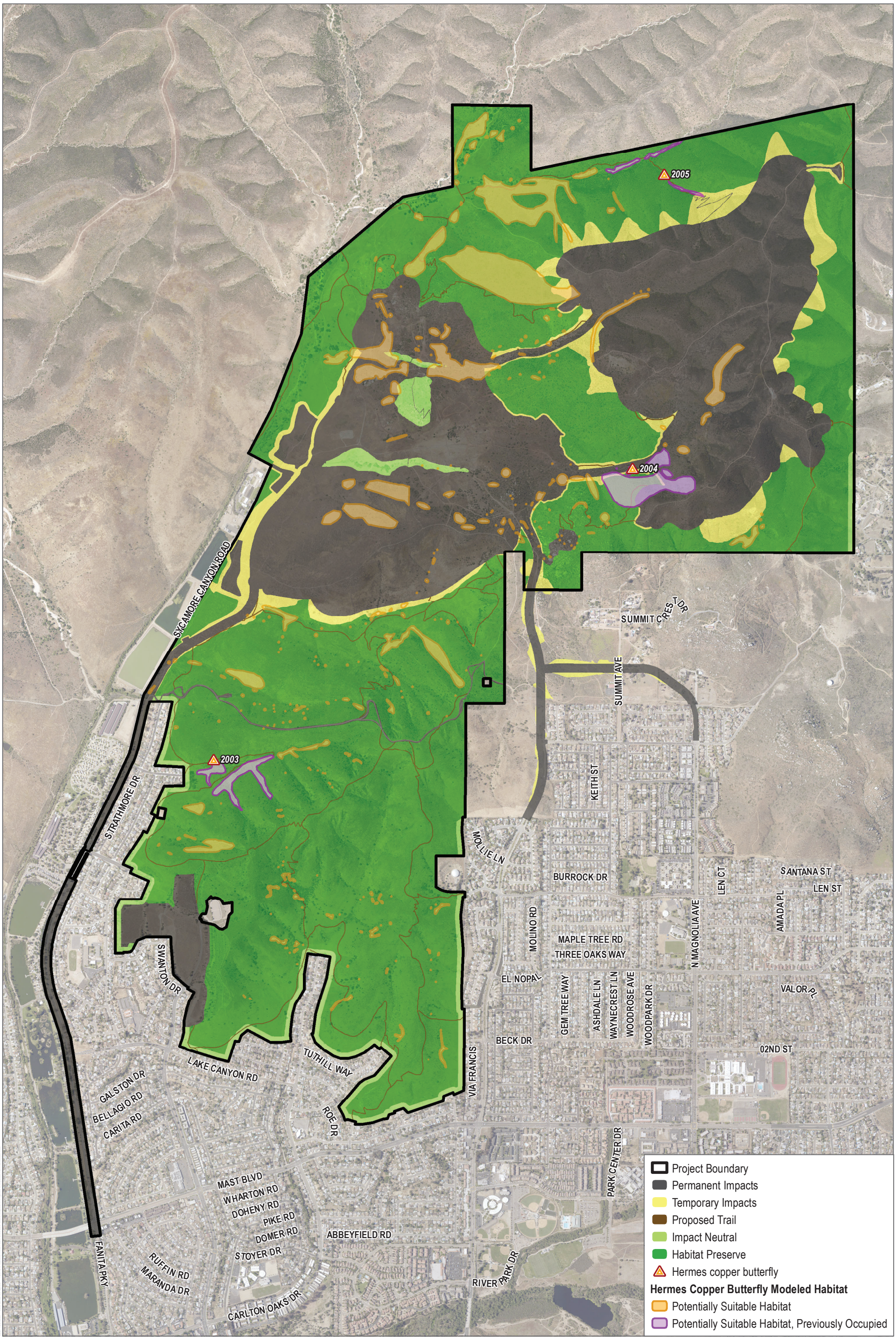
0 750 1,500 Feet

FIGURE 5-3c

Impacts to Quino Checkerspot Butterfly Model (Current Location)

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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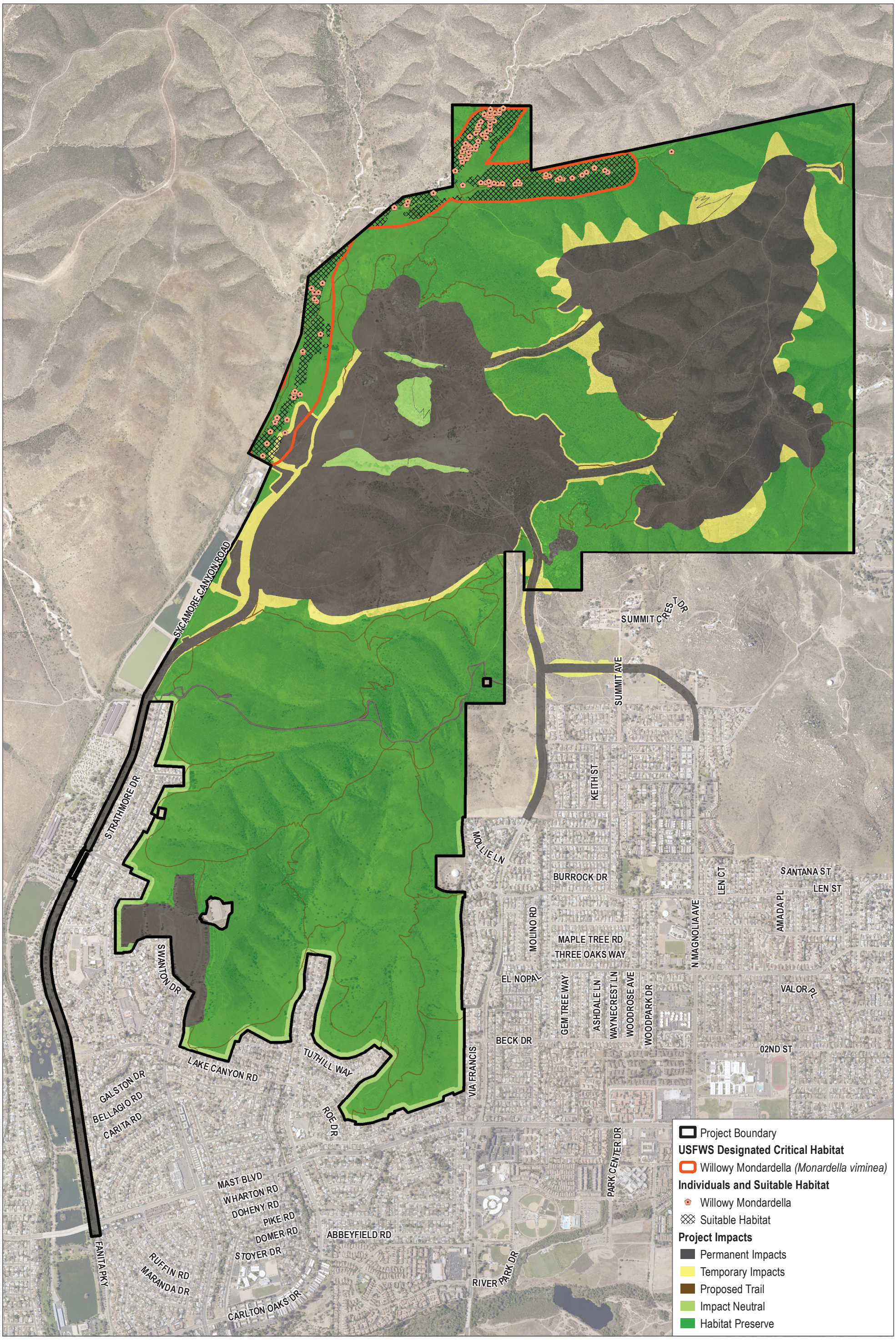
0 750 1,500 Feet

FIGURE 5-4

Impacts to Hermes Copper Butterfly

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SOURCE: Hunsaker 2019; USFWS 2019, 2020; SANGIS 2017, 2019

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0 750 1,500 Feet

FIGURE 5-5A

Impacts to USFWS Designated Critical Habitat - Willowy Monardella

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5.1.4.2 Coastal California Gnatcatcher

A total of 2,407.40 acres of USFWS-designated Critical Habitat for coastal California gnatcatcher occur within the project area (Figure 5-5b, Impacts to USFWS Designated Critical Habitat – Coastal California Gnatcatcher). Impacts would occur to 987.58 acres of Critical Habitat for coastal California gnatcatcher, including both permanent and temporary impacts; however, only 399.19 acres would be considered suitable habitat for this species (Figure 5-5b). Impacts would occur to 12 coastal California gnatcatcher Use Areas within the Critical Habitat area (Figure 5-5b). Table 5-5b summarizes the vegetation communities impacted within the coastal California gnatcatcher Critical Habitat area in the project area.

Table 5-5b
Impacts to Vegetation Communities and Land Cover Types within Coastal California Gnatcatcher Critical Habitat Areas

Vegetation Type	Total Acreage	Impacts (Acres)				Total Impacts
		On Site		*Off Site*		
		Perm	*Temp*	*Perm*	*Temp*	
Suitable Critical Habitat for Coastal California Gnatcatcher						
Diegan Coastal Sage Scrub	976.80	212.15	33.05	4.93	1.33	251.45
Diegan Coastal Sage Scrub (Disturbed)	237.38	81.81	4.08	8.32	3.19	97.40
Diegan Coastal Sage Scrub (Fire Recovered)	<0.01	—	—	—	—	—
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland	56.24	7.95	0.50	0.01	0.09	8.55
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (Disturbed)	53.47	18.18	1.48	1.44	0.94	22.03
Diegan Coastal Sage Scrub–Non-native Grassland (Disturbed)	27.47	19.18	—	—	—	19.18
Diegan Coastal Sage Scrub–Baccharis-Dominated	5.21	0.33	0.24	—	—	0.57
Suitable Critical Habitat Acreage	*1,356.56*	*339.60*	*39.35*	*14.69*	*5.55*	*399.19*
Non-Suitable Critical Habitat for Coastal California Gnatcatcher						
Arundo-Dominated Riparian	1.91	1.46	0.44	—	—	1.89
Cismontane Alkali Marsh	0.40	—	—	—	—	—
Coast Live Oak Woodland	22.42	2.41	0.03	—	—	2.44
Urban/Developed	2.02	—	—	1.69	0.33	2.02
Disturbed Habitat	72.87	32.01	1.89	3.71	1.03	38.63
Valley Needlegrass Grassland	88.29	32.94	7.02	—	—	39.96
Valley Needlegrass Grassland (Disturbed)	63.65	22.14	5.82	—	—	27.96
Granitic Southern Mixed Chaparral	600.00	308.95	45.58	—	—	354.52
Mulefat Scrub	1.70	0.15	0.40	—	—	0.54
Non-native Grassland	184.36	104.39	10.34	1.96	0.18	116.87
Non-Vegetated Channel or Floodway	8.26	2.35	0.79	0.04	0.02	3.19
Southern Arroyo Willow Riparian Forest	1.17	—	—	—	—	—
Southern Sycamore–Alder Riparian Woodland	3.23	0.17	0.04	—	—	0.21

Table 5-5b
Impacts to Vegetation Communities and Land Cover Types within Coastal California Gnatcatcher Critical Habitat Areas

Vegetation Type	Total Acreage	Impacts (Acres)				Total Impacts
		On Site		*Off Site*		
		Perm	*Temp*	*Perm*	*Temp*	
Southern Willow Scrub	0.07	—	0.03	—	—	0.03
Vernal Pool	0.48	0.11	0.01	0.01	—	0.13
Non-Suitable Critical Habitat Acreage	*1,050.84*	*507.06*	*72.37*	*7.41*	*1.55*	*588.39*
Total Acreage	**2,407.40**	**846.66**	**111.72**	**22.10**	**7.10**	**987.58**

5.1.4.3 Hermes Copper Butterfly

A total of 2,426.06 acres of proposed USFWS Critical Habitat for Hermes copper butterfly occurs within the project area (Figure 5-5c, Impacts to USFWS Proposed Critical Habitat – Hermes Copper Butterfly). It should be noted that the USFWS modeling used to prepare the proposed Critical Habitat designations is based on a combination of internal and external opinion and buffering of assumed habitat, and does not take into account the site-specific suitable habitat. In this instance, suitable habitat refers to redberry buckthorn within 15 feet of California buckwheat. Therefore, proposed USFWS Critical Habitat designations can overestimate the actual suitable habitat within an area and include many acres of unsuitable habitat (e.g., areas where redberry buckthorn and/or California buckwheat are not present). The analysis below includes a breakdown of suitability within the proposed USFWS Critical Habitat mapping based on field surveys for the Hermes copper butterfly host plant species conducted specifically for this project. Impacts would occur to 974.11 acres of proposed Critical Habitat for Hermes copper butterfly, including both permanent and temporary impacts; however, only 52.97 acres would be considered potentially suitable habitat for this species (Figure 5-5c). Table 5-5c summarizes the vegetation communities impacted within the proposed Critical Habitat area.

Table 5-5c
Impacts to Vegetation Communities and Land Cover Types within the Proposed Hermes Copper Butterfly Critical Habitat Areas

Habitat Type	Total Acreage	Impacts (acres)				Total Impacts
		On Site		*Off Site*		
		Perm	*Temp*	*Perm*	*Temp*	
Suitable Proposed Critical Habitat for Hermes Copper Butterfly[1]						
Potentially Suitable Habitat	122.15	40.97	3.73	0.01	—	44.72
Potentially Suitable Habitat, Previously Occupied	23.73	7.62	0.63	—	—	8.25

Table 5-5c
Impacts to Vegetation Communities and Land Cover Types within the Proposed Hermes Copper Butterfly Critical Habitat Areas

Habitat Type	Total Acreage	Impacts (acres)				Total Impacts
		On Site		*Off Site*		
		Perm	*Temp*	*Perm*	*Temp*	
Potential Suitable Critical Habitat Acreage	*145.884*	*48.60*	*4.36*	*0.01*	—	*52.97*
Non-Suitable Proposed Critical Habitat for Hermes Copper Butterfly						
Non-Suitable Critical Habitat Acreage	*2,280.18*	*804.78*	*96.94*	*13.71*	*5.73*	*921.15*
Total Acreage	**2,426.06**	**853.37**	**101.30**	**13.71**	**5.73**	**974.11**

Note:
[1] The suitable habitat total presented here does not total 148.44 acres as stated in other tables. This is due to some of the potentially suitable habitat areas (2.56 acres) occurring outside the proposed Critical Habitat area that overlaps the project area.

5.1.5 Jurisdictional Aquatic Resources

Impacts to jurisdictional aquatic resources would occur as a result of the project, as shown on Figure 5-6, Impacts to Jurisdictional Aquatic Resources, and summarized in Table 5-6. The proposed project would result in impacts to jurisdictional areas on site, as well as off site.

Impacts to jurisdictional aquatic resources within the project area have been avoided and minimized to the extent feasible. Nevertheless, impacts to jurisdictional resources will occur with project implementation. In total, direct impacts to 9.81 acres (67,410 linear feet) of jurisdictional resources under the jurisdiction of the ACOE, RWQCB, and CDFW are expected with project implementation. These impacts consist of 1.83 acres (2,903 linear feet) of on-site wetland waters of the United States, waters of the state, and riparian habitat; 3.82 acres (60,549 linear feet) of non-wetland waters of the United States, waters of the state, and CDFW streambeds (0.05 acres of which are off site); and 0.02 acres (64 linear feet) of on-site non-wetland waters of the United States, waters of the state, and CDFW riparian habitat. In addition to these impacts, another 4.15 acres (3,895 linear feet) of on-site riparian habitat under only CDFW jurisdiction would be impacted with project development (Table 5-6).

Table 5-6
Impacts to Jurisdictional Aquatic Resources

Wetlands Vegetation Community	Impact Acreage (Linear Feet)				Total Acres (Linear Feet)[1]	Total Impact Acreage (Linear Feet)[1] (Percent of Total)
	On Site		*Off Site*			
	Perm	*Temp*	*Perm*	*Temp*		
ACOE/RWQCB Wetlands and CDFW Riparian Areas						
Cismontane Alkali Marsh	—	—	—	—	0.40 (356)	0 (0) (0%)
Disturbed Wetlands	0.01 (57)	—	—	—	0.07 (145)	0.01 (57) (14%)

Table 5-6
Impacts to Jurisdictional Aquatic Resources

Wetlands Vegetation Community	Impact Acreage (Linear Feet)				Total Acres (Linear Feet)[1]	Total Impact Acreage (Linear Feet)[1] (Percent of Total)
	On Site		*Off Site*			
	Perm	*Temp*	*Perm*	*Temp*		
Coastal and Valley Freshwater Marsh	0.02 (52)	—	—	—	0.02 (52)	0.02 (52) (100%)
Disturbed Coastal and Valley Freshwater Marsh	0.12 (346)	—	—	—	0.12 (346)	0.12 (346) (100%)
Mulefat Scrub	0.11 (243)	0.34 (474)	—	—	1.73 (2,466)	0.45 (717) (26%)
Southern Arroyo Willow Riparian Forest	—	—	—	—	1.54 (1,416)	0 (0) (0%)
Southern Willow Scrub	0.72 (1,228)	0.03 (100)	—	—	0.79 (1,573)	0.74 (1,329) (94%)
Disturbed Southern Willow Scrub	0.48 (402)	—	—	—	0.48 (402)	0.48 (402) (100%)
ACOE/RWQCB Wetlands and CDFW Riparian Areas Subtotal[1]	*1.46 (2,328)*	*0.37 (574)*	—	—	*5.16 (6,756)*	*1.83 (2,903) (35%) (4% of the total jurisdictional area)*
ACOE/RWQCB Non-Wetland Waters and CDFW Streambed						
Non-Vegetated Channel or Floodway	2.94 (45,416)	0.83 (14,021)	0.04 (744)	0.02 (368)	9.88 (130,160)	3.82 (60,549) (39%)
ACOE/RWQCB Non-Wetland Waters and CDFW Riparian Habitat						
Disturbed Wetlands	0.02 (64)	—	—	—	0.02 (64)	0.02 (64) (100%)
CDFW Only Riparian Habitat						
Arundo-dominated Riparian	0.95 (1,046)	0.44 (459)	—	—	1.40 (1,571)	1.38 (1,505) (100%)
Coast Live Oak Woodland	2.37 (935)	0.03 (42)	—	—	25.08 (12,709)	2.40 (978) (10%)
Mulefat Scrub	0.04 (87)	0.06 (86)	—	—	0.13 (225)	0.10 (174) (77%)
Southern Sycamore–Alder Riparian Woodland	0.17 (967)	0.04 (175)	—	—	3.23 (3,958)	0.21 (1,142) (6%)
Southern Willow Scrub	0.07 (96)	—	—	—	0.07 (96)	0.07 (96) (100%)
CDFW Only Riparian Habitat Subtotal	*3.59 (3,132)*	*0.56 (762)*	—	—	*29.91 (18,558)*	*4.15 (3,895) (14%) (9% of the total jurisdictional area)*
Total[1]	**8.00 (50,941)**	**1.76 (15,385)**	**0.04 (744)**	**0.02 (368)**	**44.97 (155,539)**	**9.81 (67,410) (22%)**

Notes: ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.
[1] Totals may not sum due to rounding.

Impacts to jurisdictional resources would be reduced to less than significant through MM-BIO-13, which would require permits from the agencies that have jurisdiction over impacted wetlands (i.e., ACOE, RWQCB, and/or CDFW) and a Wetlands Mitigation Plan.

5.1.6 Wildlife Movement

After buildout of the proposed project, wildlife movement to the open space Habitat Preserve in the southern portion of the project area may be constrained by village development to the north and the roads that will border the open space to the west (road connecting to Sycamore Canyon Road) and to the east (road connecting to Cuyamaca Street) (Figure 5-7a, Local Wildlife Corridors). In addition, wildlife movement to and from the central portion of the open space Habitat Preserve northeast of the proposed Farm would be constrained following development, given the two main proposed east–west traversing roads (north road and south road) that would connect the western and eastern village areas.

Currently, the entire project area allows for wildlife movement without distinct wildlife corridors and habitat linkages. The project design provides for a primary wildlife corridor through the north-central portions of the project, with a minimum width of 1,150 feet (Figure 5-7a). This criterion meets generally accepted wildlife movement principles outlined in the MSCP Plan Design Criteria and Draft Santee MSCP Subarea Plan Guidelines. An additional corridor exists along the northern boundary of the project area, which is mostly 1,400 or more feet wide and buffers a canyon. The corridor narrows to 619 feet for approximately 800 feet, but this area is adjacent to protected and managed County of San Diego Park Preserve lands. The entire northern edge buffers existing protected preserve lands to the north, so this also meets the Draft Santee MSCP Subarea Plan Guidelines (Figure 5-7a). To the west, a large corridor buffering Sycamore Creek is provided. This corridor is between 1,000 and 400 feet wide (at the detention basin, which still could be used for movement), but is further widened by the adjacent military base and conserved preserve areas along the entire boundary.

All three corridors lead to or buffer a significant potential regional corridor along Sycamore Canyon. Therefore, the landscape-scale habitat connections for regional wildlife movement would not be substantially affected. Depending on future adjacent development within the adjacent County lands to the east, the project would provide another secondary wildlife corridor, varying in width from 508 feet to 1,400 feet, along the eastern boundary currently adjacent to extant habitat areas. MM-BIO-14, which would provide a wildlife corridor along the eastern boundary of the project area, will reduce impacts to wildlife corridors to less than significant.

Wildlife movement may be hindered at interior Streets V and W and at the Cuyamaca Street extension and Fanita Parkway. A wildlife undercrossing would be constructed approximately 400 feet south of the project limits along Cuyamaca Street so that it adequately conveys coyotes, mule deer, and smaller-sized wildlife, and utilizes existing or manufactured topography (Figures 5-7b

and 5-7c, Wildlife Corridors and Crossings). This crossing, which would measure 6.9 meters (22.5 feet) wide by 3.7 meters (12.0 feet) tall by 35.0 meters (115 feet) long (0.7 openness ratio),[2] would meet the suggested 0.6 openness ratio suggested for mule deer and other large mammals in Southern California. MM-BIO-15, which accounts for the wildlife crossing at Cuyamaca Street, would reduce impacts to wildlife corridors to less than significant. The crossing will have a raised floor and/or side platform to allow dry passage for wildlife when water is flowing.

For Streets V and W, permanent indirect impacts to wildlife species would be reduced by limiting traffic speed limit to 25 miles per hour, providing limited pedestrian safety lighting but no standard lighting along roads, rolled curbs and gutters to ease small wildlife movement, narrow medians, and tinted concrete surfaces to mimic natural soils (Figure 5-7a). MM-BIO-20, which employs road signs, speed bumps, or other traffic-calming devices along Streets V and W to allow wildlife to cross more safely, will reduce permanent indirect impacts to wildlife movement to less than significant. MM-BIO-15, which includes small 48-inch diameter reinforced concrete pipe culverts and directional curbs intended to allow western spadefoot and other small wildlife to cross under Fanita Parkway (Figure 5-7a), will reduce permanent indirect impacts to small wildlife and western spadefoot to less than significant.

Due to the approximately 900-acre block of habitat being preserved in the southern portion of the project area, as described in MM-BIO-1, the loss or constraint of local wildlife movement opportunities would not adversely affect genetic exchange and diversity of populations at the landscape level. That is, none of the wildlife species that would be affected or displaced by the loss or constraint of local movement areas have genetically unique or endemic populations that would be functionally isolated from other populations, and the regional habitat linkages would ensure that genetic exchange and diversity of these species in the region would be maintained. The open space configuration for the project would maintain connectivity to the north into Sycamore Canyon Open Space Preserve, to the east into open space County lands, and to the west into MCAS Miramar open space (which contains over 3,000 acres of coastal sage scrub and 9,000 acres of chaparral) (Figure 5-8, Regional Wildlife Corridors). Therefore, MM-BIO-1, which would provide a long-term management plan for the a large block of suitable habitat for wildlife movement by maintaining connectivity to regional habitat linkages, will reduce impacts to less than significant. See Table 5-7, which summarizes other open space preserves in the region and known key isolated California gnatcatcher populations in Southern California for comparative purposes.

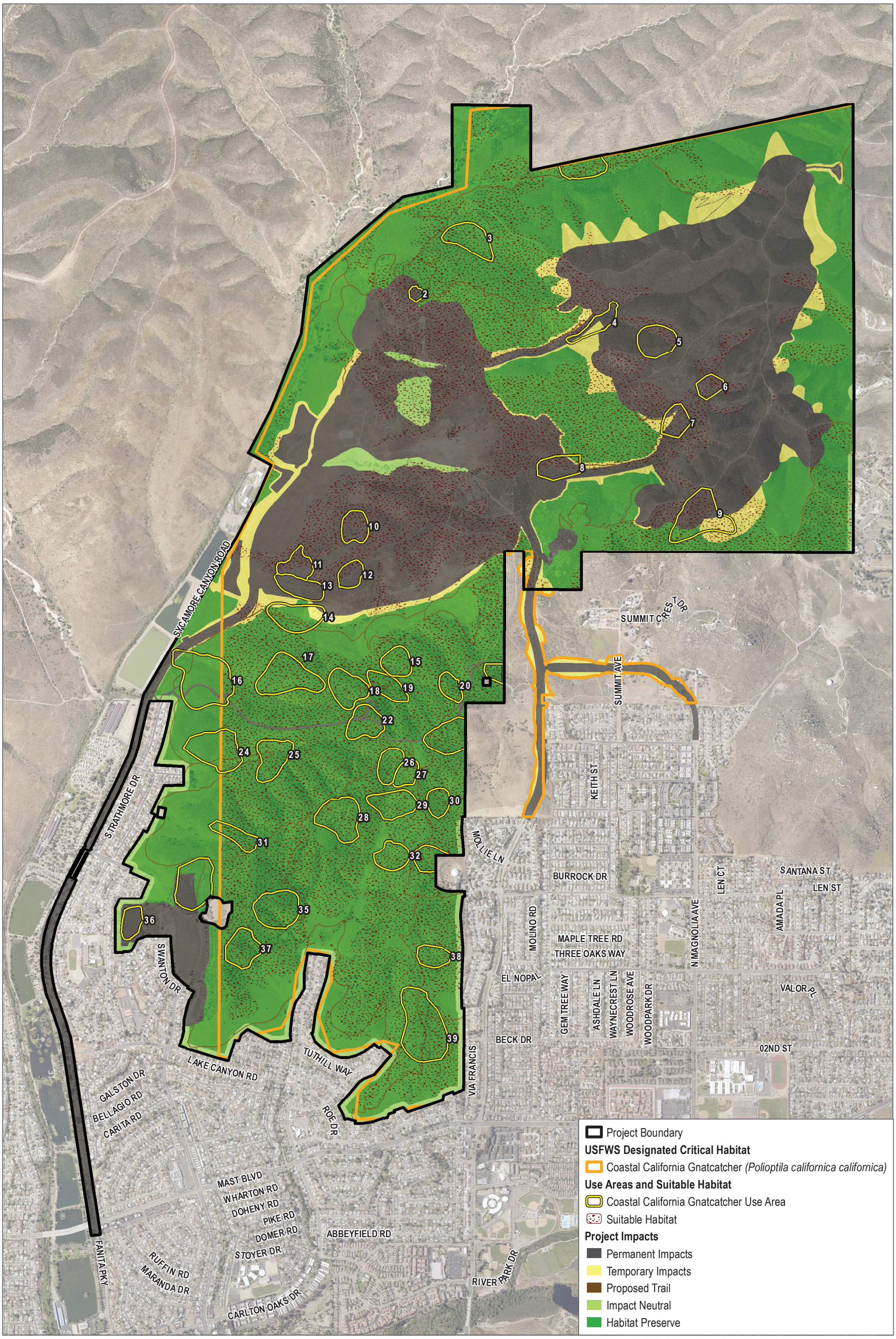
[2] The ACOE defines a culvert's openness ratio as the culvert's cross-sectional area divided by its length. This is calculated in meters.

Table 5-7
Open Space Preserves within the Fanita Ranch Vicinity

Open Space	Acreage
Goodan Ranch/Sycamore Canyon Open Space Preserve	2,272
MCAS Miramar	3,770 (coastal sage scrub); 9,258 (chaparral)
Mission Trails Regional Park	7,220
El Capitan Preserve	2,619
Fanita Ranch Preserve	1,686
Barnett Ranch County Preserve	728
Boulder Oaks County Preserve	1,268
Del Dios Highlands County Preserve	774
El Capitan County Preserve	2,619
Los Peñasquitos Canyon County Preserve	3,700
Luef Pond County Preserve	90
Mt. Gower County Preserve	1,574
Oakoasis County Preserve	400
Santa Margarita County Preserve	221
Simon County Preserve	650
Tijuana River Valley Regional Park	1,800
Wilderness Gardens County Preserve	737

Note: MCAS = Marine Corps Air Station.

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SOURCE: Hunsaker 2019; USFWS 2019, 2020; SANGIS 2017, 2019

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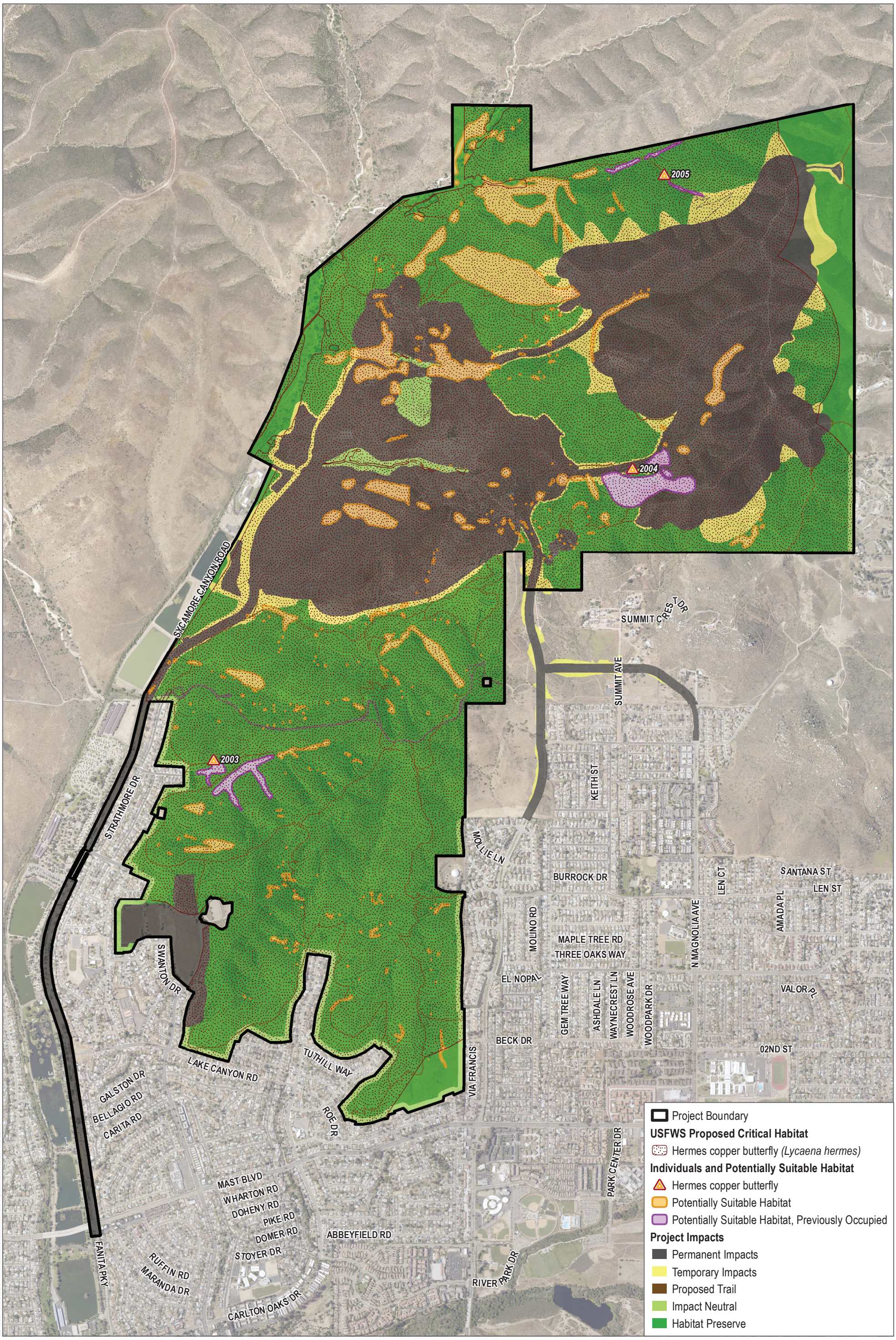
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FIGURE 5-5B

Impacts to USFWS Designated Critical Habitat - Coastal California Gnatcatcher

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SOURCE: Hunsaker 2019; USFWS 2019, 2020; SANGIS 2017, 2019

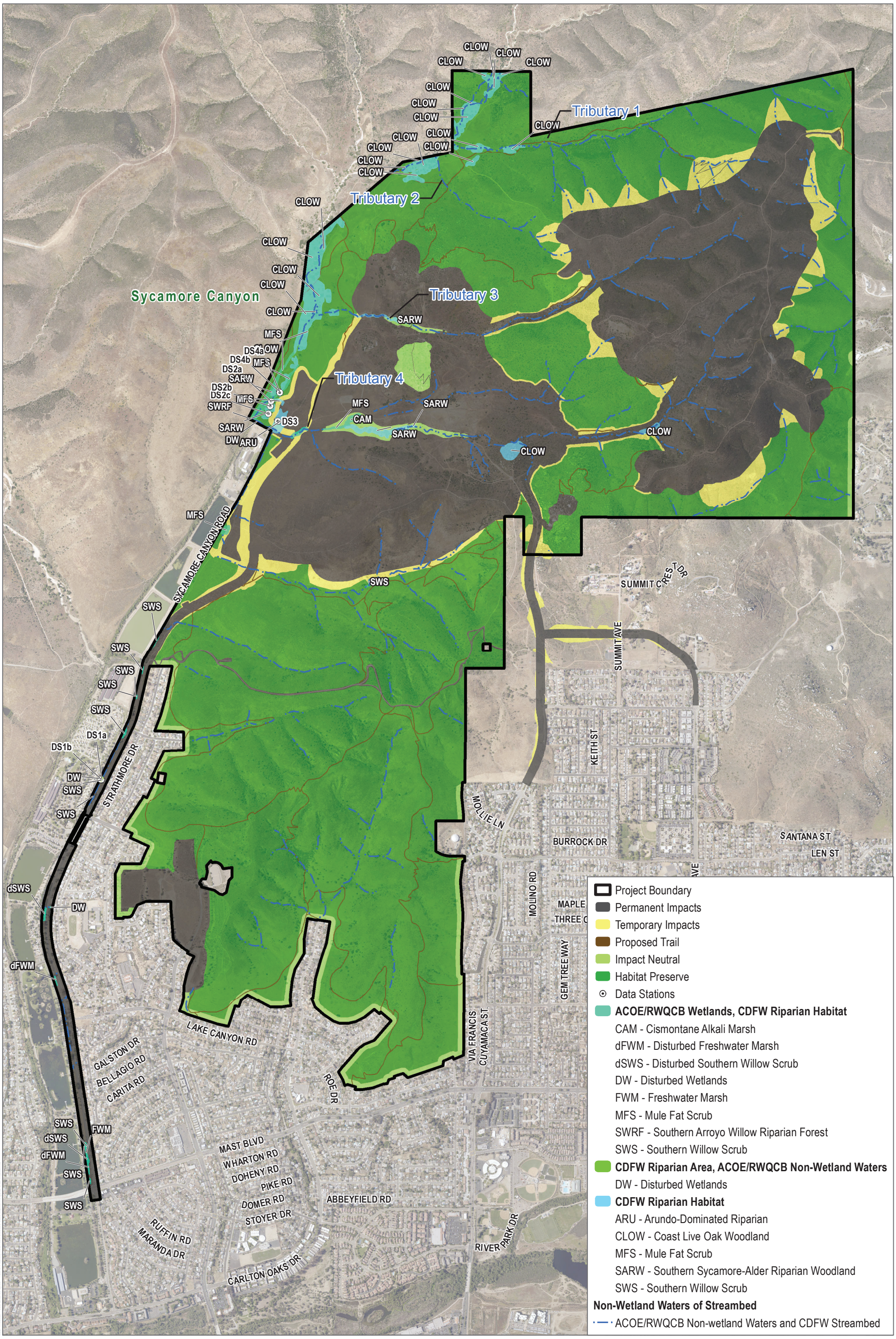
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0 750 1,500 Feet

FIGURE 5-5C

Impacts to USFWS Proposed Critical Habitat - Hermes Copper Butterfly

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SOURCE: Hunsaker 2019; DeLorenzo International 2019; SANGIS 2017, 2019

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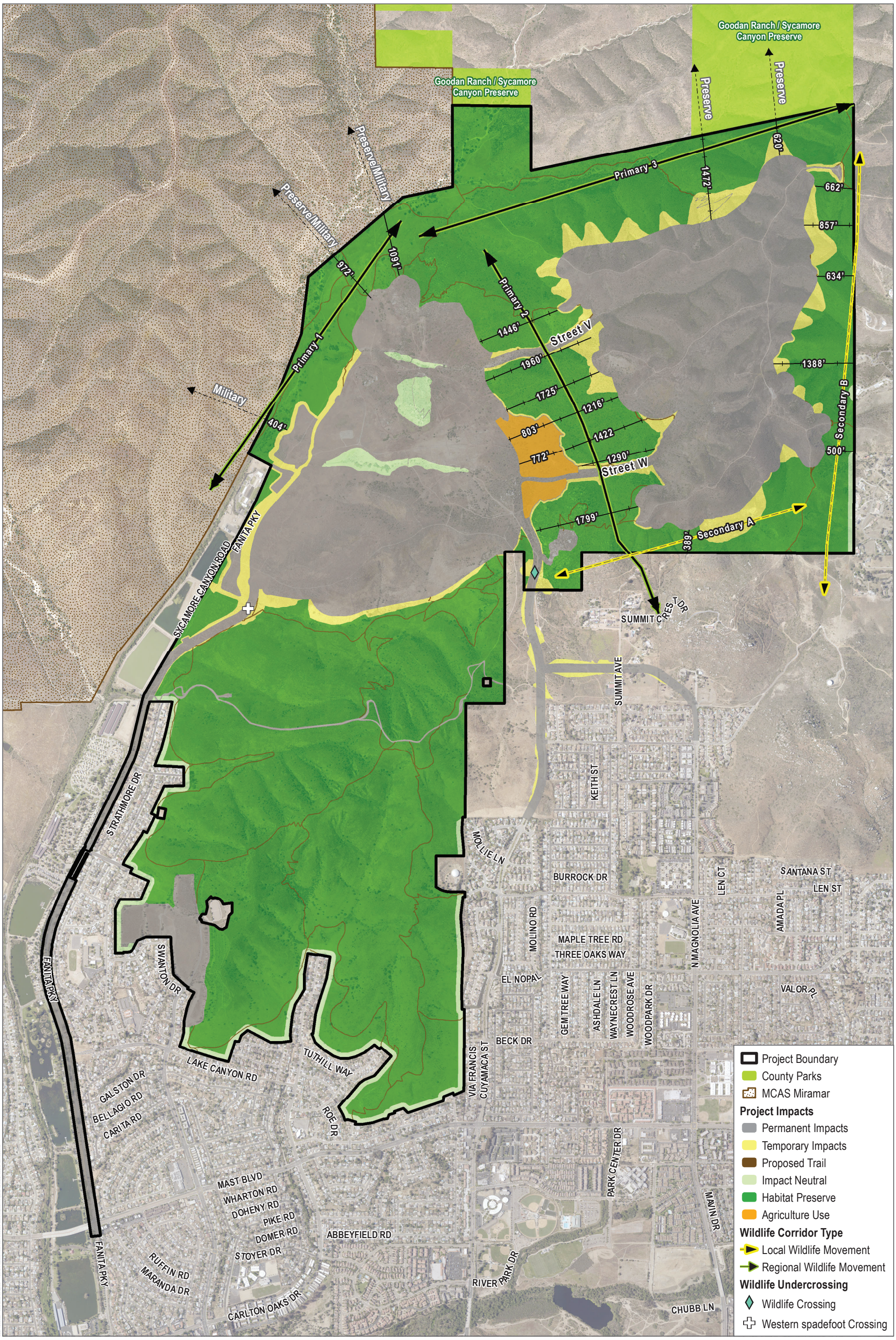
0 750 1,500 Feet

FIGURE 5-6

Impacts to Jurisdictional Aquatic Resources

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SOURCE: SANGIS 2017, 2019

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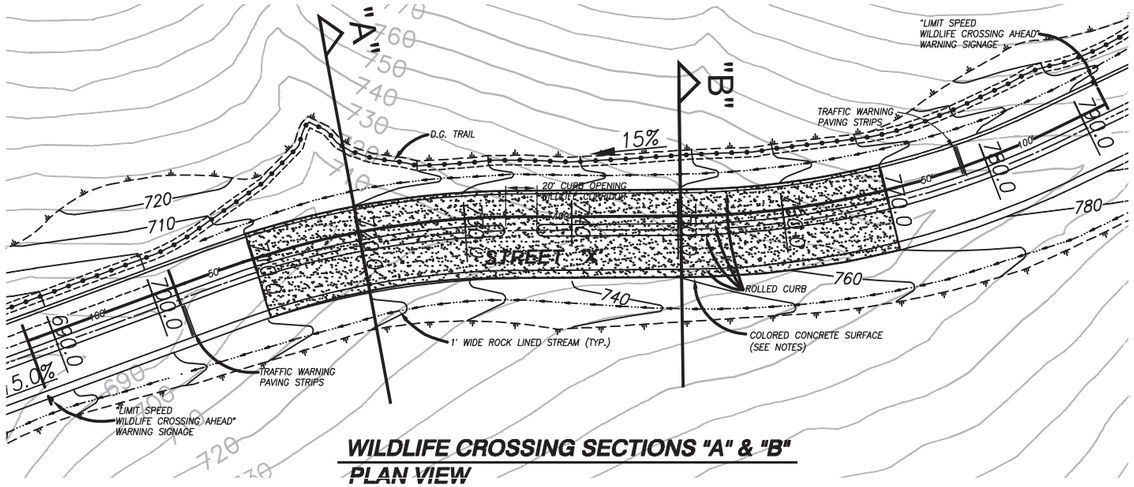
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FIGURE 5-7A

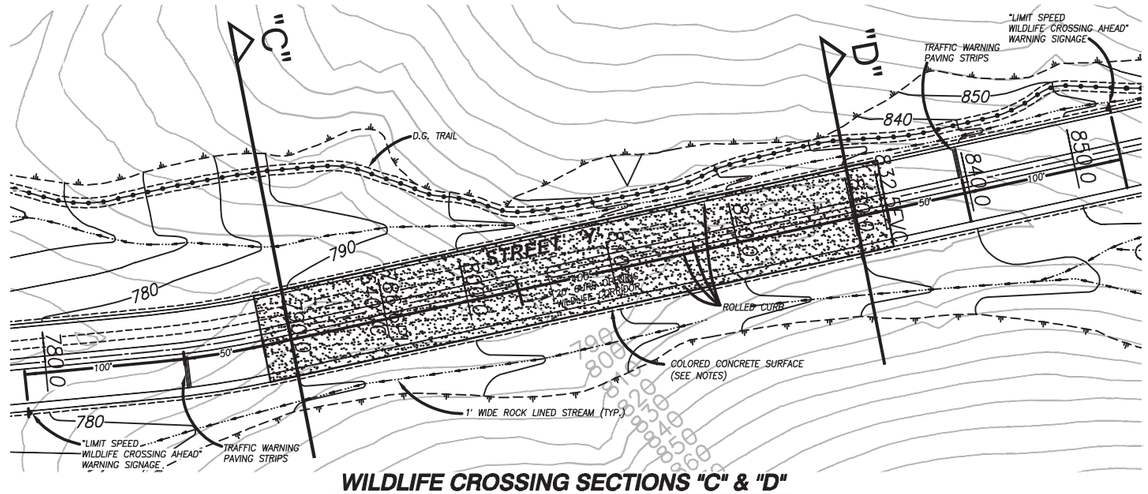
Local Wildlife Corridors

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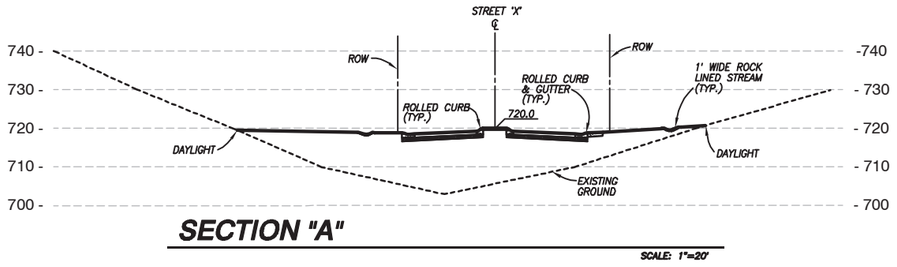
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WILDLIFE CROSSING SECTIONS "A" & "B"
PLAN VIEW

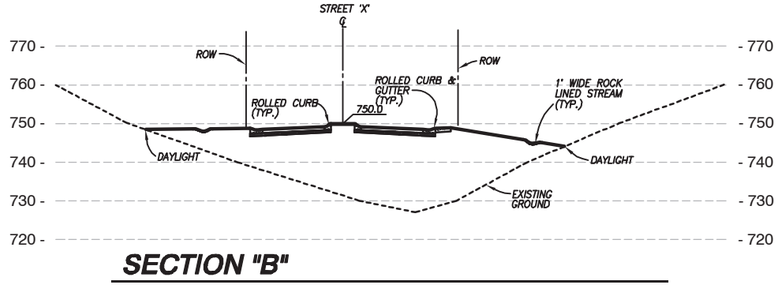


WILDLIFE CROSSING SECTIONS "C" & "D"
PLAN VIEW

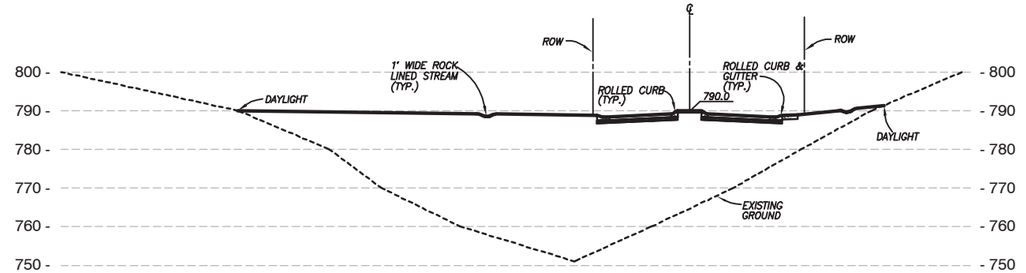


SECTION "A"

SCALE: 1"=20'

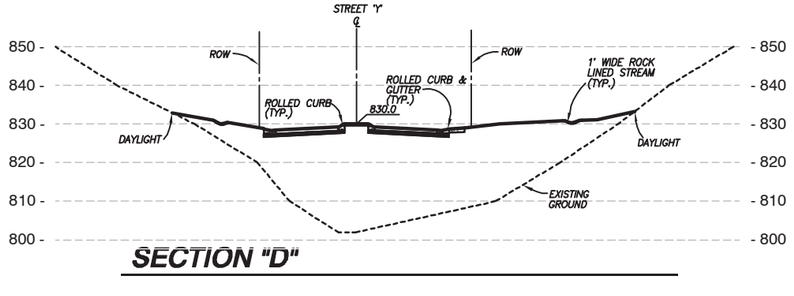


SECTION "B"



SECTION "C"

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SECTION "D"

Path: Z:\Projects\17490011MAP\DOC\MAPS\Bio_Maps\BTR

SOURCE: Hunsaker 2018

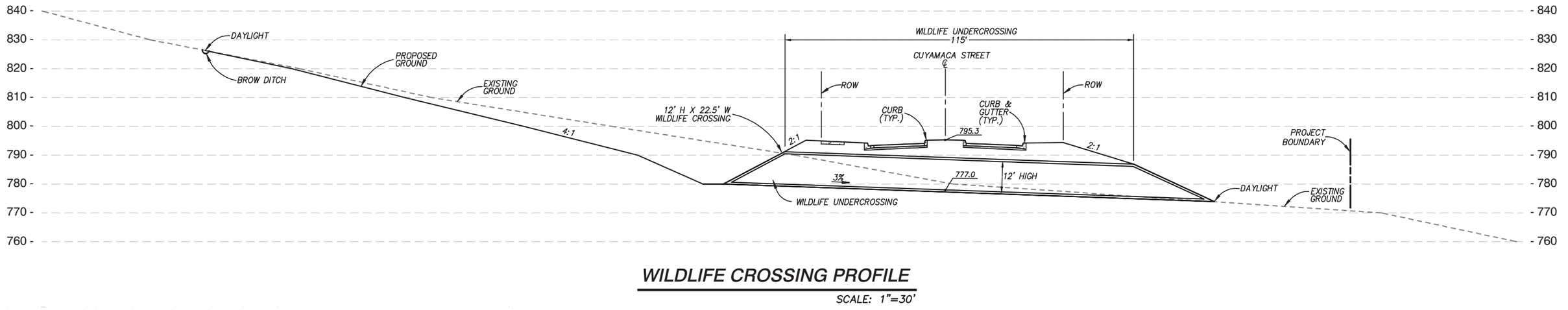
FIGURE 5-7b

Wildlife Corridors and Crossings

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WILDLIFE CROSSING PROFILE

SCALE: 1"=30'

SOURCE: Hunsaker 2019

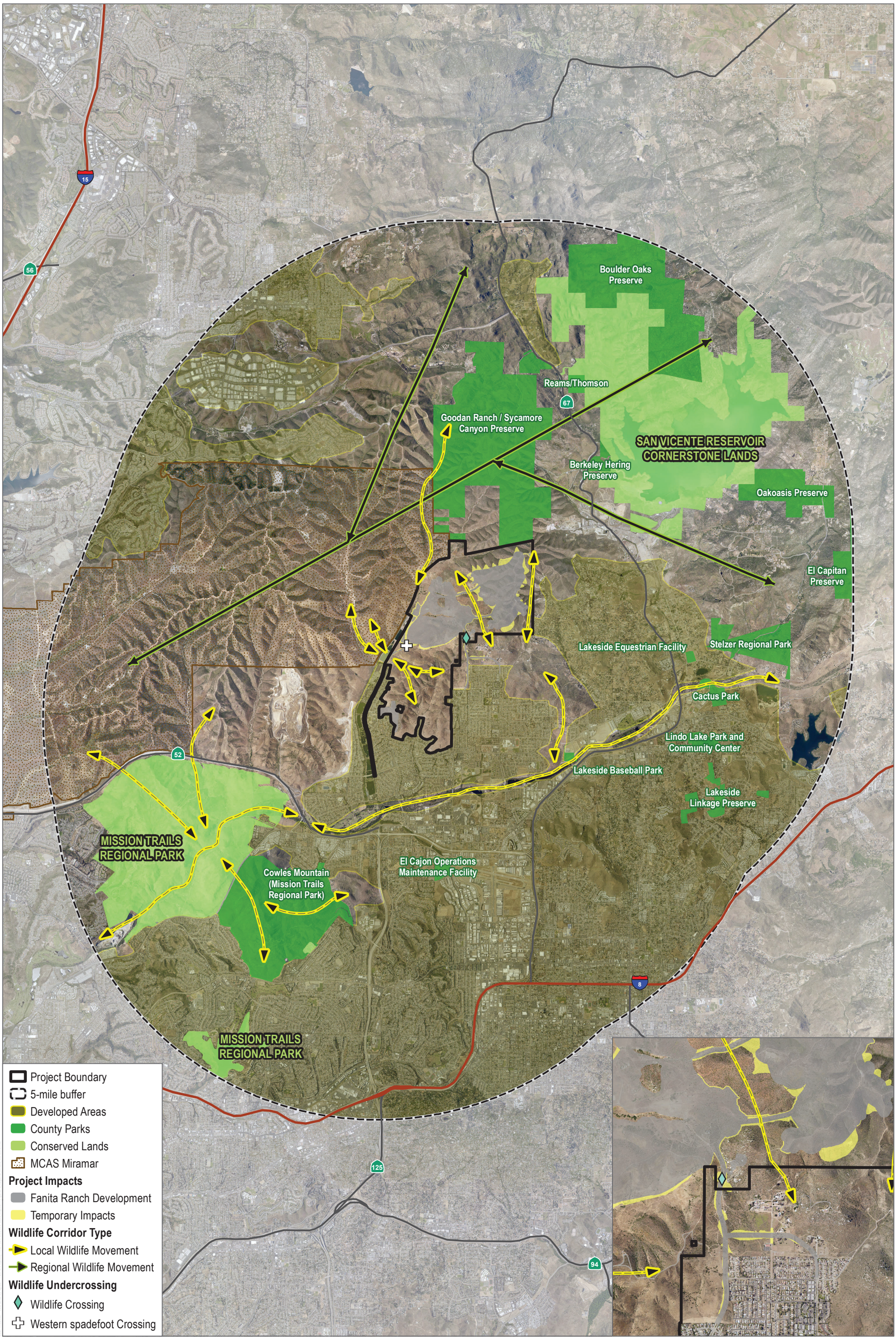
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FIGURE 5-7c

Wildlife Corridors and Crossings

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SOURCE: SANGIS 2017, 2019

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0 1 2 Miles

FIGURE 5-8

Regional Wildlife Corridors

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5.1.7 Consistency with Draft Santee MSCP Subarea Plan

The proposed project design is consistent with the Draft Santee MSCP Subarea Plan through specific adherence to conditions of coverage and mitigation/conveyance requirements for hardline Covered Projects, as defined in the Draft Santee MSCP Subarea Plan (City of Santee 2018). The project would not compromise continued implementation of the MSCP in the County or other cities because their Subarea Plans do not rely on the City of Santee for coverage of any species. Furthermore, the current project footprint has been reduced from the previous development hardline footprint identified within the approved 1998 MSCP Plan (City of San Diego 1998). A large development bubble in the southern portion of the site from the 1998 project design was removed, increasing the size of the current Habitat Preserve by more than 200 acres. Development of the project will contribute approximately 1,650 acres to the targeted 171,917 acres within the MHPA for conservation (City of San Diego 1998). Therefore, implementation of the current project design would be consistent with the Draft Santee MSCP Subarea Plan and would not compromise future implementation of the Draft Santee MSCP Subarea Plan within the City because the current project meets all requirements and provides a greater level of conservation than required for the Santee MSCP Subarea Plan pursuant to the MSCP Plan. Therefore, the proposed project's consistency with the Santee MSCP Subarea Plan would be ensured by the City, and impacts related to consistency with HCPs would be less than significant.

5.2 Indirect Impacts

Potential temporary indirect impacts to biological resources as a result of the project are related to overall project construction activities and may include dust, construction-related noise, general human presence, and construction-related soil erosion and runoff. Potential permanent indirect impacts to biological resources may also occur as a result of the proposed project through introduction of non-native species (e.g., Argentine ants [*Linepithema humile*]), increased human presence, and increased noise. However, the site currently experiences high amounts of unchecked human use.

Indirect impacts from trail use may include inadvertent animal collision, disturbance of nesting birds, trash, dogs, increased human presence, and introduction of non-native and invasive plant species. Signage and fencing will contain use to the designated trails throughout the Habitat Preserve and deter human and pet use within the Habitat Preserve. Bicycle speed limits will be posted. Trash receptacles will be placed along the trails, along with stations for pet waste bag dispensers to encourage users to pick up pet waste. As directed by the Preserve Management Plan for this project, the Preserve Manager will manage and maintain the trail usage and monitor usage to determine if management or changes in the trail usage are required.

5.2.1 Vegetation Communities

Indirect impacts to vegetation communities would primarily result from adverse edge effects. During construction of the proposed project, edge effects may include dust, which could disrupt plant vitality in the short term, as well as construction-related soil erosion and runoff. Application of MM-BIO-16 through MM-BIO-18 would reduce these impacts to less than significant through typical restrictions (e.g., BMPs) and requirements that address erosion and runoff, including the construction-related minimization measures required by the federal Clean Water Act and National Pollution Discharge Elimination System, and the preparation of a SWPPP.

Permanent indirect impacts on vegetation communities would most likely occur as a result of trampling of vegetation by humans and domestic pets, invasion by exotic species, alteration of the natural fire regime, and exposure to urban pollutants (e.g., fertilizers, pesticides, herbicides, and other hazardous materials). Permanent indirect impacts as a result of trampling by humans and domestic pets would be reduced to less than significant through MM-BIO-1, which would provide a long-term management plan for the Habitat Preserve that accomplishes the goal of maintaining appropriate, high-value native plant communities throughout the on-site open space. MM-BIO-19 would reduce permanent indirect impacts to vegetation by planting cactus species in brush management zones, temporary impact areas, and between roadways and open space to help protect against incursions by domestic pets and humans. Additionally, no herbicides would be used during construction, and weed control treatments would include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the County agriculture commissioner (MM-BIO-21). Additionally, the herbicides used during landscaping activities would be contained within the proposed impact footprint (MM-BIO-21).

5.2.2 Special-Status Plant Species

Most of the indirect impacts to vegetation communities noted above can also affect special-status plants. During construction of the proposed project, indirect effects may include dust, which could disrupt plant vitality in the short term, as well as construction-related soil erosion and runoff. Application of MM-BIO-16 through MM-BIO-18 would reduce these impacts to less than significant through typical restrictions (e.g., BMPs) and requirements that address erosion and runoff, including the construction-related minimization measures required by the Draft Santee MSCP Subarea Plan, federal Clean Water Act, and National Pollution Discharge Elimination System, and the preparation of a SWPPP.

Permanent edge effects could include intrusions by humans and domestic pets and possible trampling of individual plants, unauthorized trail use, invasion by exotic plant and wildlife species, exposure to urban pollutants, soil erosion, litter, fire, and hydrological changes (e.g., changes in surface and groundwater level and quality). Not only can altered hydrology directly affect special-

status plants, increased moisture associated with irrigation and runoff can attract invasive Argentine ants, which could displace native ants (e.g., harvester ants [*Messor* spp., *Pogonomyrmex* spp.]) that are potential pollinators and seed dispersers for special-status plants. Argentine ants are ineffective at seed dispersal and can wreak ecological havoc, disrupt ecosystem processes, and threaten future stability. MM-BIO-19 would reduce permanent indirect impacts to special-status plants by planting cactus species in brush management zones, temporary impact areas, and between roadways and open space to help protect against incursions and unauthorized trail use by domestic pets and humans. Additionally, no herbicides would be used during construction and weed control treatments would include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the County agriculture commissioner (MM-BIO-21). Additionally, the herbicides used during landscaping activities would be contained within the proposed impact footprint (MM-BIO-21). The Preserve Management Plan will address soil erosion, litter, fire, and hydrologic changes occurring within the Habitat Preserve (MM-BIO-1). Control measures and quarterly monitoring of Argentine ants will occur along the construction-Habitat Preserve interface (MM-BIO-23) to reduce impacts to native ants so that the impact to special-status plant species would be less than significant.

5.2.3 Special-Status Wildlife Species

Temporary construction-related indirect impacts to wildlife generally include noise, vibration, lighting, increased human activity, hydrologic and water quality (e.g., chemical pollution, increased turbidity, excessive sedimentation, flow interruptions, and changes in water temperature), and trash and garbage. These temporary construction-related indirect impacts can attract predators, such as American crows (*Corvus brachyrhynchos*), common ravens (*Corvus corax*), and coyotes, as well as mesopredators, such as raccoons and striped skunks. Permanent development-related indirect impacts to wildlife generally include noise; lighting; increased predation or harassment by pet, stray, and feral cats, dogs, and other mesopredators; invasion by exotic wildlife species; pesticide use; altered fire regimes; and increased roadkill. Application of MM-BIO-16 through MM-BIO-22 would reduce these impacts to less than significant through conformance with a SWPPP, requirement of a biological monitor, the use of signs/fencing and the planting of cactus patches along the Habitat Preserve–Development interface, herbicide use, and implementation of a Fire Protection Plan.

Due to the probable increase in manicured lawns and decrease in overall open space, there may be increased parasitism of native birds by brown-headed cowbirds (*Molothrus ater*). Parasitism to shrub-nesting bird species would be a significant indirect long-term impact. Impacts to nesting birds would be reduced to less than significant through implementation of MM-BIO-10, which would remove brown-headed cowbirds from the project area.

Permanent indirect impacts to special-status wildlife species could occur from Argentine ants. Argentine ants are known to displace native insects that are the main prey base for many special-status wildlife species, and possibly help promote other non-native invertebrates such as earwigs and sowbugs, which could affect the Quino checkerspot butterfly. Control measures and quarterly monitoring of Argentine ants will occur along the construction-Habitat Preserve interface (MM-BIO-23) to reduce impacts to native ants so that the impact to special-status wildlife species would be less than significant.

Western spadefoot and San Diego fairy shrimp are generally vulnerable to exotic wildlife (including African clawed frog) and disease (e.g., viruses and chytridiomycosis caused by the chytrid fungus). The lower seasonal basins in the western portion of the project area (typically adjacent to Sycamore Canyon) support predatory African clawed frogs. This species could have a negative permanent effect on remaining San Diego fairy shrimp, western spadefoot, and other native amphibians that use the basins as breeding resources, and could also have a negative effect on the success of created basins, which they could invade. Therefore, MM-BIO-11, which would monitor for presence of African clawed frogs within seasonal basins and require eradication if needed, would reduce impacts to less than significant.

Project construction could result in temporary construction-related and permanent development-related indirect impacts to individuals and suitable habitat for reptile species and small mammals. Therefore, MM-BIO-18, which requires covering all steep trenches, holes, and excavations at night, and requires inspections by the biological monitor to prevent wildlife entrapments, would reduce impacts to less than significant.

In addition to general temporary construction-related and permanent development-related indirect effects on the host plants on site (e.g., dust, trampling, non-native species), the Quino checkerspot butterfly and Hermes copper butterfly are likely most vulnerable to pesticides (which could kill individuals) and wildfire, which could eliminate host plants and kill individuals (including adults and larvae). Therefore, no herbicides would be used during construction, and weed control treatments would include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the County agriculture commissioner. Additionally, the herbicides used during landscaping activities would be contained within the proposed impact footprint (MM-BIO-16). Adult butterflies also would be at risk of habitat fragmentation and isolation, and of vehicle collisions when dispersing. Road signs, speed bumps, or other traffic-calming devices shall be employed along the north-central collector road to allow these species to cross more safely (MM-BIO-20). Wildfires may result in loss of habitat for Quino checkerspot butterfly and Hermes copper butterfly; however, MM-BIO-22, which would require implementation of a Fire Protection Plan, would reduce impacts to less than significant.

Permanent development-related indirect impacts may occur to grasshopper sparrow from altered fire regimes. The grasshopper sparrow prefers fairly continuous grassland (preferably native grasslands) for foraging and nesting with occasional taller grasses, forbs, or shrubs for song perches. The reduction or elimination of wildfires within the project area could cause the annual grassland habitat to permanently revert back to scrub habitat and contribute to a potentially significant impact to the grasshopper sparrow. However, significant permanent indirect impacts to this species would be reduced through the following mitigation measures: MM-BIO-1, which would provide for the long-term management of approximately 50% of grassland communities within the project area, and MM-BIO-2, which would require a 1:1 ratio of in-place restoration for temporary impacts to native grassland areas and a 1:1 ratio of preservation and/or creation of native grassland within the Habitat Preserve. In addition, the following mitigation measures could incidentally benefit the grasshopper sparrow: MM-BIO-3, which would require a Vernal Pool Mitigation Plan for enhancing and restoring vernal pool resources and their surrounding watershed, which could provide an increase in suitable habitat for this species, and MM-BIO-9, which would require in-perpetuity management of the Habitat Preserve with the focus on removal of non-native grasses, weedy material, and duff layers. With these mitigation measures in place, indirect impacts to grasshopper sparrow would be less than significant.

5.2.4 Jurisdictional Resources

Potential temporary indirect impacts to jurisdictional resources in the project area would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants (including herbicides). Application of MM-BIO-16, MM-BIO-17, and MM-BIO-21 would reduce these impacts to less than significant through typical restrictions (e.g., BMPs) and requirements that address erosion, runoff, and weed control treatments, including the construction-related minimization measures required by the federal Clean Water Act and National Pollution Discharge Elimination System, and required preparation of a SWPPP.

Permanent indirect impacts could result from the proximity of the proposed project to jurisdictional resources after construction. Permanent indirect impacts that could affect jurisdictional resources include generation of fugitive dust, habitat fragmentation, chemical pollutants, altered hydrology, non-native invasive species, increased human activity, alteration of the natural fire regime, and shading. Mitigation for potential permanent indirect impacts to jurisdictional resources requires conformance with the Land Use Adjacency Guidelines, as specified in the Draft Santee MSCP Subarea Plan. The guidelines include control of urban runoff, toxins and pollutants, public activities in open space, and deliberate planting of exotic invasive species (MM-BIO-16). As required by MM-BIO-17, the project shall comply with the SWPPP such that storm flows conveyed from the project area do not adversely affect off-site jurisdictional resources by significantly altering natural hydrologic patterns.

5.2.5 Wildlife Movement

Wildlife movement would be affected by many of the other indirect effects discussed for special-status wildlife. Wildlife movement may be affected by noise, vibration, lighting, and increased human activity. Permanent development-related indirect impacts to wildlife movement would include noise, lighting, altered fire regimes, and increased roadkill. Application of MM-BIO-16 and MM-BIO-19 through MM-BIO-21 would reduce these impacts to less than significant through conformance with the Land Use Adjacency Guidelines in the Draft Santee MSCP Subarea Plan, the planting of cactus patches along the Habitat Preserve–development interface, traffic-calming devices, and herbicide use.

Although there are not specific wildlife corridors or habitat linkages within the project area, the project area serves as a habitat block that promotes movement throughout. Mitigation for potential indirect impacts to wildlife movement requires conformance with the Land Use Adjacency Guidelines as specified in the Draft Santee MSCP Subarea Plan (MM-BIO-16).

5.3 Cumulative Impacts

Cumulative Threshold 1: Candidate, Sensitive, or Special-Status Species

Cumulative projects located in the vicinity of the proposed project area would have the potential to result in impacts to special-status plant and wildlife species, including loss of habitat. Several of the cumulative projects presented in Table 4-2, Cumulative Projects, in Chapter 4 of the Fanita Ranch EIR, are planned within undeveloped areas and would likely result in loss of habitat or edge effects that would impact special-status plant and wildlife species. Cumulative projects with the potential to result in cumulative impacts to sensitive plant and wildlife species include the Santee Lakes Recreation Preserve Expansion project, Parkside (formerly Hillside Meadows), Sycamore Landfill expansion project, Carlton Oaks Country Club, and others.

Adjacent and nearby jurisdictions, including the City of San Diego, County of San Diego, and federally managed lands like MCAS Miramar, would be required to comply with applicable federal and/or state regulations that provide protections for special-status plant and wildlife species, such as FESA, CESA, and California NCCPA. In addition, some projects that affect special-status species require approval from USFWS and CDFW. If significant impacts occur from particular cumulative projects, then mitigation measures are usually implemented to reduce impacts to the extent feasible in compliance with CEQA.

The City of San Diego MSCP Subarea Plan (City of San Diego 1997), the County of San Diego MSCP Subarea Plan (County of San Diego 1997), and the Draft Santee MSCP Subarea Plan establish conservation goals and objectives to preserve critical biological resources at a sustainable level on a regional scale, and set mitigation standards to be applied at the project level to minimize

the cumulative effects of projects in the MSCP planning area. The City and County of San Diego have MSCP Subarea Plans in place that are applicable to the cumulative projects within their jurisdictions (i.e., MSCP Plan, City of San Diego Subarea Plan, and County of San Diego Subarea Plan), and the City of Santee is committed to applying the conservation standards of the MSCP Plan and Draft Santee MSCP Subarea Plan to development within the City. The Draft Santee MSCP Subarea Plan has been prepared to meet NCCP criteria and reduce cumulative project impacts through participation in a regional habitat preservation program that adds an extra level of ongoing management. The Draft Santee MSCP Subarea Plan is also intended to provide cumulative mitigation for impacts to Covered Species within the City of Santee's jurisdiction and to ensure sufficient biological resources are conserved to assist in the conservation and recovery of Covered Species under the MSCP. Any projects, including the proposed project, approved within the City's jurisdiction are required to be consistent with the Draft Santee MSCP Subarea Plan, when adopted, or if not adopted, the MSCP Plan and its guiding principles, which are uniform throughout the MSCP planning area. Because cumulative projects and the proposed project would be required to meet or exceed MSCP requirements directed toward regional conservation, and project-specific mitigation measures would be implemented to reduce the proposed project's impacts to sensitive plant and wildlife species to below a level of significance, the proposed project would contribute to species recovery. Therefore, the proposed project's contribution to effects on species would not be cumulatively considerable.

Cumulative Threshold 2: Riparian Habitat or Other Sensitive Natural Communities

Cumulative projects located in the vicinity of the proposed project area have the potential to result in impacts associated with riparian habitat and other sensitive natural communities through direct and indirect loss or degradation. For example, some of the cumulative projects listed in Table 4-2, Cumulative Projects, in Chapter 4 of the Fanita Ranch EIR, would occur in undisturbed areas that affect riparian habitat and other sensitive vegetation communities. These cumulative projects with the potential to result in cumulative impacts to sensitive vegetation communities include the Santee Lakes Recreation Preserve Expansion project, Parkside (formerly Hillside Meadows), Sycamore Landfill expansion project, Carlton Oaks Country Club, and others.

Adjacent and nearby jurisdictions, including the City of San Diego, County of San Diego, and federally managed lands like MCAS Miramar, would be required to comply with applicable federal and/or state regulations such as the California Lake and Streambed Alteration Program or the California NCCPA. These programs provide protections for riparian and other sensitive habitats. In addition, many projects that affect riparian or other protected habitat types require approval from USFWS and CDFW. If potentially significant impacts would occur from particular cumulative projects, then mitigation measures would be implemented to reduce impacts to the extent feasible.

As discussed in Sections 5.1.1 and 5.1.5, development under the proposed project would have the potential to impact riparian and other sensitive habitats. The Draft Santee MSCP Subarea Plan is being prepared for approval by the City and agencies, and would meet NCCP criteria. Any projects, including the proposed project, approved within the City's jurisdiction would be consistent with the Draft Santee MSCP Subarea Plan, when adopted, or if not adopted, with the MSCP Plan and its guiding principles, which are uniform throughout the MSCP planning area. The Draft Santee MSCP Subarea Plan is also intended to provide cumulative mitigation for impacts to Covered Species within the City's jurisdiction and to ensure sufficient biological resources are conserved to assist in the conservation and recovery of Covered Species under the MSCP. Because cumulative projects and the proposed project would be required to meet or exceed MSCP requirements, and because project-specific mitigation measures would mitigate the proposed project's impacts to riparian habitat or other sensitive communities to below a level of significance, the proposed project would contribute to habitat conservation. Therefore, the proposed project's contribution would not be cumulatively considerable.

Cumulative Threshold 3: Wetlands

Cumulative projects located in the vicinity of the proposed project area would have the potential to result in a cumulative impact associated with federally protected wetlands. For example, several cumulative projects presented in Table 4-2, Cumulative Projects, in Chapter 4 of the Fanita Ranch EIR, would occur in previously developed and undeveloped areas that have the potential to result in disturbances to federally and state protected wetlands. One example is the Santee Lakes Recreation Preserve Expansion project east of Fanita Parkway near Carlton Oaks Drive.

Adjacent and nearby jurisdictions, including the City of San Diego, County of San Diego, and federally managed lands like MCAS Miramar, would be required to comply with applicable federal and/or state regulations such as Sections 401 and 404 of the Clean Water Act and the California Lake and Streambed Alteration Program.

Existing regulations would ensure that a significant cumulative impact associated with federally and state protected wetlands would not occur. If potentially significant impacts would occur from particular cumulative projects, then mitigation measures would be implemented to reduce impacts as required to meet the no-net-loss standard. Similarly, the proposed project would mitigate its direct impacts to a less-than-significant level. Therefore, the proposed project's contribution would not be cumulatively considerable.

Cumulative Threshold 4: Native Resident or Migratory Fish or Wildlife Species

Cumulative projects located in the vicinity of the proposed project area would have the potential to result in a cumulative impact associated with wildlife movement corridors and habitat linkages. For

example, several cumulative projects presented in Table 4-2, Cumulative Projects, in Chapter 4 of the Fanita Ranch EIR, would occur in previously developed and undeveloped areas that have the potential to result in the regional loss of wildlife movement corridors and habitat linkages. These projects include Carlton Oaks Country Club, the Santee Lakes Recreation Preserve Expansion project, and Walker Trails. Development of the proposed project in combination with these cumulative projects would potentially impact wildlife movement corridors and habitat linkages within and through the City to neighboring jurisdictions.

Adjacent and nearby jurisdictions, including the City of San Diego, County of San Diego, and federally managed lands like MCAS Miramar, would be required to comply with applicable federal and/or state regulations, such as the California NCCPA, which supports the continued provision of wildlife movement corridors. If potentially significant impacts would occur from particular cumulative projects, then mitigation measures would be implemented to reduce impacts to the extent feasible.

As discussed in Section 5.1.6, the proposed project would have the potential to impact wildlife movement corridors and habitat linkages. The project proposes mitigation measures that would preserve on-site habitat areas designed as wildlife movement corridors and provide links to off-site habitat areas, reducing project impacts to less than significant. Any projects, including the proposed project, approved within the City's jurisdiction would be required to be consistent with the Draft Santee MSCP Subarea Plan, when adopted, or if not adopted, the MSCP Plan and its guiding principles, which are uniform throughout the MSCP planning area. The Draft Santee MSCP Subarea Plan is also intended to provide cumulative mitigation for impacts to Covered Species within the City's jurisdiction and to ensure sufficient biological resources are conserved to assist in the conservation and recovery of Covered Species under the MSCP. Because cumulative projects and the proposed project would be required to meet or exceed MSCP requirements, and project-specific mitigation measures would reduce the proposed project's impacts to wildlife movement corridors and habitat linkages to below a level of significance, the proposed project would preserve wildlife movement corridors and habitat linkages. Therefore, the proposed project's contribution would not be cumulatively considerable.

Cumulative Threshold 5: Tree Preservation

Cumulative projects located in the vicinity of the project area would have the potential to result in a cumulative impact associated with conflicts with regional or local tree preservation policies or ordinances. For example, several cumulative projects presented in Table 4-2, Cumulative Projects, in Chapter 4 of the Fanita Ranch EIR, would occur in previously developed and undeveloped areas that have the potential to result in the regional loss of trees protected under regional or local tree preservation policies or ordinances. These projects include Carlton Oaks Country Club, Santee View Estates, the Santee Lakes Recreation Preserve Expansion project,

and others. Development of the proposed project, in combination with these cumulative projects, would potentially impact regionally or locally protected trees and result in a conflict with these preservation policies or ordinances.

Adjacent and nearby jurisdictions, including the City of San Diego, County of San Diego, and federally managed lands like MCAS Miramar, would be required to comply with applicable regional or local tree preservation policies or ordinances. As discussed in Section 4.3.5.5 of the Fanita Ranch EIR, the City of Santee's Urban Forestry Ordinance contains tree-related policies, regulations, and generally accepted standards for planting, trimming, and removing trees on public property and public rights-of-way (Santee Municipal Code, Section 8.06). The ordinance gives the City control of all trees, shrubs, and other plantings in any street, park, public right-of-way, landscape maintenance district or easement, or other City-owned property. City review of development plans for the proposed project would ensure that the proposed improvements conform to the requirements of the Urban Forestry Ordinance. Therefore, the proposed project and other cumulative projects would be required to comply with the Urban Forestry Ordinance as a condition of project approval. A significant cumulative impact associated with a conflict with a local tree preservation ordinance would not occur. Therefore, the proposed project, in combination with other cumulative projects, would not contribute to a significant cumulative impact. The proposed project's impact would not be cumulatively considerable.

Cumulative Threshold 6: Habitat Conservation Plans

Several cumulative projects presented in Table 4-2, Cumulative Projects, in Chapter 4 of the Fanita Ranch EIR, would occur in previously developed and undeveloped areas that would have the potential to result in the regional loss of sensitive biological resources protected under regional or local HCPs. Development of the proposed project in combination with these cumulative projects would potentially impact sensitive biological resources and result in a conflict with regional or local HCPs.

Adjacent and nearby jurisdictions, including the City of San Diego, County of San Diego, and federally managed lands like MCAS Miramar, would be required to comply with applicable regional or local HCPs or NCCPs, such as the City and County of San Diego MSCP Subarea Plans. If potentially significant impacts would occur from particular cumulative projects, then mitigation measures would be implemented to reduce impacts to the extent feasible.

The proposed project would be designed to meet MSCP Plan Design Criteria and the NCCP Process Guidelines. The Draft Santee MSCP Subarea Plan is being prepared for approval by the City and agencies, and will meet those criteria. Due to the lack of control of the applicant over the Santee MSCP Subarea Plan approval process, the applicant elected to design the proposed project consistent with the higher NCCP standards and MSCP Plan Design Guidelines so that the proposed project

would attain the conservation standard of the NCCP, compared to a lower standard of a project designed without a regional context.

As discussed in Section 4.3.5.6 of the Fanita Ranch EIR, the Draft Santee MSCP Subarea Plan, once finalized, will contribute to the regional MSCP for preservation, mitigation for impacts, and conservation of sensitive biological resources within San Diego County. The Draft Santee MSCP Subarea Plan is also intended to provide cumulative mitigation for impacts to Covered Species within the City of Santee's jurisdiction and to ensure sufficient biological resources are conserved to assist in the conservation and recovery of Covered Species under the MSCP.

Any projects, including the proposed project, approved within the City's jurisdiction would be consistent with the Draft Santee MSCP Subarea Plan, when adopted, or if not adopted, then the MSCP Plan and its guiding principles, which are uniform throughout the MSCP planning area. Because cumulative projects and the proposed project would be required to meet or exceed MSCP requirements, and because project-specific mitigation measures would reduce the proposed project's impacts to below a level of significance, the proposed project would contribute to the attainment of conservation goals identified in regional or local HCPs. Therefore, the proposed project's contribution would not be cumulatively considerable.

5.4 MSCP Plan Consistency Analysis

The Draft Santee MSCP Subarea Plan, once finalized, will contribute to the regional MSCP for preservation, mitigation for impacts, and conservation of sensitive biological resources within San Diego County. The Draft Santee MSCP Subarea Plan is also intended to provide cumulative mitigation for impacts to Covered Species within the City of Santee's jurisdiction, and to ensure sufficient biological resources are conserved to assist in the conservation and recovery of Covered Species under the MSCP.

Project impacts would all occur outside the final Habitat Preserve boundary, which will be considered part of the MHPA. However, project impacts would occur immediately adjacent to the Habitat Preserve. Therefore, in addition to project-specific mitigation, the project is required to implement the area-specific management directives (ASMDs), as stated in Table 3-5, Species Evaluated for Coverage under the MSCP, of the MSCP Plan (City of San Diego 1998), for each Covered Species proposed to be impacted. The project must demonstrate how ASMDs (or Conditions of Coverage) would be implemented for the species to be considered "Covered" by the MSCP. Table 5-8 summarizes each Draft Santee MSCP Subarea Plan Covered Species impacted within the project area, the applicable ASMD, and the project's compliance with that particular ASMD.

For those special-status species that are not included under the Draft Santee MSCP Subarea Plan but are included as Covered Species under the MSCP Plan (City of San Diego 1998), project-

specific mitigation measures would be implemented, as summarized in Table 5-3 in Section 5.1.2 of this report for plants, and Table 5-4a in Section 5.1.3 of this report for wildlife, to reduce the proposed project's cumulative impacts to these special-status species to less than significant. For MSCP Covered Species occurring within the project area but with no other status (e.g., mule deer, mountain lion, western bluebird, etc.), cumulative impacts to these species would be reduced to less than significant due to the project-specific mitigation program providing wildlife movement corridors, and through establishment of the Habitat Preserve, which would conserve suitable habitat in a configuration that preserves genetic exchange and species viability. Additionally, these MSCP Plan Covered Species are known to be covered under other neighboring jurisdictions' Subarea Plans (e.g., City and County of San Diego, and the City of Poway). Therefore, additional protections would be provided under these neighboring Subarea Plans, further ensuring that cumulative impacts to these species would be reduced to less than significant.

Included in Table 5-8 are three species (i.e., western spadefoot, Hermes copper butterfly, and Quino checkerspot butterfly) that are covered under the Draft Santee MSCP Subarea Plan but are not covered under the MSCP Plan. By implementing the project's mitigation program, as summarized in Table 5-8, impacts to these species would not contribute to significant cumulative impacts.

Table 5-8
Multiple Species Conservation Program Consistency Analysis

Draft Santee MSCP Subarea Plan Covered Species	MSCP Plan Area Specific Management Directive (MSCP Plan Table 3-5)	Project Compliance
San Diego Goldenstar (*Bloomeria clevelandii*)	Area specific management directives must include monitoring of the transplanted population(s), and specific measures to protect against detrimental edge effects to this species.	Mitigation Measure (MM) BIO-1, which would provide a long-term management plan for the Habitat Preserve, would provide species-specific monitoring, and MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), MM-BIO-21 (Weed Control Treatments), and MM-BIO-23 (Argentine Ant Control and Monitoring) would reduce the potential impacts of edge effects.
Variegated Dudleya (*Dudleya variegata*)	Area specific management directives must include species-specific monitoring and specific measures to protect against detrimental edge effects to this species, including effects caused by recreational activities. Some populations now occur within a major amendment area (Otay Mountain) and at the time permit amendments are proposed, strategies to provide protection for this species within the amendment area must be included. (Proposed take authorization amendments will have public review through CEQA and NEPA processes and require approval by CDFG and USFWS.)	MM-BIO-1, which would provide a long-term management plan for the Habitat Preserve, would provide species-specific monitoring, and MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), MM-BIO-21 (Weed Control Treatments), and MM-BIO-23 (Argentine Ant Control and Monitoring) would reduce the potential impacts of edge effects, including the effects caused by recreational activities. The project is outside of the Otay Mountain amendment area, and therefore that area specific management directive (ASMD) does not apply.
San Diego Barrel Cactus (*Ferocactus viridescens*)	Area specific management directives must include measures to protect this species from edge effects, unauthorized collection, and include appropriate fire management/control practices to protect against a too frequent fire cycle.	MM-BIO-1, which would provide a long-term management plan for the Habitat Preserve; and MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), MM-BIO-21 (Weed Control Treatments), and MM-BIO-23 (Argentine Ant Control and Monitoring) would reduce the potential impacts of edge effects and unauthorized collecting; and MM-BIO-22 would require fire management.
Willowy Monardella (*Monardella viminea*)	Area specific management directives must include specific measures to protect against detrimental edge effects.	MM-BIO-1, which would provide a long-term management plan for the Habitat Preserve, and MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), MM-BIO-21 (Weed Control Treatments), and MM-BIO-23 (Argentine Ant Control and Monitoring) would reduce the potential impacts of edge effects.

Table 5-8
Multiple Species Conservation Program Consistency Analysis

Draft Santee MSCP Subarea Plan Covered Species	MSCP Plan Area Specific Management Directive (MSCP Plan Table 3-5)	Project Compliance
Western spadefoot (*Spea hammondii*)	None	Not applicable. However, project mitigation would include conservation and management of occupied features (MM-BIO-1), enhancement and restoration of vernal pool resources (MM-BIO-3), a relocation plan inside impact areas (MM-BIO-8), and exotic species control (MM-BIO-11).
Blainville's horned lizard (*Phrynosoma blainvillii*)	Area specific management directives must include specific measures to maintain native ant species, discourage the Argentine ant, and protect against detrimental edge effects to this species.	MM-BIO-1, which would provide a long-term management plan for the Habitat Preserve; MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), and MM-BIO-21 (Weed Control Treatments) would reduce the potential impacts of edge effects; and MM-BIO-23 would reduce impacts to native ants.
Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*)	Area specific management directives must address edge effects.	MM-BIO-1, which would provide a long-term management plan for the Habitat Preserve, and MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), MM-BIO-21 (Weed Control Treatments), and MM-BIO-23 (Argentine Ant Control and Monitoring) would reduce the potential impacts of edge effects.
Coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)	The restoration of maritime succulent scrub habitat as specified in the Otay Ranch RMP and GDP must occur at the specified 1:1 ratio. Area specific management directives must include restoration of maritime succulent scrub habitat, including propagation of cactus patches, active/adaptive management of cactus wren habitat, monitoring of populations within preserves and specific measures to reduce or eliminate detrimental edge effects. No clearing of occupied habitat may occur from the period February 15 through August 15.	MM-BIO-1, which would provide a long-term management plan for the Habitat Preserve, would provide species-specific monitoring; MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), MM-BIO-21 (Weed Control Treatments), and MM-BIO-23 (Argentine Ant Control and Monitoring) would reduce the potential impacts of edge effects; and MM-BIO-12, which would require a coastal cactus wren management plan, would restore suitable habitat at a 2:1 ratio, and cactus planting suitable for this species in temporary impact areas and along brush management zones (MM-BIO-2 and MM-BIO-19). All clearing of suitable habitat would be outside of the nesting period, as identified in the ASMD as directed by MM-BIO-7.

Table 5-8
Multiple Species Conservation Program Consistency Analysis

Draft Santee MSCP Subarea Plan Covered Species	MSCP Plan Area Specific Management Directive (MSCP Plan Table 3-5)	Project Compliance
Coastal California gnatcatcher (*Polioptila californica californica*)	Area specific management directives must include measures to reduce edge effects and minimize disturbance during the nesting period, fire protection measures to reduce the potential for habitat degradation due to unplanned fire, and management measures to maintain or improve habitat quality including vegetation structure. No cleaning of occupied habitat within the cities' MHPAs and within the County's Biological Resource Core Areas may occur between March 1 and August 15.	MM-BIO-1, which would provide a long-term management plan for the Habitat Preserve, and MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), MM-BIO-21 (Weed Control Treatments), and MM-BIO-23 (Argentine Ant Control and Monitoring) would reduce the potential impacts of edge effects, maintain suitable habitat, and provide fire management. Preconstruction surveys would be conducted prior to construction to ensure that direct impacts to this species would be avoided (MM-BIO-7). If the species is observed, restrictions would be implemented. All clearing of suitable habitat would be outside of the nesting period, as identified in the ASMD as directed by MM-BIO-7.
Least Bell's vireo (*Vireo bellii pusillus*)	Jurisdictions will require surveys (using appropriate protocols) during the CEQA review process in suitable habitat proposed to be impacted and incorporate mitigation measures consistent with the 404(b)1 guidelines into the project. Participating jurisdictions' guidelines and ordinances, and state and federal wetland regulations will provide additional habitat protection resulting in no net loss of wetlands. Jurisdictions must require new developments adjacent to preserve areas that create conditions attractive to brown-headed cowbirds to monitor and control cowbirds. Area specific management directives must include measures to provide appropriate successional habitat, upland buffers for all known populations, cowbird control, and specific measures to protect against detrimental edge effects to this species. Any clearing of occupied habitat must occur between September 15 and March 15 (i.e., outside of the nesting period).	Protocol surveys were conducted in all areas of suitable habitat. In addition, preconstruction surveys would be conducted prior to construction to ensure that direct impacts to this species would be avoided (MM-BIO-7). If the species is observed, restrictions would be implemented. Implementation of MM-BIO-13 would mitigate impacts to suitable habitat for this species. MM-BIO-1, which would provide a long-term management plan for the Habitat Preserve, and MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), MM-BIO-21 (Weed Control Treatments), and MM-BIO-23 (Argentine Ant Control and Monitoring) would reduce the potential impacts of edge effects. Implementation of MM-BIO-10 would remove brown-headed cowbirds from the project area, although this species is unlikely to nest within the project area. All clearing of suitable habitat would be outside of the nesting period, as identified in the ASMD as directed by MM-BIO-7.

Table 5-8
Multiple Species Conservation Program Consistency Analysis

Draft Santee MSCP Subarea Plan Covered Species	MSCP Plan Area Specific Management Directive (MSCP Plan Table 3-5)	Project Compliance
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	Area specific management directives must include specific measures to protect against detrimental edge effects to this species.	MM-BIO-1, which would provide a long-term management plan for the Habitat Preserve, and MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), MM-BIO-21 (Weed Control Treatments), and MM-BIO-23 (Argentine Ant Control and Monitoring) would reduce the potential impacts of edge effects, and provide enhancement and restoration of vernal pool resources (MM-BIO-3) and exotic species control (MM-BIO-11).
Quino checkerspot butterfly (*Euphydryas editha quino*)	None	Not applicable. However, project mitigation would include conservation and management of suitable habitat with species-specific management including success criteria, and MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), MM-BIO-21 (Weed Control Treatments), and MM-BIO-23 (Argentine Ant Control and Monitoring) would reduce the potential impacts of edge effects, including the effects caused by recreational activities (MM-BIO-1), and provide restoration and enhancement of suitable habitat within the Habitat Preserve (MM-BIO-9). MM-BIO-23 would reduce impacts to native ants.
Hermes copper butterfly (*Lycaena hermes*)	None	Not applicable. However, project mitigation would include conservation and management of suitable habitat with species-specific management, and MM-BIO-16 (Land Use Adjacency Guidelines), MM-BIO-19 (Habitat Preserve Protection), MM-BIO-21 (Weed Control Treatments), and MM-BIO-23 (Argentine Ant Control and Monitoring) would reduce the potential impacts of edge effects, including the effects caused by recreational activities (MM-BIO-1), and provide restoration and enhancement of suitable habitat within the Habitat Preserve (MM-BIO-9). MM-BIO-23 would reduce impacts to native ants.

6 MITIGATION

This section includes the mitigation measures necessary to avoid and reduce significant impacts to sensitive biological resources to a level less than significant. For reference, Table 6-1 provides a crosswalk for mitigation measure numbering between this report and the Fanita Ranch EIR Section 4.3, Biological Resources.

Table 6-1
Biological Resource Mitigation Measure Equivalency Table for the Fanita Ranch Project

Biological Technical Report	EIR Section 4.3: Biological Resources
MM-BIO-1 Preserve Management Plan	**MM-BIO-1**
MM-BIO-2 Restoration Plan	**MM-BIO-2**
MM-BIO-3 Vernal Pool Mitigation Plan	**MM-BIO-12**
MM-BIO-4 Narrow Endemic Plant Species	**MM-BIO-3**
MM-BIO-5 Oak Tree Restoration	**MM-BIO-4**
MM-BIO-6 Preconstruction Surveys and Avoidance and Minimization Measures for Special-Status Plant Species	**MM-BIO-5**
MM-BIO-7 Nesting Bird Survey	**MM-BIO-14**
MM-BIO-8 Western Spadefoot Relocation	**MM-BIO-13**
MM-BIO-9 Restoration of Suitable Habitat for Quino Checkerspot Butterfly and Hermes Copper Butterfly	**MM-BIO-18**
MM-BIO-10 Brown-headed Cowbird Trapping	**MM-BIO-17**
MM-BIO-11 African Clawed Frog Trapping	**MM-BIO-19**
MM-BIO-12 Coastal Cactus Wren Habitat Management	**MM-BIO-16**
MM-BIO-13 Wetlands Mitigation Plan	**MM-BIO-15**
MM-BIO-14 Wildlife Corridor	**MM-BIO-22**
MM-BIO-15 Wildlife Undercrossings	**MM-BIO-23**
MM-BIO-16 Land Use Adjacency Guidelines	**MM-BIO-6**
MM-BIO-17 Stormwater Pollution Prevention Plan	**MM-BIO-7**
MM-BIO-18 Approved Biologist	**MM-BIO-8**
MM-BIO-19 Habitat Preserve Protection	**MM-BIO-9**
MM-BIO-20 Wildlife Protection	**MM-BIO-20**
MM-BIO-21 Weed Control Treatments	**MM-BIO-10**
MM-BIO-22 Fire Protection Plan	**MM-BIO-21**
MM-BIO-23 Argentine Ant Control and Monitoring	**MM-BIO-11**

6.1 Vegetation Communities

Permanent impacts to 862.09 acres (including on- and off-site areas) of sensitive upland vegetation communities are anticipated with project implementation. A total of 1,303.33 acres of mitigation would be required; however, the Habitat Preserve would conserve 1,448.84 acres of sensitive upland vegetation communities (see Table 6-2).

Table 6-2
Mitigation Requirements for Permanent Impacts to Sensitive Upland Vegetation Communities

Vegetation Community	On-Site Permanent Impacts (acres)	Off-Site Permanent Impacts (acres)	Mitigation Ratio[1]	Total Mitigation Required (acres)[2]	Mitigation Credits	
					Habitat Preserve (acres)	*Restoration of On-Site Temporary Impacts (acres)*
Scrub and Chaparral						
Diegan Coastal Sage Scrub	215.13	4.93	2:1	440.12	751.93	33.09
Diegan Coastal Sage Scrub (Disturbed)	86.23	8.70	2:1	189.86	168.46	4.20
Diegan Coastal Sage Scrub (Fire Recovered)	4.72	0.17	2:1	9.78	1.29	—
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland	7.95	0.01	2:1	15.92	54.36	0.50
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (Disturbed)	18.18	1.44	2:1	39.24	28.56	1.48
Diegan Coastal Sage Scrub–Non-native Grassland (Disturbed)	19.18	—	2:1	38.37	8.28	—
Diegan Coastal Sage Scrub–Baccharis-Dominated	15.66	—	2:1	31.33	4.74	0.62
Granitic Southern Mixed Chaparral	308.95	—	1:1	308.95	246.03	45.53
Scrub and Chaparral Subtotal[3]	*676.01*	*15.25*	*—*	*1,073.56*	*1,263.65*	*85.43*
Grasslands, Vernal Pools, Meadows, and Other Herb Communities						
Valley Needlegrass Grassland	36.69	—	2:1	73.38	64.18	7.92
Valley Needlegrass Grassland (Disturbed)	22.14	—	2:1	44.27	36.03	5.84
Non-native Grassland	109.46	2.50	1:1	111.96	81.31	11.40
Grasslands Subtotal[3]	*168.28*	*2.50*	*—*	*229.61*	*181.52*	*25.16*
Woodlands						
Coast Live Oak Woodland	*0.05*	—	*3:1*	*0.16*	*3.68*	—
Woodland Subtotal[3]	*0.05*	—	—	*0.16*	*3.68*	—
Total Acreage[3]	**844.34**	**17.75**	**—**	**1,303.33**	**1,448.84**	**110.59**

Note:
1 Mitigation ratios are based on Table 5-14 in City of Santee (2018).
2 Mitigation for each vegetation community will be provided in-kind within the Habitat Preserve, where possible. If additional needs are still required, mitigation will be provided through out-of-kind, but biologically similar in function communities within the Habitat Preserve or through on-site restoration of temporary impact areas.
3 Totals may not sum due to rounding.

MM-BIO-1 **Preserve Management Plan**. Within the on-site Habitat Preserve, the applicant shall preserve in perpetuity a total of 1,650.38 acres of on-site Multiple Species Conservation Program (MSCP) open space including 1,518.50 acres within the

Habitat Preserve (including 1,448.84 acres of sensitive upland habitats), 10.52 acres of proposed trails, 6.88 acres of San Diego Gas & Electric access road, and 114.47 acres of on-site temporary impacts that shall become part of the Habitat Preserve once restored (see MM-BIO-2). Preservation of on-site open space requires recordation of a Habitat Preserve conservation easement and in-perpetuity management by the Preserve Manager in accordance with a Preserve Management Plan (PMP), which would be funded by an endowment or other acceptable permanent funding mechanism. The PMP includes a combination of active and passive restoration programs to gradually increase biological resources within open space areas through periodic treatments, mainly involving seed application on a landscape level combined with weed control activities.

An example diagram is included as Figure 6-1, Potential Restoration Treatment Areas, and an example diagram of the rotational hexagonal treatment areas is included as Figure 6-2, but the actual distribution of restoration and long-term treatment blocks shall be proposed within the PMP and the restoration plans. As shown on Figure 6-2, the Habitat Preserve was divided into Zone A and Zone B. Zone A includes areas that will receive treatment on a rotational basis, whereas Zone B will receive as-needed treatment since this area of the Habitat Preserve is more intact than in Zone A. Each hexagon is approximately 12 acres and numbered 1 through 8, which represents the year that treatment activities will take place within that hexagon. This would be separate from the treatments occurring from restoration activities associated with the project's temporary impacts. Some of these treatments are directed to increase biological resources for specific Covered Species, such as Quino checkerspot butterfly, Hermes copper butterfly, coastal California gnatcatcher, and coastal cactus wren. It is anticipated that gradual habitat enhancements shall focus on mapped disturbed habitat and mapped disturbed native vegetation communities, such as coastal sage scrub and valley grasslands. The PMP addresses the salvage of individual plants of sensitive species from the project development impact footprint prior to construction and translocation into open space areas.

As outlined in the PMP (Appendix P), at a minimum, the PMP addresses a long-term, permanently funded management plan for the on-site open space that accomplishes the goal of maintaining appropriate, high-value native plant communities throughout the Habitat Preserve. The PMP addresses management and monitoring of vegetation communities through specific minimum survey and management requirements. MSCP-level monitoring is the responsibility of the City of Santee or designee. The PMP discusses appropriate signage and fencing to protect certain sensitive resources, trash receptacle placement, and bicycle speed

limits within the Habitat Preserve. The PMP also designates and describes all permitted land uses and activities (e.g., trails and utilities) within the open space area and how impacts to preserved vegetation communities shall be avoided and minimized. The long-term PMP includes management and monitoring measures for four covered plant species (variegated dudleya, San Diego goldenstar, willowy monardella, and San Diego barrel cactus) and one sensitive plant species (Coulter's saltbush) to maximize the likelihood of their long-term viability. The PMP is included as Appendix P.

Temporary impacts to 116.45 acres (including on- and off-site areas) of sensitive upland vegetation communities are expected with project implementation. All on-site temporary impacts, totaling 114.47 acres, would become part of the Habitat Preserve once restored, including 110.59 acres of sensitive upland vegetation communities (see Table 6-3).

Table 6-3
Restoration Requirement for Temporary Impacts to Sensitive Upland Vegetation Communities

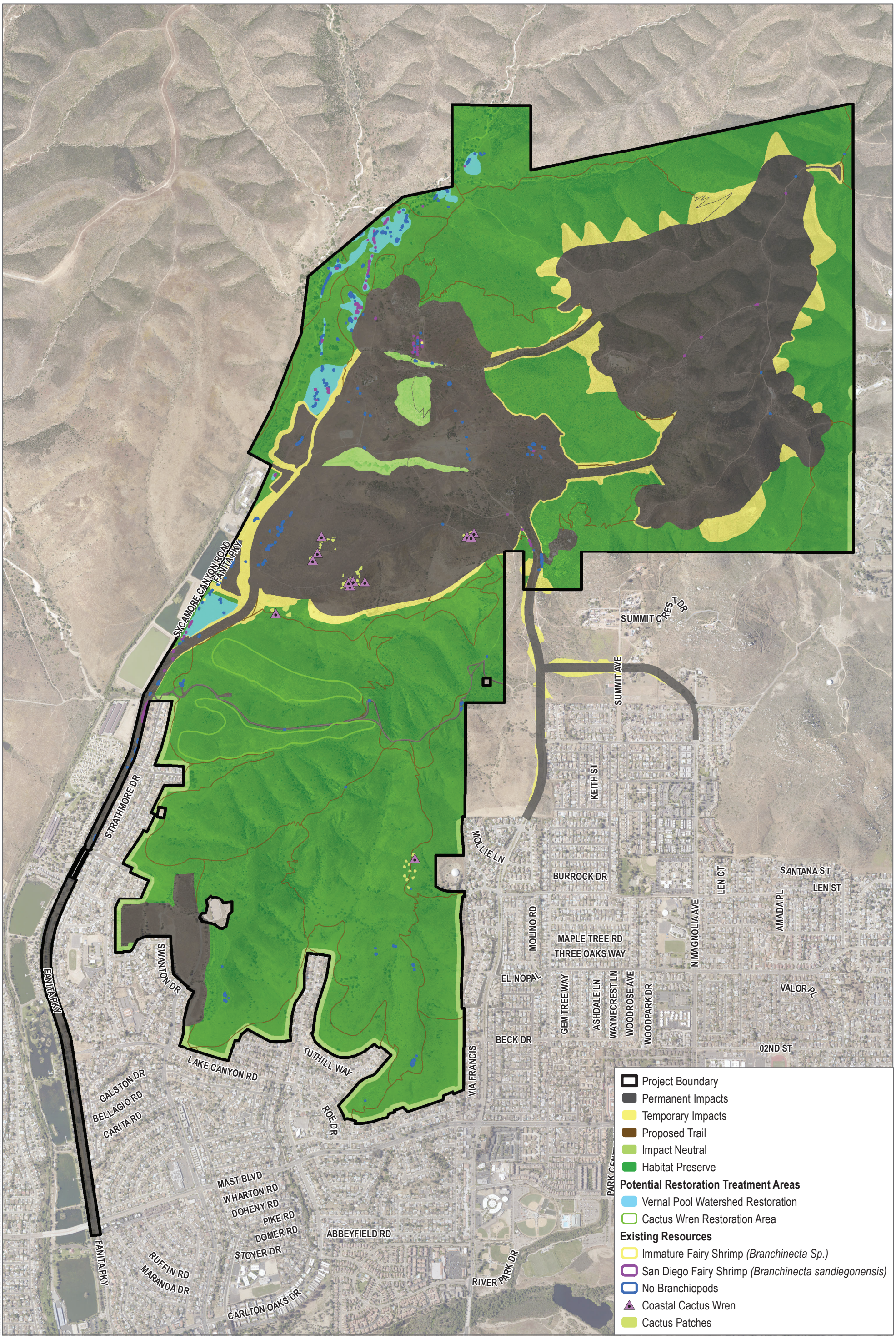
Vegetation Community	Temporary Impacts (On Site)	Temporary Impacts (Off Site)	Mitigation Ratio[1]	Total Restoration Requirement (Acres)
Scrub and Chaparral				
Diegan Coastal Sage Scrub	33.09	1.33	1:1	34.42
Diegan Coastal Sage Scrub (Disturbed)	4.20	3.28	1:1	7.48
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland	0.50	0.09	1:1	0.60
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (Disturbed)	1.48	0.94	1:1	2.41
Diegan Coastal Sage Scrub–Baccharis-dominated	0.62	—	1:1	0.62
Granitic Southern Mixed Chaparral	45.53	—	1:1	45.53
Scrub and Chaparral Subtotal[2]	*85.43*	*5.64*	—	*91.07*
Grasslands, Vernal Pools, Meadows, and Other Herb Communities				
Valley Needlegrass Grassland	7.92	—	2:1	15.85
Valley Needlegrass Grassland (Disturbed)	5.84	—	2:1	11.68
Non-Native Grassland	11.40	0.21	1:1	11.61
Grasslands Subtotal[2]	25.16	*0.21*	—	*39.14*
Total Acreage[2]	**110.59**	**5.86**	**—**	**130.21**

Notes:
1 Mitigation ratios are based on Table 5-14 in City of Santee (2018).
2 Totals may not sum due to rounding.

MM-BIO-2 **Upland Restoration Plan.** Temporary impacts to sensitive uplands vegetation communities occurring in both on- and off-site areas are anticipated to require a total of 130.21 acres of restoration (Table 6-3). Temporary impacts shall require restoration in place. A 1:1 ratio of in-place restoration for impacts to native grassland areas (i.e., valley and needlegrass grassland [including disturbed]), in addition to a 1:1 ratio of preservation and/or creation of native grassland within the Habitat Preserve, would satisfy the 2:1 mitigation ratio for impacts to native grassland outlined in Table 5-14 in the Draft Santee Multiple Species Conservation Program Subarea Plan. Restoration and creation of native grassland will have the added benefit of increasing suitable habitat for grasshopper sparrow.

Temporary impact areas shall be restored to the appropriate native vegetation community type. In order to determine the appropriate restored habitat, the Upland Restoration Plan includes an evaluation of restoration suitability specific to proposed vegetation types, soil preparation, plant palettes, irrigation, erosion control, maintenance and monitoring program, and success criteria. All areas shall be monitored for a minimum of 5 years to maximize the likelihood of establishment of intended plant communities. If temporary impact areas are not considered appropriate for restoration of the sensitive native plant community that originally was mapped in that area, these areas shall be considered permanently impacted and mitigated in conformance with the mitigation ratio for permanent impacts to sensitive upland vegetation communities as outlined above. There is currently a surplus of approximately 145.51 acres within the Habitat Preserve that would be available to accommodate these additional impacts, if deemed necessary. The Upland Restoration Plan is included as Appendix Q.

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SOURCE: SANGIS 2017, 2019

DUDEK

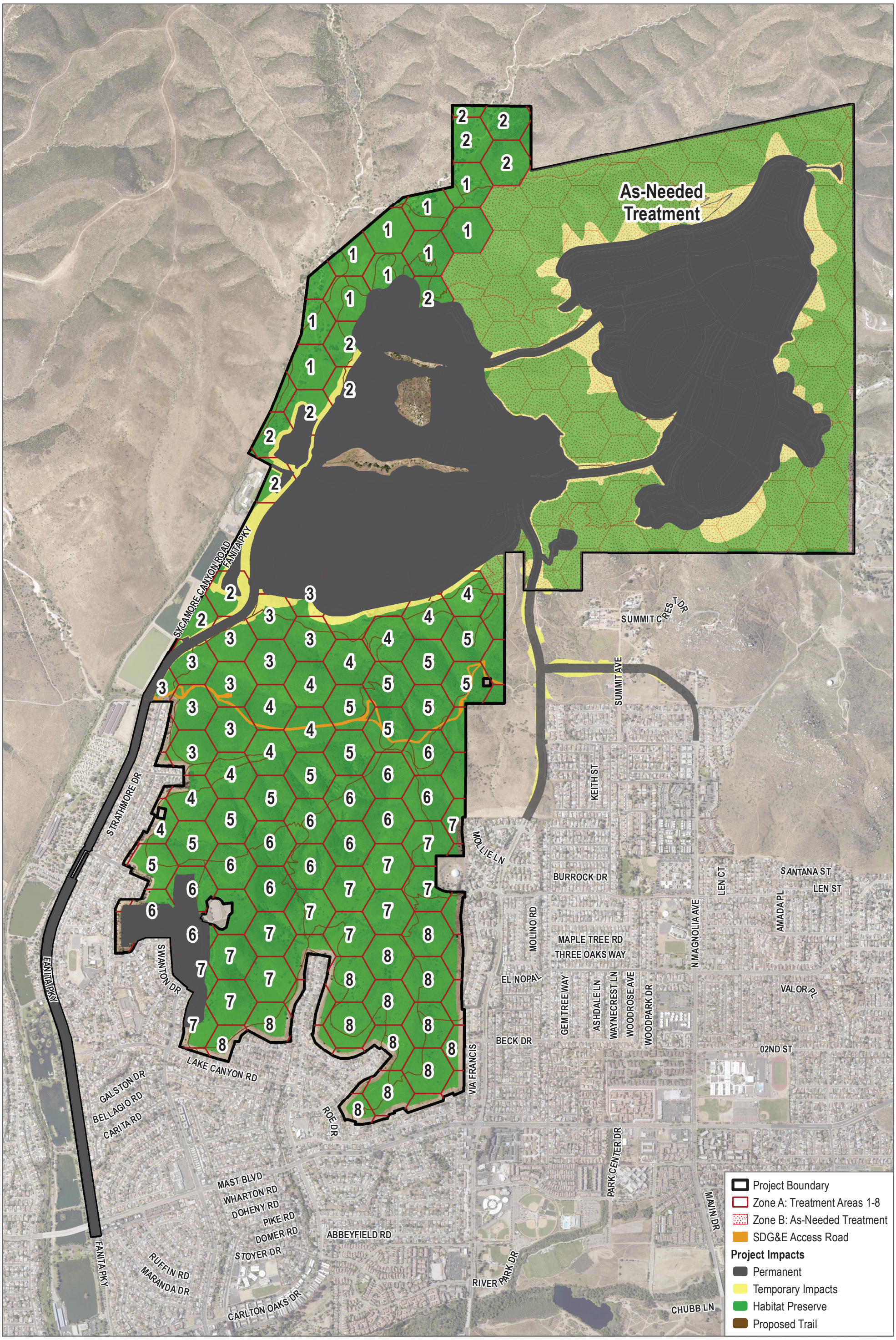
0 750 1,500 Feet

FIGURE 6-1

Potential Restoration Treatment Areas

Fanita Ranch Biological Technical Report

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SOURCE: Hunsaker 2018; SANGIS 2017, 2019

DUDEK

0 750 1,500 Feet

FIGURE 6-2

Habitat Treatment Areas

Fanita Ranch Biological Technical Report

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MM-BIO-3 **Vernal Pool Mitigation Plan.** A Vernal Pool Mitigation Plan has been prepared and will allow disturbance of seasonal basin features (i.e., natural vernal pools and road ruts containing vernal pool indicator plant and wildlife species). The Vernal Pool Mitigation Plan is subject to approval from the Regional Water Quality Control Board (RWQCB), U.S. Army Corps of Engineers (ACOE), and U.S. Fish and Wildlife Service (USFWS), and shall comply with Section 404 and 401 permit/certification by the ACOE and RWQCB, as well as Federal Endangered Species Act requirements. The Vernal Pool Mitigation Plan describes and identifies those areas slated for preservation, rehabilitation, or enhancement, and requires the creation of new seasonal basin resources within the Habitat Preserve as mitigation for anticipated development impacts. The Vernal Pool Mitigation Plan is focused on seasonal basin features and associated upland watershed habitat enhancement opportunities and covers the following: vernal pool design and location, planting plan (planting palettes for both vernal pool and upland watershed habitats), and supplemental water program; maintenance and monitoring guidelines; San Diego fairy shrimp and western spadefoot translocation; and ownership arrangements and long-term management strategy.

Natural vernal pools shall be mitigated at a 4:1 ratio, including preservation and management of existing pools, rehabilitation/enhancement of existing features within the Habitat Preserve, and creation of new features. Constructed pools (i.e., artificial features and road ruts) shall be mitigated through rehabilitation, enhancement, and/or creation at a 3:1 or 2:1 ratio, depending on whether the feature supports plant or wildlife indicator species. Rehabilitation/enhancement will occur in existing features within the Habitat Preserve that are not included as vernal pools (i.e., road ruts lacking vernal pool indicator species). This shall entail repairing degraded features through the manipulation of surface topography to improve the overall ecological function of the vernal pool, control of invasive species, and planting of appropriate native species. Creation shall consist of establishing new vernal pools in areas where they did not previously occur and/or the returning of areas to a pre-existing condition through manipulation of surface topography to support inundation and ponding for vernal pools. Created features shall exhibit the same or improved characteristics as those within the impact area currently supporting fairy shrimp, indicator vernal pool plant species, and western spadefoot, and shall maintain comparable individual pool sizes and watersheds.

Existing permanently impacted features that support San Diego fairy shrimp and vernal pool indicator plant species shall have the top 1 to 3 inches of soil removed and set aside prior to mass grading. This soil shall be kept in a dry location until it is deposited into the new features. Once the created or enhanced pools are proven

to hold water for the appropriate amount of time, they shall be inoculated with the soil from the impacted features. The acreage of surface area that shall be created shall be verified using on-site soil hydrologic properties and modeling of rainfall seasons. The target surface area acreage is 0.50 acres, based on the acreage of impacted features recorded, of which 0.40 acres shall need to include creation of new pools (Table 6-4). The Vernal Pool Mitigation Plan is included as Appendix R. This plan may be modified and augmented pending ACOE, RWQCB, and Wildlife Agency review.

Table 6-4
Mitigation Requirements for Impacts to Vernal Pools

Vernal Pool Type	Impacts	Mitigation Ratio[1]	Mitigation Acreage	Mitigation Credits (Habitat Preserve)	Total Mitigation Requirement[2] (Acres)
Natural Vernal Pool	0.02	4:1	0.09	0.10	+<0.01
Road Rut – containing plant indicator species	0.03	3:1	0.08	0.13	+0.05
Road Rut – containing wildlife indicator species	0.36*	2:1	0.72	0.17	-0.56
Total Acreage	**0.41***	**—**	**0.90**	**0.40****	**0.50**

Notes:
1 Mitigation ratios are based on City of Santee (2018).
2 Mitigation shall include both rehabilitation/enhancement of existing features within the Habitat Preserve and creation of new features. The exact breakdown by mitigation type shall be included in the Vernal Pool Mitigation Plan.
* This total includes 0.01 acre of off-site impacts.
** This acreage shall be included within the Habitat Preserve and shall be subject to long-term management and monitoring as directed by the Draft Santee Multiple Species Conservation Program Subarea Plan (City of Santee 2018).

6.2 Plant Species

MM-BIO-4 **Narrow Endemic Plant Species.** Mitigation requirements for impacts to special-status plant species proposed under the Draft Santee Multiple Species Conservation Program (MSCP) Subarea Plan seek to establish adequate preservation of the species to ensure long-term population stability. The narrow endemic species policy identified in the Draft Santee MSCP Subarea Plan requires 100% conservation within open space (i.e., hardline preserve) and 80% conservation through translocation within permanent impact (i.e., take-authorized) areas. Conservation of Coulter's saltbush, although not a Covered Species, shall be treated in a manner consistent with the narrow endemic policy of the Draft Santee MSCP Subarea Plan. Implementation of this policy ensures adequate conservation of each species within the subarea, as well as regionally within the MSCP Plan area.

Based on the current project impacts, two special-status plant species (Coulter's saltbush and San Diego goldenstar) shall require translocation of individuals and/or planting to meet the 80% conservation within take-authorized areas. Mitigation requirements are summarized in Table 6-5.

Table 6-5
Mitigation Requirements for Impacts to Sensitive Plant Species

Species/Status (Federal/State/CNPS/ Draft Santee MSCP Subarea Plan)	Total Individuals	Individuals Impacted (Percent Impacted)	Habitat Preserve Individuals (Percent Conserved)	Individuals Needed to Meet the 80% Conservation Requirement	Translocation Requirement[1] (Individuals)
Coulter's Saltbush (*Atriplex coulteri*)[2] None/None/1B.2/None	65	15 (23%)	50* (77%)	52	2
San Diego Goldenstar (*Bloomeria clevelandii*)[2] None/None/1B.1/Covered	18,318	7,964 (44%)	10,354 (56%)	14,654	4,300
Variegated Dudleya (*Dudleya variegata*)[3] None/None/1B.2/Covered NE	8,942	786 (9%)	8,156 (91%)	7,154	0
San Diego Barrel Cactus (*Ferocactus viridescens*)[3] None/None/2B.1/Covered	4,856	585 (12%)	4,270 (88%)	3,885	0
Willowy Monardella (*Monardella viminea*) FE/CE/1B.1/Covered	1,622	1** (<1%)	1,621 (99%)	1,298	0

Notes: CNPS = California Native Plant Society; MSCP = Multiple Species Conservation Program.

1 The number of individuals proposed for translocation is the minimum needed to meet 80% preservation. Although, it is likely that more individuals will be translocated to ensure translocation success.

2 Species that require translocation to meet 80% preservation.

3 This species meets the 80% preservation; however individuals occurring within the impact area will be targeted for collection and translocation.

* It should be noted that these individuals do not occur with the Habitat Preserve. However, since they occur within the Impact Neutral area and will not be impacted with project implementation they are considered preserved.

** All impacts to the 49 individuals occurring along existing retained trails and adjacent to proposed trail creation areas would be avoided through the maintenance and management of trails as outlined in the Public Access Plan (Appendix T).

Status Legend
Federal
FE: Federally listed as endangered.
State
CE: State listed as endangered.
CRPR: California Rare Plant Rank (previously known as the CNPS List)
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
4: Plants of limited distribution – a watch list
Threat Rank:
.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 – Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
Draft Santee MSCP Subarea Plan (City of Santee 2018)
Covered: Draft Santee MSCP Subarea Plan Covered Species

Coulter's saltbush and San Diego goldenstar require translocation or planting of impacted populations in order to adequately mitigate project impacts. Translocation requires evaluation of the donor site for suitability of translocation method and of the receptor site for suitability of sustaining Coulter's saltbush and San Diego goldenstar. The translocation program is detailed in the Upland Restoration Plan (Appendix Q) and Preserve Management Plan (PMP) (Appendix P)and will be integrated with the overall uplands and wetlands restoration of the project area.

The rare plant mitigation component of the Upland Restoration Plan (Appendix Q) discusses appropriate methods for plant salvage and/or growing and planting; in general, the impacted population of the sensitive plant shall be targeted for salvage and translocation in order to meet the 80% minimum translocation survival rate. Where this is not feasible, germination and growing of appropriate genetic stock shall occur and be planted on site in suitable receptor sites. Success of the translocation program within the receptor sites, such that the plant and acreage goals as required in Table 6-5 are established, shall be measured through 5 years of monitoring and annual reporting to the City of Santee.

MM-BIO-5 **Oak Tree Restoration.** Impacts to 5 individual Engelmann oak trees and 17 individual oak trees within the coast live oak woodland vegetation community shall be mitigated at a ratio of 3:1; that is, three established sleeve-sized seedlings for each mature tree (i.e., oak trees with at least one trunk of 6-inch or more diameter at breast height [DBH] or multitrunked native oak trees with aggregate diameter of 10-inch DBH) to be impacted by the project. Therefore, a total of 66 oak trees shall be planted to meet the 3:1 mitigation ratio requirement. Oak tree restoration shall be included as a component of the Wetland Mitigation Plan (Appendix S) and shall be prepared prior to issuance of mass grading permits with review and approval by the City of Santee. The oak tree restoration component of the Wetland Mitigation Plan (Appendix S) shall be used to guide the oak restoration effort. Replanting shall occur in the general areas where grasslands occur adjacent to existing oak trees and shall be conducted by a City-approved contractor. "Established" shall be defined as 5 years of sustained life without the assistance of irrigation and growth rates that are similar to those of naturally occurring reference oak trees. In the event the "established" success criteria cannot be achieved, the project applicant and the City of Santee shall jointly agree on the implementation of remedial measures to mitigate for impacts to individual oak trees.

MM-BIO-6 **Preconstruction Surveys and Avoidance and Minimization Measures for Special-Status Plant Species.** Within the 13.44 acres of off-site impact areas not previously surveyed along Magnolia Avenue and prior to the commencement of

construction activities in suitable habitat, a preconstruction survey shall be conducted in suitable habitat, determined by the project biologist, to determine whether special-status plants are present in the construction zone or within 50 feet of the construction zone boundary. Focused surveys for special-status plant species shall be conducted by a qualified biologist according to the California Native Plant Society Botanical Survey Guidelines, Protocols for Surveying and Evaluating Impacts to Special Status Native Populations and Natural Communities, and U.S. Fish and Wildlife Service General Rare Plant Survey Guidelines. The preconstruction survey shall be conducted during a period when the target species would be observable and identifiable (e.g., blooming period for annuals). The target species list will include all species observed within the project area and those that have a high to moderate potential to occur in the construction zone or within 50 feet of the construction zone.

Avoidance, Minimization, and Mitigation Measures

If any covered narrow endemic plant species are detected during the preconstruction surveys, impacts would be subject to the narrow endemic species policy (MM-BIO-4), and the location and number of individuals will be mapped and analyzed. If impacts to any covered narrow endemic species exceed the threshold for the narrow endemic species policy, the following measures will be implemented:

1. Special-status plants in the vicinity of the disturbance shall be temporarily fenced or prominently flagged and a 50-foot buffer shall be established around the populations to prevent inadvertent encroachment by vehicles and equipment during the activity.
2. Seeds/bulbs shall be collected and stored in appropriate storage conditions (e.g., cool and dry) and dispersed/transplanted following the construction activity and reapplication of salvaged topsoil.
3. The top 6 inches of topsoil shall be salvaged, stockpiled, and replaced as soon as practicable after project completion. The salvaged topsoil shall be redistributed at the same depth and contoured to blend with surrounding grades.

6.3 Wildlife Species

MM-BIO-7 **Nesting Bird Survey.** To avoid impacts to nesting migratory birds, nesting raptors, and other nesting birds, which are sensitive biological resources pursuant to the California Environmental Quality Act, the Migratory Bird Treaty Act, and California Fish and Game Code, breeding season avoidance shall be implemented and included on all construction plans.

To the extent feasible, there shall be no brushing, clearing, and/or grading allowed during the breeding season of migratory birds or raptors (between January 15 and September 15) or coastal California gnatcatcher (between February 15 and August 15). If vegetation is to be cleared during the nesting season, all suitable habitat shall be thoroughly surveyed for the presence of nesting birds by a qualified biologist no earlier than 72 hours prior to clearing. The survey results shall be submitted by the project applicant to the City of Santee Director of Development Services. If any active nests are detected, the area shall be flagged and mapped on the construction plans along with an initial 300-foot buffer for coastal California gnatcatcher and up to a 500-foot maximum buffer for raptors. The nests shall be avoided until the nesting cycle is complete or it is determined that the nest has failed. The final appropriate buffer distance, as well as cycle completion or nest failure, shall be determined by a qualified biologist. Factors used to determine and guide the appropriate buffer distance shall include individual pair behavior responses, amount of buffering topography, proximity to existing disturbance, and ambient noise levels. In addition, a qualified biologist shall be present on the project area to monitor (see MM-BIO-18, Approved Biologist) the vegetation removal to ensure that nests not detected during the initial survey are not disturbed. If the monitoring biologist determines that the nesting activities are being substantially disrupted by adjacent construction activity, the City of Santee shall be notified and measures to avoid or minimize such impacts shall be developed. Such measures might include installation of noise barriers, increased buffering, stopping construction in that area, or other measures as developed.

MM-BIO-8 **Western Spadefoot Relocation.** During the wet season prior to clearing or grading operations, biologists shall collect western spadefoot adults from areas within 300 meters of known occupied pools. Adults shall either be held by a Wildlife Agency approved biologist to be released back into the site after construction activities using standard methods, or they shall be relocated to another area on the Fanita Ranch Project area that has suitable breeding habitat and few or no western spadefoot individuals.

A Western Spadefoot Relocation Plan is included as a component of the Vernal Pool Mitigation Plan (Appendix R) and subject to approval by the Wildlife Agencies. The Western Spadefoot Relocation Plan includes at minimum the following elements:

a. The timing and methods for surveying, capturing, and releasing adults. Long-term care methods shall also be discussed if this option is used.

b. Collection shall occur during the first three or four large rain events of the season. Ideally, these rain events would produce a minimum of 0.20 inches during a 24-hour period.

MM-BIO-9 Restoration of Suitable Habitat for Quino Checkerspot Butterfly and Hermes Copper Butterfly. Mitigation for impacts to suitable habitat for Quino checkerspot butterfly will include a combination of in-perpetuity management of the Habitat Preserve that will focus on removal of non-native grasses, weedy material, and duff layers and the supplemental planting of dot-seed plantain (*Plantago erecta*), Coulter's snapdragon (*Antirrhinum coulterianum*), rigid bird's beak (*Cordylanthus rigidus*), owl's clover (*Castilleja exserta*), Chinese houses (*Collinsia concolor*), and purple Chinese houses (*Collinsia heterophylla*) so that habitat is more suitable for Quino checkerspot butterfly. This will include an endowment or other acceptable permanent funding mechanism and documented management plan as outlined within the Preserve Management Plan (PMP) (Appendix P). Restoration/enhancement and creation of suitable habitat areas shall entail specific standards or guidelines on vegetation management. Tables 6-6a through 6-6c summarize the mitigation requirement scenarios based on the three potentially suitable habitat models for Quino checkerspot butterfly. Regardless of the model used, approximately 1,096.57 acres of suitable habitat based on the most conservative 2009 extrapolation model shall be managed for Quino checkerspot butterfly along with other compatible species such as California gnatcatcher, San Diego fairy shrimp, and Hermes copper butterfly, providing a minimum 1.9:1 mitigation ratio.

As described in the Draft Santee Multiple Species Conservation Program Subarea Plan, impacts to potentially suitable habitat for Hermes copper butterfly require mitigation by preservation of suitable habitat at a ratio of 1:1, or 2:1 if the suitable habitat was previously occupied. Previously occupied habitat includes areas of potentially suitable habitat within 500 feet of a previously known occurrence of Hermes copper butterfly but where the butterfly was not identified during subsequent and more recent focused surveys. Mitigation of suitable habitat shall be included in the PMP (Appendix P) and occur in the following ways: preservation and management of existing suitable habitat within the Habitat Preserve, restoration/enhancement of existing suitable habitat within the Habitat Preserve, and creation of new suitable habitat areas within the Habitat Preserve and along manufactured slopes within development areas, as appropriate. Restoration/enhancement and creation of suitable habitat areas shall entail repairing degraded habitat through the control of invasive species and/or planting of appropriate native species (i.e., redberry buckthorn within 15 feet of California

buckwheat); see the Upland Restoration Plan for details (Appendix Q). Table 6-7 summarizes the mitigation requirements for impacts to potentially suitable habitat for Hermes copper butterfly.

Table 6-6a
Mitigation Scenario Based on the 2009 Extrapolation Model for Impacts to Suitable Habitat for Quino Checkerspot Butterfly

Suitable Habitat Model	Impact Acreage	Mitigation Acreage Credits (Habitat Preserve Suitable Habitat)[1]	Ratio of Mitigation Achieved with On-Site Habitat Preserve
2009 Extrapolation Model	581.39	1,096.57	1.9:1

Notes:
1 This is the total acreage included within the Habitat Preserve and shall be subject to long-term management and monitoring as directed by the Preserve Management Plan.

Table 6-6b
Mitigation Scenario Based on the 1-Kilometer Model (All Known Observations) for Impacts to Suitable Habitat for Quino Checkerspot Butterfly

Suitable Habitat Model	Impact Acreage	Mitigation Acreage Credits	Ratio of Mitigation Acheived[1]
1 Kilometer (All Known Observations)	396.53	218.22*	0.6:1
		878.35**	2.2:1
Total Suitable Habitat within the Habitat Preserve[2]		**1,096.57**	—

Notes:
1 Two mitigation ratios are provided based on (1) the amount of suitable habitat within the 1-kilometer buffer that overlaps the Habitat Preserve and (2) the remaining suitable habitat within the Habitat Preserve (based on the 2009 Extrapolation model) outside the 1-kilometer buffers.
2 This is the total suitable habitat acreage included within the entire Habitat Preserve (based on the 2009 Extrapolation model) and shall be subject to long-term management and monitoring as directed by the Preserve Management Plan.
* Mitigation acreage available within the 1-kilometer buffer that overlaps the Habitat Preserve.
** This total represents the amount of remaining suitable habitat available within the Habitat Preserve (based on the 2009 Extrapolation model) outside the 1-kilometer buffers.

Table 6-6c
Mitigation Scenario Based on the 1-Kilometer Model (Without the 2005 Observation) for Impacts to Suitable Habitat for Quino Checkerspot Butterfly

Suitable Habitat Model	Impact Acreage	Mitigation Acreage Credits	Ratio of Mitigation Acheived[1]
1 Kilometer (Without the 2005 Observation)	3.82	7.39*	1.9:1
		1,089.18**	285:1
Total Suitable Habitat within the Habitat Preserve[2]		**1,096.57**	—

Notes:
1 Two mitigation ratios are provided based on (1) the amount of suitable habitat within the 1-kilometer buffer that overlaps the Habitat Preserve and (2) the remaining suitable habitat within the Habitat Preserve (based on the 2009 extrapolation model) outside the 1-kilometer buffer.
2 This is the total suitable habitat acreage included within the entire Habitat Preserve (based on the 2009 extrapolation model) and shall be subject to long-term management and monitoring as directed by the Preserve Management Plan.
* Mitigation acreage available within the 1-kilometer buffer that overlaps the Habitat Preserve.
** This total represents the amount of remaining suitable habitat available within the Habitat Preserve (based on the 2009 extrapolation model) outside the 1-kilometer buffer.

Table 6-7
Mitigation Requirements for Impacts to Suitable Habitat for Hermes Copper Butterfly

Habitat Type	Impact Acreage	Mitigation Ratio[1]	Mitigation Acreage	Mitigation Acreage Credits (Habitat Preserve)
Redberry Buckthorn within 15 feet of California Buckwheat				
Potentially Suitable Habitat	44.73	1:1	44.73	79.29
Potentially Suitable Habitat, Previously Occupied	8.25	2:1	16.50	15.48
Total Acreage	**52.98**	—	**61.23**	**94.77[2]**

Notes:
1 Mitigation ratios are based on City of Santee 2018.
2 This acreage shall be included within the Habitat Preserve and shall be subject to long-term management and monitoring as directed by the Preserve Management Plan.

MM-BIO-10 Brown-headed Cowbird Trapping. A brown-headed cowbird trapping program shall be initiated within the project area as necessary. The trapping program shall include the following: trapping shall begin during the first phase of grading and continue for a period of 15 years, or until such time as an alternative control method is developed, which shall then replace the trapping program through the 15-year period. The trapping program shall be based on the most currently used trapping methods. Three traps shall be set at appropriate locations within open space or adjacent to open space on site, though there is flexibility to install one at another location within the City of Santee sphere of influence (e.g., Santee Lakes) that might provide better local and regional benefits (e.g., along river or creek or at a local equestrian center). Trapping shall be performed between April 1 and August 1 unless 21 days without brown-headed cowbirds occurs, then trapping may end for that year.

In order to establish whether a cowbird trapping program is necessary, focused surveys shall be conducted in and around the Habitat Preserve. A qualified biologist shall survey the Habitat Preserve during February, April, and May of each year during the construction phase, through final buildout. If final buildout occurs before 10 years, then at least 10 years of surveys shall be required. During the survey, no single biologist may cover more than 300 acres of Habitat Preserve per day. If 10 or more males or 5 or more females or juveniles are observed on any single occasion, then trapping shall commence. No additional monitoring or trapping shall be required after 10 years, even if the brown-headed cowbird occurrence thresholds have not been met. Since there is a small segment of trail designated for equestrian use, the monitoring for brown-headed cowbirds is addressed within the PMP (Appendix P) and that area shall be monitored and managed in accordance with that plan, even if the 10-year threshold has been met for the remainder of the Habitat Preserve. Yearly reporting of the trapping results shall be provided with the other PMP reporting and

will minimally include the rationale for trap placement, number of target species, non-target species, mortalities of each, sex and age of each as able to be determined, comparison to prior trapping, and suggestions for the following year.

MM-BIO-11 **African Clawed Frog Trapping.** African clawed frogs have been detected in the past within Sycamore Creek and vernal pool features on the Fanita Ranch Project area. A monitoring program is included in the Preserve Management Plan (PMP) (Appendix P) and is designed to determine the presence of African clawed frogs within occupied fairy shrimp and western spadefoot features. Monitoring shall consist of surveying flowing and pooled portions of Sycamore Creek and restored and natural vernal pool features within the project area once per month from January through April while the project is in construction. After construction is complete, these areas shall be surveyed for African clawed frogs once per year in March. If African clawed frogs are observed during the construction or postconstruction monitoring, then control measures shall be implemented. Since different areas may require control each year, yearly updates shall be made as necessary.

MM-BIO-12 **Coastal Cactus Wren Habitat Management.** Coastal cactus wren is a Covered Species under the Draft Santee Multiple Species Conservation Program Subarea Plan. Because suitable and occupied habitat for this species will be impacted by grading and construction of the project, habitat enhancement and restoration of coastal cactus wren habitat shall occur. Based on project impacts to 0.57 acres of suitable habitat, a 2:1 mitigation ratio resulting in a total of 1.14 acres of habitat enhancement and restoration would be required for mitigation. This habitat restoration and enhancement is outlined within the Upland Restoration Plan (Appendix Q) and the Preserve Management Plan (PMP) (Appendix P). This habitat shall be similar in extent and density to currently occupied patches to be impacted and shall show use by coastal cactus wren prior to clearing of currently occupied habitat. Use is minimally intended to prove that impacted coastal cactus wren have identified where these patches are located so that they can colonize them once their current habitat patches are cleared. It is anticipated that restoration and enhancement activities shall begin prior to construction, where practicable, to provide the most amount of time for maturation.

In order to enhance habitat for coastal cactus wren, appropriate areas within the Habitat Preserve shall be planted with coast prickly pear (*Opuntia littoralis*) and coastal cholla (*Cylindropuntia prolifera*) in a matrix that is optimal for coastal cactus wren. Studies performed on the Orange County Central Reserve indicate an interstitial mix of cactus and sage scrub or grasslands may be optimal. This ratio

has been implemented into the Upland Restoration Plan and PMP where appropriate, but likely, greater than 20% 1-meter-high cactus cover associated with *Sambucus mexicana* shall be best. Minimally, three habitat patches shall be planted along primarily southern exposure slopes to increase the amount of suitable nesting habitat for coastal cactus wren outside of the proposed development footprint.

The habitat enhancement program is focused on improving habitat conditions for coastal cactus wren within portions of the project area that are identified for preservation and along manufactured slopes in development areas. Site selection shall be based on the following criteria:

1. Slope aspect (prioritize southern exposures and southwest-facing ridgelines).
2. Habitat quality (prioritize areas where some cacti were present, but with adequate space to support additional cacti, to improve habitat quality for coastal cactus wren).
3. Soil conditions (prioritize areas with similar soil conditions compared to occupied cactus scrub habitat).
4. Proximity to occupied cactus patches (prioritize areas that are closer to documented coastal cactus wren occurrences to provide opportunities for dispersal; try to enhance areas within 200 to 1,000 meters of occupied habitat).
5. Access (prioritize areas that would be accessible to a planting and maintenance crew).
6. Cactus plantings along manufactured slope areas shall be planted so that they do not hinder fire access, but shall be clustered so that they discourage or inhibit encroachment by the public.

The approach to habitat enhancement shall include planting coast prickly pear and cholla by means of pad and segment cuttings in up to 10 selected enhancement areas. Cacti plants take several years to mature to the size that can support cactus wren nesting. Therefore, the planted cuttings may be augmented with larger container plants in a subsequent year after the most successful planting sites can be determined. In addition, future preconstruction salvage of whole cactus plants and pads may be used to further enhance the structure of the cactus patch areas at the time of construction.

It is not expected that all 10 sites will be successful or perform at equivalent levels. Therefore, a subset of planted areas shall be selected in the second year to focus maintenance efforts on sites with the greatest potential to develop into

habitat suitable for coastal cactus wren occupation. The sites that develop into suitable habitat shall be monitored annually for coastal cactus wren use or occupation over a 5-year period in order to maintain a documented record of coastal cactus wren use of targeted areas for enhancement.

Enhancement Methods and Implementation Procedures

Proposed planting for cacti shall focus primarily on the installation of prickly pear pads and cholla segment cuttings to achieve the project goals. Cactus cuttings shall be taken from on-site cacti patches that are unoccupied by coastal cactus wren. Less than 20% of each individual plant shall be taken to allow for regrowth of cacti plants within a single growing season. Approximately 1–2-foot-long pads and segments shall be harvested from adjacent habitat within the proposed project impact footprint and allowed to callous for a period of at least 2 days prior to planting.

Before planting, an auger or shovel shall be used in the designated sites to excavate the cacti receptor holes to the appropriate depth for planting. The holes shall be thoroughly watered prior to transplanting. The segments and pads shall be planted to a depth of approximately one-third to one-half their length. After placement of the segments and pads, native soil shall be used to backfill around the cuttings. A watering basin shall be formed around each of the planted segments and pads, or groups of closely planted segments and pads. The soil shall be watered-in around the cuttings after planting to help settle the soil and remove air pockets. Native cobble, if present, shall be replaced on the surface surrounding the base of cacti.

If the salvaged cacti segments cannot be directly salvaged and planted, the segments shall be transferred to a nursery for potting and rooting until they can be planted on site.

Maintenance, Monitoring, and Reporting Program

A 2-year maintenance and monitoring program shall be conducted to document the establishment and persistence of the planted cacti. Monitoring shall include semi-annual site visits to assess site health and coastal cactus wren occurrence. The evaluation of site health shall consist of estimating plant establishment success rates (percent survival) and growth rates (height and width measurements of a sampling subset of 10% of planted individuals), and a review of maintenance needs (soil moisture, herbivory, vandalism, etc.).

Maintenance at the enhancement sites shall occur at least six times per year for the initial 2-year maintenance period. Maintenance visits shall be focused during the

growing season when the need for supplemental watering and weed control will likely be the greatest. Maintenance shall include weed control within the planting basins, including a 3-foot radius surrounding the basins, and supplemental watering during the growing season. Supplemental watering shall only be provided if natural rainfall does not provide adequate soil moisture to support establishment and persistence of the cacti cuttings. Due to highly variable rainfall expected in the region, supplemental watering is anticipated to be needed approximately four times per year. Supplemental watering shall be provided by watering by hand utilizing a pick-up truck with a water tank and pump.

Upon the completion of the 2-year cactus enhancement program, annual maintenance and monitoring will continue based on the results of the enhancement effort to date. Depending on success rates, only a subset of the sites (e.g., those that are expected to develop into suitable habitat for coastal cactus wren) will continue to be monitored and maintained.

Adaptive Management

The coastal cactus wren habitat restoration and enhancement component of the Upland Restoration Plan (Appendix Q) proposes to employ an adaptive management strategy to achieve the project goals. Due to the complexity and dynamic nature of ecosystems, and anticipation of unexpected events or outcomes, a flexible management plan is desirable. Adaptive management involves gathering existing available information, documenting changed site conditions, exploring alternative actions, making predictions about potential outcomes, selecting one or more actions to implement, monitoring to see if the outcomes match the predictions, and then using the results to learn from and adjust future management actions. Consistent monitoring is key to effective adaptive management, to ensure that the decisions regarding future management are based on accurate assessments of the status of the resources being managed.

Treatments shall be selected based on the results of monitoring conducted in accordance with the Upland Restoration Plan (Appendix Q). Potential adaptive management measures may include the following:

- Installation of protective cages to discourage herbivory.
- Augmenting enhancement areas with additional cacti cuttings.
- Selecting alternative enhancement locations.
- Propagating larger cacti plants at a nursery for out-planting.

- Applying native seed to improve overall habitat conditions at selected enhancement sites.
- Extended supplemental watering of planted cacti cuttings and/or container plants.

6.4 Jurisdictional Aquatic Resources

Permanent and temporary impacts to 9.81 acres (including on- and off-site areas) under ACOE, RWQCB, and CDFW jurisdiction are expected with project implementation. A total of 24.07 acres of mitigation would be required. The Habitat Preserve would conserve 32.31 acres, the majority of which could only be used for the preservation component of the mitigation requirement, see the Wetland Mitigation Plan (Appendix S) for details. Table 6-8 summarizes the project impacts and required mitigation ratios.

Table 6-8
Mitigation Requirements for Impacts to Jurisdictional Aquatic Resources

Wetlands Vegetation Community	Permanent Impact Acreage (linear feet)	Temporary Impact Acreage (linear feet)	Total Impact Acreage	Mitigation Ratio[1,2]	Total Mitigation Requirement (Acres)	Habitat Preserve Mitigation Credit Acreage (linear feet)
ACOE/RWQCB Wetlands and CDFW Riparian Areas						
Disturbed Wetlands	0.01 (57)	—	0.01 (57)	2:1	0.02	0.06 (89)
Coastal and Valley Freshwater Marsh	0.02 (52)	—	0.02 (52)	2:1	0.05	—
Disturbed Coastal and Valley Freshwater Marsh	0.12 (346)	—	0.12 (346)	2:1	0.24	—
Mulefat Scrub	0.11 (242)	0.34 (474)	0.45 (717)	3:1	1.35	1.13 (1,381)
Southern Arroyo Willow Riparian Forest	—	—	—	3:1	—	1.54 (1,416)
Southern Willow Scrub	0.72 (1,228)	0.03 (100)	0.74 (1,329)	3:1	2.23	0.04 (244)
Disturbed Southern Willow Scrub	0.48 (402)	—	0.48 (402)	3:1	1.45	—
ACOE/RWQCB/CDFW Subtotal	*1.46 (2,328)*	*0.37 (574)*	*1.83 (2,903)*	—	*5.33*	*2.78 (3,129)*
ACOE/RWQCB Non-Wetland Waters and CDFW Streambed						
Non-Vegetated Channel or Floodway	2.98 (46,160)	0.85 (14,389)	3.82 (60,549)	2:1	7.64	5.84 (67,011)
ACOE/RWQCB Non-Wetland Waters and CDFW Riparian Habitat						
Disturbed Wetlands	0.02 (64)	—	0.02 (64)	2:1	0.03	—
CDFW Only Riparian Habitat						
Arundo-Dominated Riparian	0.95 (1,046)	0.44 (459)	1.38 (1,505)	2:1	2.77	0.02 (66)
Coast Live Oak Woodland	2.37 (935)	0.03 (42)	2.40 (978)	3:1	7.19	22.68 (11,731)
Mulefat Scrub	0.04 (87)	0.06 (86)	0.10 (174)	3:1	0.29	0.03 (51)

Table 6-8
Mitigation Requirements for Impacts to Jurisdictional Aquatic Resources

Wetlands Vegetation Community	Permanent Impact Acreage (linear feet)	Temporary Impact Acreage (linear feet)	Total Impact Acreage	Mitigation Ratio[1,2]	Total Mitigation Requirement (Acres)	Habitat Preserve Mitigation Credit Acreage (linear feet)
Southern Sycamore–Alder Riparian Woodland	0.17 (967)	0.04 (175)	0.21 (1,142)	3:1	0.62	0.96 (979)
Southern Willow Scrub	0.07 (96)	—	0.07 (96)	3:1	0.20	—
CDFW Only Subtotal	*3.59 (3,132)*	*0.56 (762)*	*4.15 (3,895)*	—	*11.07*	*23.70 (12,827)*
Total Acreage	**8.04 (50,941)**	**1.77 (15,385)**	**9.81 (67,410)**	—	**24.07**	**32.31 (82,967)**

Notes: ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.
1 Mitigation ratios are based on City of Santee (2018).
2 Temporary impacts would occur from the grading buffer and manufactured slopes, which are unlikely to provide in-place restoration. Therefore, temporary impacts shall be considered permanent and mitigated accordingly.

MM-BIO-13 Wetlands Mitigation Plan. Impacts to jurisdictional resources total 9.81 acres, including 8.04 acres of permanent impacts and 1.77 acres of temporary impacts, occurring on and off site. Impacts to jurisdictional resources require permit issuance by the U.S. Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) prior to impacts. The project applicant shall provide the City of Santee with permits and authorizations from each resource agency demonstrating approval of project impacts to aquatic resources prior to the approval of the grading and improvement plans.

A Wetland Mitigation Plan for the Fanita Ranch Project has been prepared and describes the on-site mitigation program to mitigate anticipated temporary and permanent development impacts to waters of the United States and wetlands vegetation communities. Both on- and off-site mitigation sites are needed to provide full compensation for project impacts, and therefore two plans shall be required. The off-site mitigation will provide wetland habitat through of a combination of habitat preservation, enhancement, restoration, and creation. With this program, wetland habitat that is comparable in habitat type and quality to the impact area will be enhanced, restored, or created within the City of Santee's jurisdiction, and within the San Diego River and/or its tributaries. The off-site restoration program will be subject to the same standards and rules as the on-site mitigation program, including management of access control, invasive species, and native vegetation cover and diversity. Off-site restoration will include these management efforts, as well as a program of revegetation of wetland species with planting and seeding. The off-site habitat creation will also include potential

topographic alteration to expand and create bed and bank areas appropriate for the establishment of new wetland habitat. At least 7.53 acres of off-site mitigation will be habitat creation and/or re-establishment. This total is based on the current aquatic resource assessment and impacts, and the no-net-loss requirement in the Draft Santee MSCP Subarea Plan. The off-site preservation/enhancement component may occur at the 11-acre parcel, owned by the project proponent, adjacent to the lower Santee Lakes to satisfy the off-site preservation/enhancement requirement. The City of Santee has agreed to allow the remaining off-site creation/re-establishment mitigation component to be completed within City-owned lands in the same hydrologic unit, next to the San Diego River. Based on preliminary evaluations, several opportunities have been identified to provide off-site mitigation for the remaining creation/re-etsablishment mitigation component, indicating that it is feasible to accomplish the off-site compensatory mitigation.

The Wetland Mitigation Plan is consistent with the ACOE's 2008 Compensatory Mitigation Rule and subsequent guidance documents. The Wetland Mitigation Plan shall use the latest available tentative tract map to define the mitigation areas. The Wetland Mitigation Plan provides a description of project impacts and required mitigation at approved replacement ratios. An implementation section includes the different types of wetland mitigation areas including treatments such as soil preparation, plant palettes, and temporary interim erosion control. Plant palettes shall incorporate sensitive species that will be impacted by the project, as appropriate. A maintenance plan to promote the successful establishment of the target vegetation communities includes the specific activities to be performed over the 5-year maintenance period. A monitoring plan is included that describes performance criteria for each vegetation community, monitoring frequency, and methods. The Wetland Mitigation Plan includes reporting requirements and contingency measures.

Since temporary impact areas are not appropriate for restoration of jurisdictional resources, these areas shall be considered permanently impacted and shall be mitigated in conformance with the mitigation ratios for permanent impacts to jurisdictional resources. Mitigation ratios based on Table 4.3-15 of the Draft Santee Multiple Species Conservation Program Subarea Plan shall be included in the Wetland Mitigation Plan. The Wetland Mitigation Plan is included as Appendix S. This is plan may be modified and augmented pending ACOE/RWQCB/CDFW review.

6.5 Wildlife Movement

MM-BIO-14 Wildlife Corridor. The project will include an interior corridor that is minimally 1,200 feet wide, a northern corridor that is mostly minimally 1,400 feet wide with the exception of one location that narrows to 600 feet for an approximate 800-foot length. This length is adjacent to the protected and managed Goodan Ranch/Sycamore Canyon Preserve to the north so it would still function for wildlife movement of mountain lion, coastal California gnatcatcher, and all other species. The western boundary includes a corridor that is mostly approximately 1,000 feet wide except at the southern edge where it narrows to 400 feet at the stormwater catch basin. This entire area is bordered by managed by the Marine Corps Air Station Integrated Natural Resources Management Plan. In order to retain wildlife movement to the north along the eastern boundary of the project area, a secondary corridor has been included (labeled Secondary B in Figure 5-7a).

Throughout the Habitat Preserve, the following measures will be implemented:

1. Lighting will be directed toward development and shielded away from the Habitat Preserve.
2. Trails will not be in use from dusk to dawn, pets must be on leashes, and will only be used for hiking and biking with the exception of the extreme northeastern trail (approximate 1,200-foot long section) that is already established for equestrian use.
3. Trails will be managed in accordance with the Public Access Plan (PAP) (Appendix T) and disclosed in the Covenants, Codes & Restrictions (CC&Rs):
    a. Only the trail types discussed within the PAP will be allowed;
    b. Unnecessary trails will be abandoned and restored in accordance with the PAP, Preserve Management Plan (PMP), and Upland Restoration Plan; and
    c. Trails will be monitored on a regular basis and protected and maintained in accordance with the PAP and PMP.
4. Trails may be temporarily closed to control unauthorized access.
5. Trails may be closed on a seasonal basis to protect Covered Species in the Habitat Preserve.
6. Streets V and W, which connect the Vineyard Village to Fanita Commons and Orchard Village, shall provide safety lightingthat shall button started with a timer shut-off delay, such that lighting will not permanently be on at night, but only on when needed for emergency purposes or pedestrian safety.

MM-BIO-15 Wildlife Undercrossings. A wildlife undercrossing shall be constructed approximately 400 feet south of the Fanita Ranch Project area within the Cuyamaca Street extension to adequately convey coyotes, mule deer, and smaller-sized wildlife. The wildlife undercrossing shall utilize existing or manufactured topography. The crossing shall be designed to provide a greater than 0.6 openness ratio (calculated as width times height divided by length in meters; see Figures 5-7b and 5-7c, Wildlife Corridors and Crossings). Crossing shall have a raised floor and/or side platform to allow dry passage for wildlife when water is flowing.

In addition, a small 48-inch reinforced concrete pipe culvert and directional curbs intended to allow western spadefoot and other small wildlife to cross under Fanita Ranch Parkway shall reduce permanent indirect impacts to small wildlife species including western spadefoot (Figure 5-7a).

6.6 Standard Conditions

Standard Conditions are measures where compliance with existing laws and regulations shall avoid and minimize impacts to sensitive biological resources.

MM-BIO-16 Land Use Adjacency Guidelines. Mitigation for potential permanent indirect impacts to vegetation communities, wildlife, and jurisdictional resources requires implementation of land use adjacency guidelines, as specified in the Draft Santee Multiple Species Conservation Program (MSCP) Subarea Plan or the project Preserve Management Plan. The City of Santee shall ensure that all project development adjacent to the boundary of the Habitat Preserve shall adhere to the following adjacency guidelines, as outlined in the Draft Santee MSCP Subarea Plan:

- **Drainage** – All developed and paved areas must prevent the release of toxins, chemicals, petroleum products, excess water, exotic plant materials, and other elements that might degrade or harm the natural environment or ecosystem processes within the preserves. This will be accomplished using a variety of methods, including natural detention basins, grass swales, or mechanical trapping devices. The project design shall comply with the Standard Urban Stormwater Management Plan such that storm flows conveyed from the project area do not adversely affect off-site vegetation communities or jurisdictional resources by significantly altering natural hydrologic patterns.
- **Lighting** – Lighting of all developed areas adjacent to the Habitat Preserve shall be directed away from the Habitat Preserve wherever feasible and consistent with public safety. Low-pressure sodium lighting shall be used whenever possible.

- **Noise** – Uses adjacent to the Habitat Preserve shall be designed to minimize noise impacts. Berms or walls shall be constructed adjacent to commercial areas and any other use that may introduce noises that could affect or interfere with wildlife utilization of the Habitat Preserve.
- **Invasive species** – No invasive non-native plant or animal species can be introduced into areas immediately adjacent to the Habitat Preserve. All open space slopes immediately adjacent to the Habitat Preserve shall be planted with native species that reflect the adjacent native habitat.
- **Buffers** – There are no requirements for buffers outside the Habitat Preserve, except as may be required for wetlands pursuant to federal and/or state permits or by local agency CEQA [California Environmental Quality Act] mitigation conditions.
- **Fuel modification zones** – Fuel modification zones shall be fully contained adjacent to the project's development. Prior to implementing the project development adjacent to the Habitat Preserve, the local fire authority shall review and approve proposed fuel modification treatments to ensure that no new fuel modification will be required within the Habitat Preserve.

Conformance with the Land Use Adjacency Guidelines listed above shall be made conditions of approval of the Fanita Ranch Project and shall be included in Covenants, Conditions, and Restrictions.

MM-BIO-17 **Stormwater Pollution Prevention Plan.** The applicant shall prepare a stormwater pollution prevention plan (SWPPP). The SWPPP shall include, at a minimum, the best management practices listed below. The combined implementation of these requirements shall protect adjacent habitats and special-status species during construction to the maximum extent practicable with the goal of providing multiple beneficial uses. At a minimum, the following measures and/or restrictions shall be incorporated into the SWPPP and noted on construction plans, where appropriate, to avoid impacts on special-status species, sensitive vegetation communities, and/or jurisdictional aquatic resources during construction. The project biologist shall verify the implementation of the following design requirements:

1. Fully covered trash receptacles that are animal-proof and weather-proof shall be installed and used by the operator to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Littering shall be prohibited, and trash shall be removed from construction areas daily. All food-related trash and garbage shall be removed from the construction sites on a daily basis.
2. Pets on or adjacent to construction sites shall not be permitted by the operator.

3. Any equipment or vehicles driven and/or operated shall abide by a speed limit of 15 miles per hour during daylight hours and 10 miles per hour during dark hours.
4. Construction activity shall not be permitted in jurisdictional aquatic resources, except as authorized by applicable law and permit(s), including permits and authorizations approved by the U.S. Army Corps of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board.
5. Temporary structures and storage of construction materials shall not be located in jurisdictional aquatic resources.
6. Staging/storage areas for construction equipment and materials shall not be located in jurisdictional aquatic resources.
7. Any equipment or vehicles driven and/or operated within jurisdictional aquatic resources, as authorized by applicable law and permit(s), shall be checked and maintained by the operator daily to prevent leaks of oil or other petroleum products that could be deleterious to aquatic life if introduced to the watercourse.
8. No stationary equipment, such as motors, pumps, generators, and welders, or fuel storage tanks, shall be located within jurisdictional aquatic resources.
9. No debris, bark, slash sawdust, rubbish, cement, or concrete, or washing thereof; oil; or petroleum products shall be stored where it may be washed by rainfall or runoff into jurisdictional aquatic resources.
10. When construction operations are completed, any excess materials or debris shall be removed from the work area according to the conditions outlined within the permit(s).
11. No equipment maintenance shall be performed within or near jurisdictional aquatic resources, where petroleum products or other pollutants from the equipment may enter these areas.

MM-BIO-18 **Approved Biologist.** To prevent inadvertent disturbance to areas outside the limits of grading, all grading locations shall be monitored by a biologist. Prior to the issuance of any grading permit for areas adjacent to open space, the project applicant shall retain a City-approved biologist for monitoring activities. The biologist shall monitor all grading and other significant ground-disturbing activities in or adjacent to open space areas. The biologist shall monitor these activities to ensure that the project applicant complies with the appropriate Standard Conditions and Mitigation Measures, including the following:

1. Prior to the commencement of clearing and grading operations or other activities involving significant soil disturbance, all open space areas shall be

identified with temporary fencing or other markers clearly visible to construction personnel.

2. A contractor education program shall be implemented for all workers and subcontractors and shall include a description of environmental restrictions relevant to construction and the penalties for violations. A chain of command and protocol for communicating problems or potential construction changes that may affect biological resources shall be established with the contractor and the City of Santee. Workers shall be made aware of what resources require protection through the use of photos or on-the-ground demonstration.
3. A monitoring biologist acceptable to the City of Santee shall be on site during any clearing of natural vegetation (i.e., annual ground cover, shrubs, or trees). The monitoring biologist shall flush special-status species (i.e., avian or other mobile species) from occupied habitat areas immediately prior to brush-clearing and earth-moving activities.
4. Following the completion of initial clearing/grading/earth-movement activities, all open space areas to be avoided by construction equipment and personnel shall be marked with temporary fencing and other appropriate markers clearly visible to construction personnel. No construction access, parking, or storage of equipment or materials shall be permitted within such marked areas.
5. In areas bordering the open space area, vehicle transportation routes between cut-and-fill locations shall be restricted to a minimal number during construction consistent with project construction requirements. Waste dirt or rubble shall not be deposited on adjacent protected habitats. Regular preconstruction meetings involving the monitoring biologist, construction supervisors, and equipment operators shall be conducted and documented to ensure maximum practicable adherence to these measures.
6. Verify that the construction site is implementing the following stormwater pollution prevention plan best management practices:
    a. dust-control fencing,
    b. removal of construction debris and a clean work area,
    c. covered trash receptacles that are animal-proof and weather-proof,
    d. prohibition of pets on the construction site, and
    e. a speed limit of 15 miles per hour during the daylight and 10 miles per hour during dark hours.

7. Open space areas located within the likely dust drift radius of construction areas shall be periodically sprayed with water to reduce accumulated dust on the leaves, as recommended by the monitoring biologist.
8. Oversee the construction site so that cover and/or escape routes for wildlife from excavated areas shall be provided on a daily basis. All steep trenches, holes, and excavations during construction shall be covered at night with backfill, plywood, metal plates, or other means, and the edges covered with soils and plastic sheeting such that small wildlife cannot access them. Soil piles shall be covered at night to prevent wildlife from burrowing in. The edges of the sheeting shall be weighed down by sandbags. These areas may also be fenced to prevent wildlife from gaining access. Exposed trenches, holes, and excavations shall be inspected twice daily (i.e., each morning and prior to sealing the exposed area) by a qualified biologist to monitor for wildlife entrapment. Excavations shall provide an earthen ramp to allow for a wildlife escape route.

MM-BIO-19 **Habitat Preserve Protection.** In order to help protect against incursions by domestic pets, children, or recreationists, brush management zones, temporary impact zones between roadways, manufactured slopes in development areas, and open space shall be planted with cactus species, poison oak, stinging nettle, and redberry buckthorn as appropriate. Cactus shall be planted so that it does not hinder fire access, but will be clustered so that it discourages or inhibits encroachment. An added benefit is that these areas eventually could support coastal cactus wren. Suitable areas, acreages, and methods are addressed within the Preserve Management Plan.

MM-BIO-20 **Wildlife Protection.** In order to generally protect wildlife species, the following measures shall be implemented during construction:

1. Adequate fencing shall be erected to guide human users away from open space areas where open space abuts roads, parks, and trails. Fencing locations shall be shown on the Construction Plans.
2. Covenants, Conditions, and Restrictions shall include a section that forbids collection of native wildlife (e.g., coast horned lizards, toads, snakes) without obtaining the necessary collection permits from California Department of Fish and Wildlife.
3. Covenants, Conditions, and Restrictions shall include a notice describing the necessary role that coyotes, bobcats, and rattlesnakes have in the environment and shall make recommendations for keeping pets and pet food indoors and

safe, and restrictions against controlling these and other native species unless there is a threat to life or property.

4. Covenants, Conditions, and Restrictions shall include a notice describing the trail and preserve restrictions.
5. Road signs, speed bumps, or other traffic-calming devices shall be employed along the residential collectors Streets V and W to allow wildlife to cross more safely (Figures 5-7b and 5-7c). The posted speed limit on these streets shall be 25 miles per hour.

MM-BIO-21 Weed Control Treatments. Weed control treatments shall include all legally permitted chemical, manual, and mechanical methods applied with the authorization of the County of San Diego agriculture commissioner. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a pest control advisor and implemented by a licensed applicator. Where manual and/or mechanical methods are used, disposal of the plant debris shall follow the regulations set by the County of San Diego agriculture commissioner. The timing of the weed control treatment shall be determined for each plant species in consultation with the pest control advisor, the County of San Diego agriculture commissioner, and the California Invasive Plant Council with the goal of controlling populations before they start producing seeds. Additionally, the herbicides used during landscaping activities shall be contained within the proposed impact footprint.

MM-BIO-22 Fire Protection Plan. To minimize the potential exposure of the project area to fire hazards, all features of the Fire Protection Plan for the Fanita Ranch Project shall be implemented in conjunction with development of the project (Dudek 2020).

MM-BIO-23 Argentine Ant Control and Monitoring. Upon initiating construction, including landscaping within the development area, quarterly monitoring by a qualified biologist shall be initiated for Argentine ants along the development–Habitat Preserve interface at sentinel locations where invasions could occur (e.g., where moist microhabitats that attract Argentine ants may be created). A qualified biologist shall determine the monitoring locations. Ant pitfall traps, bait sampling, or similarly appropriate sampling method will be placed in these sentinel locations and operated on a quarterly basis to detect invasion by Argentine ants. If Argentine ants are detected during monitoring, direct control measures will be implemented immediately to help prevent the invasion from worsening. These direct controls may include but are not limited to nest/mound insecticide treatment or available natural control methods being developed. A general reconnaissance of the infested area

would also be conducted to identify and correct the possible source of the invasion, such as uncontrolled urban runoff, leaking pipes, or collected water. Quarterly monitoring reports, as needed, shall be submitted to the City of Santee Development Services Department. Monitoring reports shall include remedial recommendations and issue resolution discussions when necessary. Monitoring and control of Argentine ants would occur in perpetuity and is included in the Preserve Management Plan (Appendix P). See Appendix P for details on monitoring methods and control of Argentine ants within the Habitat Preserve.

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APPENDIX A

2004 Focused Quino Checkerspot Butterfly Survey Report

June 16, 2004 4151-01

Mr. Daniel Marquez
U. S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92009

Subject: ***Quino Checkerspot Butterfly Survey for the Fanita Ranch Project, City of Santee, California***

Dear Mr. Marquez:

This report documents the results of a focused survey conducted by Dudek & Associates, Inc. (Dudek) for the federally-listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) on the Fanita Ranch project study area in the City of Santee, California. Surveys for adult QCB were conducted throughout the project area at least once per week during the flight season from 8 March to 11 April 2004. In addition, four other higher potential areas were surveyed on 25 April and 2 May 2004 A total of 158 survey visits were made to accomplish the focused survey. The survey area covered approximately 2,421 acres of potentially suitable habitat (*e.g.*, native habitat with open areas and cryptobiotic soil crusts) within the approximate 2618-acre Fanita Ranch project area.

PROJECT LOCATION AND EXISTING CONDITIONS

Fanita Ranch, including the alignment of Fanita Parkway south to Carlton Oaks Boulevard, and the Street extension, is situated in the northwestern portion of the City of Santee in western San Diego County, California (*Figure 1*). The site is bordered by the Sycamore Canyon County Park and other open space to the north and east, by residential development to the south and east, and by vacant land on Miramar Naval Air Station to the west. The property lies approximately 3 miles northeast of State Route 52, and occupies portions of four U.S. Geological Survey 7.5 minute quadrangles: San Vicente Reservoir, El Cajon, La Mesa, and Poway (*Figure 2*).

The soils, topography, and vegetation of the site are heterogeneous. Elevations range from about 500 to 1,204 feet above mean sea level. The project area currently is open space supporting disturbed and undisturbed native plant communities. The site supports a complex system of dirt roads and trails, many of which receive illegal use from off-road vehicle traffic. Some of the dirt roads provide necessary access to power transmission towers. Recent fires have diminished the habitat value of much of the native shrublands onsite, at least temporarily converting coastal sage scrub to non-native grassland.

According to Bowman (1973), soils onsite mostly are loams, including Redding series (ReE, RfF), Cieneba series (CmE2), Las Posas series (LrE), Las Flores series (LeC), Visalia series (VbB), and Wyman series (WmC) (*Figure 3*). Two clay-loam complexes, Diablo-Olivenhain series (DoE) and Linne series (LsE), are present in the southeastern portion of the site. Redding soils support vernal pools to the west on Naval Air Station Miramar (Wier and Bauder 1991), and Los Posas soils support sensitive plant species at some locations in western San Diego County.

A single series of clay soils, Bosanko clay (BsC), is present in the north-central and eastern north-central portions of the property. Onsite, this soil type mostly supports annual grassland. Significant rock outcrops also are present onsite, particularly in the northern and northeastern portions of the property.

Vegetation Communities

Based on species composition and general physiognomy, twenty-one vegetation types and land covers occurred within the project study area prior to the October 2003 fire. These areas were mapped in 1997/1998 and rechecked in the summer of 2003, prior to the fire.

Acreages of vegetation communities and land covers within the project area (prior to the 2003 fire)are presented in *Table 1*. Vegetation communities are described following the table (Please note that these discussions relate to the 1997/8 habitat survey).

TABLE 1
1997 ACREAGES BY HABITAT TYPE

Vegetation Community	Acreage
Coastal sage scrub	546 acres
Coastal sage scrub/Valley needlegrass grassland	10 acres
Disturbed coastal sage scrub	478 acres
Disturbed coastal sage scrub/Annual grassland	229 acres
Disturbed coastal sage scrub/Broom baccharis scrub	7 acres
Disturbed coastal sage scrub/Valley needlegrass grassland	42 acres
Broom baccharis scrub	9 acres
Southern mixed chaparral	619 acres
Coast live oak woodland	9 acres
Southern willow scrub	2 acres

TABLE 1
1997 ACREAGES BY HABITAT TYPE

Vegetation Community	Acreage
Coast and valley freshwater marsh	1 acre
Southern coast live oak riparian forest	11 acres
Sycamore alluvial woodland	15 acres
vernal pool	<1 acre
Valley needlegrass grassland	174 acres
Annual grassland	219 acres
Ruderal	75 acres
Revegetation	35 acres
Ornamental plantings	4 acres
Disturbed habitat	104 acres
Developed	3 acres
TOTAL	**2,592 acres**

Coastal Sage Scrub

Coastal sage scrub is a native plant community composed of a variety of soft, low; aromatic shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia spp.*), with scattered evergreen shrubs, including lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and toyon (*Heteromeles arbutifolia*). It typically develops on south-facing slopes and other xeric situations.

Onsite, coastal sage scrub is variable. Much of it is dominated by California sagebrush and flat-top buckwheat, with laurel sumac, redberry (*Rhamnus crocea*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), San Diego County viguiera (*Viguiera laciniata*), toyon, and bush monkeyflower (*Mimulus aurantiacus*) as lesser components. In the southern portion of the site, a few patches are dominated by white sage; in the north, red berry (*Rhamnus crocea*) is the dominant shrub in some areas. This community supports a diverse understory of native herbs and forbs, including virgate tarplant (*Holocarpha virgata*), deerweed (*Lotus scoparius*), blue dicks (*Dichelostemma capitata*), Cleveland's shooting-star (*Dodecatheon clevelandii*), blue-eyed grass

(*Sisyrinchium bellum*), canchalagua (*Centaurium venustum*), and several species of grasses, both native and introduced. The primary introduced grass is slender wild oat (*Avena barbata*).

Large portions of the site that probably historically supported coastal sage scrub have been disturbed severely or repeatedly by fire or other activities. These areas include a much higher percent cover of non-native grasses and a lower density of native shrubs. Where native shrub density was greater than 20 percent, the habitat was mapped as coastal sage scrub; where native shrub density was 11-20 percent, the habitat was mapped as disturbed coastal sage scrub. Where native shrub density was 5-10 percent, the habitat was mapped as disturbed coastal sage scrub/annual grassland.

Broom Baccharis Scrub

Broom baccharis scrub is not recognized as a native plant community by Holland (1986). Nonetheless, it is a distinct vegetational association in southern California, dominated by broom baccharis (*Baccharis sarothroides*), usually with a few scattered individuals of other native shrub species. It frequently is a successional community that occurs in more mesic sites and along drainages where coastal sage scrub or chaparral has been eliminated by perturbation.

Onsite this habitat is characterized by nearly uniform stands of broom baccharis with a few other native shrubs in low density, including California sagebrush, flat-top buckwheat, Mexican elderberry (*Sambucus mexicanus*), and a variety of non-native herbs and grasses.

Southern Mixed Chaparral

Southern mixed chaparral is a drought-and fire-adapted community of woody shrubs, 1.5-3.0 m tall, frequently forming dense, impenetrable stands. It develops primarily on mesic north-facing slopes and in canyons, and is characterized by crown- or stump-sprouting species that regenerate following burns or other ecological catastrophes. This association is typically a mixture of chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicolor*), ceanothus (*Ceanothus spp*.), scrub oak (*Quercus berberidifolia*), laurel sumac (*Malosma laurina*), and black sage.

Onsite, southern mixed chaparral is common in the northern portion of the property at higher elevations. There is little or no understory in this community, except in openings. Characteristic shrubs onsite include chamise, black sage, laurel sumac, coastal spicebush (*Cneoridium Dumosum*), and mission manzanita. Understory species include dark-tipped bird's-beak (*Cordylanthus rigidus*), rush-rose (*Helianthemum scoparium*), and ashy spike-moss (*Selaginella cinerascens*).

Coast live Oak Woodland

According to Holland (1986), coast live oak woodland is a broad-leaved, sclerophyllous woodland dominated by a single evergreen species -coast live oak (*Quercus agrifolia*). Canopy height ranges from 10-25 m. The shrub layer is poorly developed, and the herb component is dominated by a variety of introduced taxa.

Onsite, coast live oak woodland occurs as scattered patches, each of several trees, in the northern portion of the property. Coast live oaks form small homogeneous stands, with a disturbed understory that includes ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), red brome (*Bromus madritensis ssp. rubens*), and slender wild oat. It is contiguous, or nearly so, with some areas of southern coast live oak riparian forest, but slightly higher in elevation, and not associated with a drainage.

Southern Willow Scrub

Holland (1986) describes southern willow scrub as a dense, broad-leafed, winter-deciduous riparian thicket dominated by several species of willow (*Salix spp.*), with scattered emergent Fremont cottonwood (*Populus fremontii*) and western sycamore (*Platanus racemosa*). The closed canopy of this riparian community typically inhibits the development of diverse understory.

Onsite, southern willow scrub is restricted to a small patch in the main drainage of Sycamore Canyon along the western edge of the property just north of the Padre Dam facilities. This patch is dominated by arroyo willow (*Salix lasiolepis*), and black willow (*Salix gooddingii*).

Coastal and Valley Freshwater Marsh

Coastal and Valley freshwater marsh (freshwater marsh) is a wetland habitat type that develops where the water table is at or just above the ground surface, such as around the margins of lakes, ponds, slow-moving streams, ditches, and seepages. It typically is dominated by tall, emergent monocots, such as cattail (*Typha* sp.) and bulrush (*Scirpus* sp.).

On Fanita Ranch, freshwater marsh occurs at a number of disturbed sites where it is represented by small patches of emergent monocots. Most of the freshwater marsh is found along the improved or maintained drainage adjacent to Fanita Parkway and the access road to the upper Santee Lakes. This habitat generally is dominated by alien hydrophytes, including umbrella sedge (*Carex alternifolius*), rabbitsfoot grass (*Polypogon monspeliensis*), toad rush (*Juncus bufonius*), fan-palm (*Washingtonia robusta*), and others.

One distinct area of freshwater marsh that occurs in a relatively natural area adjacent to the Santee Lakes access road is dominated by Mexican rush (*Juncus mexicanus*) and cocklebur (*Xanthium strumarium*). The small area of marsh in the central portion of the site adjacent to sycamore alluvial woodland is actually a swale of Mexican rush and yerba mansa (*Anemopsis californica*).

Southern Coast Live Oak Riparian Forest

Southern coast live oak riparian forest is an open to locally dense evergreen sclerophyllous riparian woodland dominated by coast live oak (*Quercus agrifolia*). According to Holland (1986), it is richer in herbs and poorer in understory shrubs than other riparian communities. It typically occurs in bottomlands and outer floodplains along larger streams, on fine grained, rich alluvium.

Onsite, this community is represented by a broad band of sparsely distributed western sycamore (*Platanus racemosa*) and coast live oak, with scattered individuals of southwestern willow (*Salix gooddingii*) and mule fat (*Baccharis salicifolia*), and an understory that includes poison-oak (*Toxicodendron diversilobum*), flat-top buckwheat, deergrass (*Muhlenbergia rigens*), willowy monardella (*Monardella linoides ssp. viminea*), and several annuals. It occurs along the clearly-defined waterway of Sycamore Creek, and was mapped as subject to Corps of Engineers' jurisdiction.

Sycamore Alluvial Woodland

Sycamore alluvial woodland is an open to moderately closed, winter-deciduous, broad-leaved riparian I woodland, dominated by well-spaced western sycamores (*Platanus racemosa*) with occasional individuals of Mexican elderberry (*Sambucus mexicanus*). The understory usually is comprised of introduced grasses or Baccharis species (Holland 1986).

The large Sycamore Creek drainage supports the bulk of this habitat; however, two other small drainages have this vegetation. In Sycamore Creek, coast live oak is an important component, along with deergrass, mulefat (*Baccharis salicifolia*), wild rye (*Leymus glaucus*), yerba mansa, Mexican rush and poison-oak. Although this habitat at Fanita Ranch does not precisely agree with Holland's description of sycamore alluvial woodland, it is closer to this community than any other Holland category.

Vernal Pool

Vernal pools are generally small, poorly drained depressions that occur in areas of level or gently undulating (mima mound) topography. These ephemeral ponds collect the runoff of winter and spring rains and support a unique biota adapted specifically to these temporary conditions. Once

fairly common and widespread, this community has been reduced by greater than 95 percent of its former acreage in San Diego County.

The vernal pool ecosystem is characterized by a variety of plant and animal species adapted to aquatic conditions that occur for a brief period in the spring following winter rainfall, followed by intense desiccation. This habitat type typically develops in small depressions within mima mound topography on otherwise flat mesas of marine terraces or inland valleys where a semi-impermeable subsoil of clay or hardpan acts to collect runoff, resulting in a "perched water table." Many of the faunal and floral elements of vernal pools occur in no other habitat type.

Vernal pools were observed at two locations onsite. Vernal pool indicator species found in the pools include woolly marbles (*Psilocarphus brevissimus*), graceful hairgrass (*Deschampsia danthonioides*),long-stalk water-starwort (*Callitriche longipedunculata*), grass poly (*Lythrum hyssopifolium*), harvest brodiaea (*Brodiaea jolonensis*), toad rush (*Juncus bufonius*), and pygmy stonecrop (*Crassula aquatica*).

Valley Needlegrass Grassland

Valley needlegrass grassland is a native grassland dominated by perennial bunchgrasses, such as needlegrass (*Nassella spp*.). This plant community typically alternates with coastal sage scrub on some clay soils, often on more mesic exposures and at the bases of slopes, but also may occur in large patches.

Onsite, Valley needlegrass grassland is dominated by non-native grasses, including red brome (*Bromus madritensis ssp. rubens*), soft-chess (*Bromus hordeaceus*), and ripgut grass (*Bromus diandrus*). It is distinguished from non-native grassland by the presence of irregular tussocks of native needlegrass (*Nassella pulchra*). Other native species in these situations include blue-eyed grass (*Sisyrinchium bellum*), morning-glory (*Calystegia macrostegia*), blue dicks, wild onion (*Allium* sp.), Cleveland's shooting-star (*Dodecatheon clevelandii*), Cleveland's golden-star (*Muilla clevelandii*), sanicle (*Sanicula arguta*), dot-seed plantain (*Plantago erecta*), purple owl's-clover (*Castilleja exserta*), and common goldenstar (*Bloomeria crocea*).

Almost all native grasslands onsite are disturbed as indicated by the abundance of invasive non-native species. Grasslands in which at least 5% of the cover consists of Nassella and other native species were considered Valley needlegrass grasslands; all others were mapped as non-native grasslands.

Annual Non-native Grassland

Where the native habitat has been disturbed frequently or intensively by grazing, fire, agriculture, or other activities, the native community usually is incapable of recovering. These areas are characterized by weedy, introduced annuals, primarily grasses, including especially slender wild oat (*Avena barbata*), bromes (*Bromus diandrus, B. madritensis, B. hordeaceus*), mustards (*Brassica and Sisymbrium* spp.), filaree (*Erodium botrys*), and Russian-thistle (*Salsola tragus*). On Fanita Ranch, most of the present-day annual grassland evidently is the result of farming, other mechanical disturbances, or repeated fires.

Ruderal

Ruderal habitat is similar to annual grassland in that alien species predominate over natives and native habitat recovery is unlikely, yet differs in the type of alien species present. Generally, ruderal habitat is characterized by forbs rather than grasses, such as black mustard (*Brasslca nigra*), star-thistle (*Centaurea melitensis*), filaree, sweet-fennel (*Foeniculum vulgare*), etc. One prominent area mapped as ruderal habitat is a dense thicket of giant cane (Arundo donax).

Ornamental Plantings

Ornamental plantings refer to areas where ornamentals and landscaping have been installed. These areas are concentrated around the southern perimeter of the property adjacent to existing development. The primary vegetation in these areas includes eucalyptus (*Eucalyptus* sp.) and pepper- trees (*Schinus* spp.).

Revegetation

Revegetation refers to those areas where native vegetation has been planted on cut and/or fill slopes. These areas are found around the water storage facility in the southwestern portion of the property.

Revegetation areas are heterogenous -some are dominated by native species and others support a large number of exotics. One patch of revegetated habitat north of the facility supports a dense, uniform stand of broom baccharis; the slope south of the facility supports a sparse mix of introduced coastal sage scrub species. Other slopes have a substantial component of Peruvian pepper-tree (*Schinus molle*) and laurel sumac, with few native shrubs.

Disturbed Habitat

Disturbed habitat refers to areas that lack vegetation entirely. These areas generally are the result of severe or repeated mechanical perturbation. Within the property, disturbed habitat includes dirt roads and trails as well as other scrapes, soil test pits, and transmission tower sites.

METHODS

The focused survey for QCB was conducted over 156 weekly visits to the study area from 8 March to 11 April 2004, with two additional surveys on 25 April and 2 May 2004 (*Tables 2a - 2z*). The two additional surveys were conducted in order to check the highest quality portions of the site (Portions of Units 5, 7, 8, and 15). Surveys were conducted by Dudek biologists Anita Hayworth, Ph.D. (AMH; permit #TE781084), Brock Ortega (BAO; permit #TE813545-4), David Flietner (DWF; permit #TE008031-0), Jeff Priest (JDP; permit #TE840619-2), Paul M. Lemons (PLM; permit # TE 051248-1), Kamarul Muri (KJM; permit #TE 051250-0), Michelle Balk (MLB; permit #TE051230-0), Vipul Joshi (VRJ; permit #TE 019949-0) and Dudek sub-consultants Dale Powell (DAP; permit # TE006559-2), and Jun Rong Powell (JRP: permit #TE006559-2). Surveys were conducted according to current USFWS accepted protocol (*i.e.*, *Quino Checkerspot Butterfly, Survey Protocol Information, 2002*). A habitat assessment over the entire study area was conducted concurrently with the initial adult flight survey to determine the extent of suitable habitat within the study area. Subsequent surveys covered only the approximately 2,421 QCB focused survey area containing suitable habitat while unsuitable areas were excluded (*Table 3*). Initially, Dudek was going to only cover portions of the site that previously would have supported QCB (*i.e.*, open habitats, dirt roads, areas that were not covered completely by chaparral or grasses). However, after the 2003 fire burned nearly all of the site, Dudek expanded its survey area to include more of the site. Dudek surveyed areas which would have been considered unsuitable due to dense chaparral, coastal sage scrub, and grasslands but had subsequently burned. These areas were surveyed less rigorously because they would have previously been considered to be unsuitable, but in an effort to cover all open areas they were surveyed. Within areas that were too densely vegetated to be suitable QCB habitat, Dudek surveyed internal ridges and hilltops only.

TABLE 2A
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 1

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/10/04	0745-1430	AMH	70 º F; 1-3 mph winds; 0 % clouds	76 º F; gusts to 10mph winds; 0% clouds

TABLE 2A
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 1

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
2	3/15/04	1000-1500	BAO	70 º F; 3 mph winds; 20% clouds	80 º F; 5mph winds; 70% clouds
2	3/16/04	0900-1400	BAO	73 º F;0 mph winds;0 % clouds	80 º F; 3mph winds; 0% clouds
3	3/26/04	1000-1700	BAO	70 º F; 5mph winds; 50% clouds	65 º F; 3mph winds; 0% clouds
4	3/29/04	0900-1400	BAO	65 º F;0mph winds;0% clouds	90 º F; 3mph winds; 0% clouds
5	4/4/04	0800-1220	BAO	63 º F; 3mph winds; 0% clouds	75 º F; 0mph winds; 20% clouds
5	4/10/04	1230-1600	BAO	68 º F; 0mph winds; 20% clouds	70 º F; 3mph winds; 20% clouds

TABLE 2B
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 2

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1*	3/10/04	0745-1430	AMH	70º F; 1-3 mph winds; 0% clouds	76º F; gusts to 10mph winds; 0% clouds
2	3/15/04	0805-1615	AMH	68ºF; 1-3 mph winds; 0% clouds	80ºF; 1-5 mph winds; 0% clouds
3	3/28/04	1000-1700	VRJ	87º F; 0-5 mph winds; % clouds	91º F; 0-5 mph winds; 0% clouds
4	3/30/04	0715-1350	AMH	71º F; 1-3 mph winds; 0% clouds	83º F; 5-8 mph winds; 0% clouds
5	4/5/04	1000-1700	VRJ	68º F; 0-5 mph winds; 20% clouds	70º F; 5 mph winds; 0% clouds

* Surveys for Week 1 on Units 1 and 2 were conducted simultaneously, please see data in Table for Unit 1.

TABLE 2C
SCHEDULE OF QUINO CHECKERSPOT BUTTERLFY SURVEYS – UNIT 3

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/8/04	1200-1500	BAO	80 º F; 0mph winds; 10% clouds	82 º F; 0mph winds; 10% clouds
1	3/12/04	1100-1300	BAO	67 º F;0 mph winds;50 % clouds	67 º F; 0-5mph winds; 50% clouds
2*	3/15/04	0955-1630	Jun Powell	67 º F; 0mph winds;0 % clouds	69 º F;4 mph winds;0 % clouds
3*	3/23/04	1245-1630	Jun Powell	69 º F;2 mph winds;80 % clouds	61 º F;1 mph winds;30 % clouds
4*	3/27/04	1220-1645	Jun Powell	72 º F;6 mph winds;0 % clouds	68 º F;3 mph winds;0 % clouds

TABLE 2C
SCHEDULE OF QUINO CHECKERSPOT BUTTERLFY SURVEYS – UNIT 3

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
5*	3/31/04	1320-1630	Jun Powell	69 ° F;4 mph winds;10 % clouds	67 °F;5 mph winds; 10% clouds
5*	4/7/04	1020-1340	Jun Powell	65 °;4 mph winds;0 % clouds	71 °F;4 mph winds;20 % clouds
6*	4/10/04	1115-1640	Jun Powell	67 °F;3 mph winds;0 % clouds	67 °F;4 mph winds;0 % clouds

TABLE 2D
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 4

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/11/04	0930-1530	BAO	68 °F; 0mph winds; 50% clouds	76 °F; 3mph winds; 15% clouds
2	3/15/04	0955-1630	Dale Powell	67 °F;0 mph winds;0 % clouds	69 °F;4 mph winds;0 % clouds
3	3/23/04	1245-1630	Dale Powell	69 °F;2 mph winds;80 % clouds	61 °F;1 mph winds;30 % clouds
4	3/27/04	1220-1645	Dale Powell	72 °F;6 mph winds;0 % clouds	68 °F; 3mph winds;0 % clouds
5	3/31/04	1320-1630	Dale Powell	69 °F;4 mph winds;10 % clouds	67 °F;5 mph winds;10 % clouds
5	4/7/04	1020-1340	Dale Powell	65 °F;1 mph winds;0 % clouds	71 °F;3 mph winds;20 % clouds
6	4/10	1115-1640	Dale Powell	67 °F;3 mph winds;0 % clouds	71 °F; 3 mph winds;0 % clouds

TABLE 2E
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 5

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/10/04	1220-1630	BAO	77 °F; 0mph winds; 0% clouds	80 °F; 0mph winds;0 % clouds
2	3/19/04	0900-1500	PML	68-70° F; 1-3 mph winds; 0% clouds	73-75° F; 3-5 mph winds; 10% clouds
3	3/27/04	0900-1500	PML	70° F; 1-3 mph winds; 0% clouds	85° F; 5-7 mph winds. 10 mph gusts; 0% clouds
4	4/4/04	0900-1500	PML	70° F; 2-3 mph winds; 0% clouds	78° F; 6-8 mph winds; 20% clouds
5	4/8/04	1100-1630	PML	73° F; 1-3 mph winds; 70% clouds	76° F; 1-3 mph winds; 60% clouds

TABLE 2F
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 6

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/11/04	0800-1450	JDP	65° F; 0-1 mph winds; 100% clouds (clouds burned off by 0850)	80 ° F; 1-4 mph winds; 0% clouds
2	3/19/04	1035-1735	KLM	68° F; 0-2 mph winds; 20% clouds	72° F; 5 mph winds; 0% clouds
3	3/24/04	1030-1630	KLM	76° F; 2-4 mph winds; 100% clouds	72° F; 2-6 mph winds; 100% clouds
4	4/2/04	1020-1230	KLM	69° F; 2-3 mph winds; 0% clouds	77° F; 6-9 mph winds; 20% clouds
5	4/8/04	1000-1600	KLM	74° F; 0-2 mph winds; 100% clouds	74° F; 4-7 mph winds; 60% clouds

TABLE 2G
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 7

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/9/04	0900-1515	JDP	76° F; < 1 mph winds; 20% clouds	82° F; 3-7 mph winds; 10% clouds
2	3/16/04	0900-1530	VRJ	70° F; 0-3 mph winds; 0% clouds	73° F; 3-5 mph winds; 0% clouds
3	3/26/04	1050-1630	AMH	68° F; 6-9 mph winds; 0% clouds	70° F; 5-7 mph winds; 0% clouds
4	3/30/04	0800-1500	VRJ	82° F; 0-3 mph winds; 0% clouds	84° F; 0-8 mph winds; 0% clouds
5	4/11/04	1345-1700	Dale & Jun Powell	88 ° F;5 mph winds;0 % clouds	75 ° F;7 mph winds;0 % clouds

TABLE 2H
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVYES – UNIT 8

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/9/04	0945-1500	KLM	78° F; 0-1 mph winds; 0% clouds	84° F; 4-6 mph winds; 0% clouds
2	3/16/04	0940-1445	JDP	74 ° F; 0-1 mph winds; 0% clouds	78 ° F; 1-4 mph winds; 0% clouds
3 (1st part)	3/24/04	1045-1430	JDP	74 ° F; 0-1 mph winds; 90% haze	76 ° F; 4-6 mph winds; 70% haze
3 (2nd part)	3/28/04	1245-1415	JDP	94 ° F; 1-3 mph winds with gusts to 7 mph; 0% clouds	95 ° F; 2-4 mph winds with gusts to 7 mph; 0% haze
4	3/30/04	0930-1415	JDP	80 ° F; mph 0-3 winds; 0% clouds	85° F; 4-7 mph winds; 20% clouds

TABLE 2H
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVYES – UNIT 8

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
5	4/7/04	1000-1530	JDP	86 ° F; 2-4 mph winds with gusts to 6 mph; 15% clouds	81 ° F; 4-8 mph winds; 60% clouds

TABLE 2I
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 9

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/12/04	1200-1615	KLM	78° F; 3-5 mph winds; 0% clouds, hazy	70° F; 0-2 mph winds; 0% clouds
2			BAO	Combined with Unit 1. Please see Unit 1 Table for Dates, Hours, and Conditions.	
3			BAO	Combined with Unit 1. Please see Unit 1 Table for Dates, Hours, and Conditions.	
4			BAO	Combined with Unit 1. Please see Unit 1 Table for Dates, Hours, and Conditions.	
5			BAO	Combined with Unit 1. Please see Unit 1 Table for Dates, Hours, and Conditions.	

TABLE 2J
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 10

Week	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/14/04	1500-1745	MLB	74° F; 1-3 mph winds; 0% clouds	61° F; 1-3 mph winds; 0% clouds
1	3/16/04	0955-1630	Dale Powell	76 ° F;3 mph winds;0 % clouds	71 ° F;4 mph winds;0 % clouds
2	3/25/04	0930-1630	Dale Powell	67 ° F;1 mph winds;0 % clouds	72 ° F; 4mph winds;0 % clouds
3	3/30/04	0945-1630	Dale Powell	74 ° F;1 mph winds;0 % clouds	74 ° F; 2mph winds;0 % clouds
4	4/4/04	1045-1555	Dale Powell	70 ° F;5 mph winds;15% clouds	71 ° F;4 mph winds;15 % clouds
5	4/9/04	1050-1700	Dale Powell	68 ° F;5 mph winds;0 % clouds	72 ° F;4 mph winds;0 % clouds

TABLE 2K
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 11

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/13/04	1330-1730	MLB	64 ° F; 0-3 mph winds; 0% clouds	60° F; 5-8 mph winds; 0% clouds
2	3/20/04	0918-1555	AMH	66° F; 0-1 mph winds; 0% clouds	83° F; 1-8 mph winds; 0% clouds
3	3/25/04	0905-1535	AMH	68° F; 1-3 mph winds; 0% clouds	80° F; 6-9 mph winds; 0% clouds

TABLE 2K
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 11

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
4	3/29/04	1045-1615	AMH	90° F; 0-1 mph winds; 0% clouds	76° F; 3-8 mph winds; 0% clouds
5*	4/9/04	0950-1720	AMH	84° F; 3-5 mph winds; 0% clouds	76° F; 3-8 mph winds; 0% clouds
5 (2nd part)	4/11/04	1015-1230	AMH	78° F; 1-3 mph winds; 0% clouds	84° F; 3-5 mph winds; 0% clouds

* Also part of Unit 12.

TABLE 2L
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 12

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/12/04	1045-1700	PML	74° F; 0-1 mph winds; 50% clouds	72° F; 3-5 mph winds; 100% clouds
2	3/16/04	0800-1545	AMH	67° F; 1-3 mph winds; 0% clouds	78° F; 3-5 mph winds; 0% clouds
3	3/27/04	0910-1605	AMH	71° F; 1-3 mph winds; 0% clouds	86° F; 5-10 mph winds; 0% clouds
4 (1st part)	4/2/04	1000-1300	AMH	69° F; 1-3 mph winds; 60% clouds	65° F; 5-10 mph winds; 100% clouds
4 (2nd part)	4/4/04	1045-1530	AMH	74° F; 3-6 mph winds; 0% clouds	71° F; 8-125-10 mph winds; 0% clouds
5*	4/9/04	0950-1720	AMH	84° F; 3-5 mph winds; 0% clouds	76° F; 3-8 mph winds; 0% clouds

TABLE 2M
SCHEDULE OF QUINO CHECKERSPOT BUTERFLY SURVEYS – UNIT 13

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/10/04	0900- 1620	D. Flietner	67° F;0 - 3 mph winds; 0% clouds	75 ° F; 0 - 3mph winds; 10% clouds
1	3/1/04	1120- 1200	D. Flietner	70° F; 3 - 7 mph winds; 70% lt clouds	70 ° F; 3 - 7 mph winds; 70% lt clouds
2	3/19/04	1330-1730	MLB	77° F; 0-5 mph winds; 0% clouds	62 ° F; 0-2 mph winds; 0% clouds
3	3/26/04, 3/28/04	1200-1700, 1330-1630	MLB	74 ° F; 0-9 mph winds; 25% clouds; 97° F; 0-6 mph winds; 0% clouds	64 ° F;0-4 mph winds; 0% clouds; 89° F; 0-2 mph winds; 0% clouds
4	4/6/04	1330-1800	MLB	85° F; 0-13 mph winds; 0% clouds	70° F; 0-7mph winds; 0% clouds

TABLE 2M
SCHEDULE OF QUINO CHECKERSPOT BUTERFLY SURVEYS – UNIT 13

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
5	4/18/04	1300-1700	Dale & Jun Powell	72 ºF;4 mph winds; 5% clouds	66 ºF;7 mph winds;0 % clouds

TABLE 2N
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 14

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/11/04	0830-1545	PML	70º F; 0-1 mph winds; 0% clouds	85-88º F; 2-4mph winds; 0% clouds
2	3/16/04	0955-1630	Jun Powell	76 ºF;3 mph winds;0 % clouds	71 ºF; 4mph winds;0 % clouds
3	3/25/04	0930-1630	Jun Powell	67 ºF;1 mph winds;0 % clouds	72 ºF;4 mph winds;0 % clouds
4	3/30/04	0945-1630	Jun Powell	74 ºF;1 mph winds;0 % clouds	74 ºF;2 mph winds;0 % clouds
5	4/4/04	1045-1555	Jun Powell	70 ºF;5 mph winds;15 % clouds	71 ºF;4 mph winds;15 % clouds
5	4/9/04	1050-1700	Jun Powell	68 ºF;5 mph winds;0 % clouds	72 ºF;4 mph winds;0 % clouds

TABLE 2O
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 15

Week	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/10/04	0830-1630	PML	75º F; 1-2mph winds, 6-7 mph gusts; 0% clouds	85º F; 2-4mph winds; 0% clouds
2	3/13/04	1330-1700	BAO	68 ºF; 0mph winds;50 % clouds	76 ºF;3 mph winds;15 % clouds
2	3/14/04	1000-1500	BAO	65 ºF; 3mph winds;0 % clouds	75 ºF;5 mph winds;0 % clouds
2	3/19/04	0945-1545	Dale Powell & Jun Rong Powell	69 ºF; 2mph winds;0 % clouds	74 ºF; 2mph winds;0 % clouds
3	3/21/04	1100-1500	BAO	75 ºF;0 mph winds;20 % clouds	75 ºF; 5mph winds;0 % clouds
3	3/24/04	1215-1630	BAO	79 ºF; 3mph winds;50 % clouds	67 º F; 5mph winds;100 % clouds
4	3/27/04	0900-1330	BAO	65 ºF; 3mph winds;20 % clouds	70 ºF; 5mph winds;0 % clouds
4	3/28/04	1000-1500	BAO	85 ºF; 1mph winds;0 % clouds	95 ºF; 3mph winds;0 % clouds
5	4/6/04	1200-1700	BAO	76 ºF;0-5 mph winds;0 % clouds	70 º F; 0-10mph winds; 0% clouds
5	4/11/04	1000-1400	BAO	70 ºF;0 mph winds;20 % clouds	85 ºF; 5mph winds; 0% clouds
6*	4/25/04	1000-1400	BAO	69 ºF;0 mph winds;0 % clouds	90 ºF; 5mph winds;0 % clouds
7*	5/2/04	1000-1400	BAO	75 ºF;0 mph winds;0 % clouds	99 ºF; 5mph winds; 0% clouds

* Search of best areas on Polygons 15, 5, 7, and 8 only.

TABLE 2P
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 16

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/12/04	1030 - 1120; 1200 - 1300	DWF	67° F;0 - 3 mph winds; 50% lt clouds	66° F;3 - 7 mph winds; 95% clouds
1	3/13/04	1015 - 1515	DWF	67° F;0 - 3 mph winds; 50% clouds	75° F; 0 - 2 mph winds; 10% clouds
2	3/17/04	1000 - 1700	DWF	72 ° F; 2 - 5 mph winds; 50% clouds	68 ° F; 0 - 3 mph winds; 30% clouds
3	3/24/04	1030 - 1600	DWF	72° F; 0 - 2 mph winds; 90% clouds	66 ° F; 0 -2 mph winds; 100% clouds
3	3/25/04	0930 - 1145	DWF	68° F; 0-2 mph winds;30 % clouds	73 ° F; 0-5mph winds;20 % clouds
4	3/31/04	1030-1730	DWF	66° F; 3-6 mph winds; 50% clouds	63° F; 0-3 mph winds; 50% clouds
5	4/6/04	1100-1800	DWF	65° F; 3-6 mph winds; 5% clouds	68° F; 0 mph winds; 0% clouds

TABLE 2Q
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 17

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/10/04	0900-1630	VRJ	67° F; 0-3 mph winds; 0% clouds	75° F; 3-5 mph winds; 20% clouds
2 3	3/17/04 , 3/21/04	1100-1800, 1000-1400	MLB	85° F; 0-6 mph winds; 0% clouds; 72° F; 0-1 mph winds; 50% clouds	69° F; 0-2 mph winds; 0% clouds; 74° F; 0-7 mph winds; 0% clouds
3	3/24/04	1030-1530	MLB	74° F; 0-4 mph winds; 100% clouds	61 ° F; 0-4 mph winds; 100% clouds
4	4/3/04, 4/5/04, 4/7/04	1245-1430, 1530-1830, 1400-1730	MLB	66-72 ° F; 0-6 mph winds; 75% clouds; 80° F; 5-12 mph winds; 0% clouds; 71 ° F; 0-5 mph winds; 50% clouds	66-72° F; 10-20 mph winds; 100% clouds; 61° F; 0-4 mph winds; 0% clouds; 60 ° F; 0-4mph winds; 0% clouds
5	4/18/04	0925-1300	Dale & Jun Powell	60 ° F;1 mph winds;15 % clouds	72 ° F; 4mph winds;5 % clouds

TABLE 2R
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 18

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/12/04	1000-1230 1430-1700	VRJ	85° F; 0-3 mph winds; 60% clouds	72° F; 3-5 mph winds; 0% clouds
2	3/18/04	1115-1700	KLM	84° F; 0-6 mph winds; 0% clouds	69° F; 0-2 mph winds; 0% clouds
3	3/22/04	1145-1645	KLM	77° F; 2-5 mph winds; 0% clouds	68° F; 8-9 mph winds; 100% clouds
4	3/31/04	1000-1600	KLM	74° F; 4-6 mph winds; 100% clouds	69° F; 5-8 mph winds; 90% clouds
5	4/11/04	0940-1330	Dale & Jun Powell	68 ° F;1 mph winds;0 % clouds	85 ° F;6 mph winds;0 % clouds

TABLE 2S
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 19

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/9/04	0930-1645	Dale Powell	77° F; 0mph winds; 0% clouds	80 ° F; 4 mph winds; 0% clouds
2	3/18/04	0950- 1730	DWF	66 ° F; 0 - 2 mph winds; 50% clouds	65° F; 0- 2 mph winds; 20% clouds
3	3/26/04	1045-1115; 1330-1715	DWF	66° F; 5- 7 mph winds; 50% clouds; 71° F; 4 - 7 mph winds; 20% clouds	66 ° F; 5- 7 mph winds; 80% clouds; 63° F; 2 - 5 mph winds; 40% clouds
3	3/28/04	1630-1745	DWF	90° F; 0 - 5 mph winds; 0% clouds	80° F; 0 - 2 mph winds; 0% clouds
4	3/30/04	1000-1730	DWF	82° F; 0-5 mph winds; 5% clouds	74° F; 3-5 mph winds; 20% clouds
5	4/7/04	1030-1600	DWF	71° F; 0-2 mph winds; 20% clouds	66° F; 4-8 mph winds; 20% clouds

TABLE 2T
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 20

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/10/04	0930-1630	Dale Powell	67 ° F;1 mph winds;0 % clouds	70 ° F;1 mph winds; 0% clouds
2	3/17/04	0830-1630	PML	75° F; 0-1 mph winds; 0% clouds	70° F; 2-4 mph winds, 6-7 mph gusts; 30% clouds (haze)
3	3/25/04	0900-1530	PML	72° F; 1-2 mph winds; 0% clouds	78° F; 2-4 mph winds; 5% clouds
4	4/3/04	0930-1500	PML	° F; mph winds; % clouds	° F; mph winds; % clouds

TABLE 2T
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 20

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
5	4/10/04	0930-1500	PML	75° F; 1-2 mph winds; 0% clouds	82° F; 1-3 mph winds; 0% clouds

TABLE 2U
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 21

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/11/04	0920-1630	Dale Powell	67 ° F; 1mph winds; 0% clouds	71 ° F;2 mph winds;0 % clouds
2	3/16/04	0900-1530	PML	70° F; 1-3 mph winds; 0% clouds	78° F; 3-5 mph winds; 0% clouds
3	3/26/04	0930-1530	PML	70° F; 5-7 mph winds; 0% clouds	71° F; 4-6 mph winds; 0% clouds
4	4/2/04	0945-1600	PML	72° F; 3-5 mph winds; 80% clouds	70° F; 3-5 mph winds, 7 mph gusts; 100% clouds
5	4/9/04	0915-1500	PML	77° F; 2-3 mph winds; 0% clouds	79° F; 2-4 mph winds; 0% clouds

TABLE 2V
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 22

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/12/04	1015-1545	Dale Powell	65 ° F;2 mph winds;0 % clouds	74 ° F;3 mph winds;0 % clouds
2	3/17/04	1115-1630	Dale Powell	82 ° F;9 mph winds;0 % clouds	70 ° F;5 mph winds;0 % clouds
3	3/22/04	0950-1600	Dale Powell	65 ° F;2 mph winds;0 % clouds	72 ° F;6 mph winds;0 % clouds
4	3/29/04	0930-1630	Dale Powell	78 ° F;1 mph winds; 0% clouds	86 ° F;4 mph winds; 0% clouds
5	4/6/04	1055-1700	Dale Powell	66 ° F;3 mph winds;20 % clouds	69 ° F;5 mph winds;0 % clouds

TABLE 2W
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 23

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/9/04	0930-1645	Jun Powell	77 ° F; 0mph winds;0 % clouds	80 ° F; 4mph winds;0 % clouds
2	3/18/04	0945-1630	Dale Powell	70 ° F;2 mph winds;0 % clouds	68 ° F; 3mph winds;0 % clouds
3	3/27/04	0920-1200	Dale Powell	66 ° F;3 mph winds;0 % clouds	74 ° F;3 mph winds;0 % clouds

TABLE 2W
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 23

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
4	3/31/04	1045-1245	Dale Powell	67 º F;4 mph winds; 40% clouds	71 º F; 4mph winds; 25% clouds
5	4/6/04	1055-1700	Dale Powell	66 º F;3 mph winds;20 % clouds	69 º F; 5mph winds;0 % clouds

TABLE 2X
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 24

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/10/04	0930-1630	Jun Powell	67 º F;1 mph winds;0 % clouds	70 º F; 1mph winds;0 % clouds
2	3/17/04	1115-1630	Jun Powell	82 º F; 9mph winds; 0% clouds	70 º F; 5mph winds; 0% clouds
3	3/22/04	0950-1600	Jun Powell	65 º F; 2mph winds;0 % clouds	72 º F;6 mph winds;0 % clouds
4	3/29/04	0930-1630	Jun Powell	78 º F;1 mph winds;0 % clouds	86 º F;4 mph winds;0 % clouds
5	4/7/04	1400-1700	Jun Powell	70 º F; 4mph winds;35 % clouds	64 º F;7 mph winds;35 % clouds

TABLE 2Y
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 25

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/11/04	0930-1630	Jun Powell	67 º F;1 mph winds;0 % clouds	71 º F;2 mph winds;0 % clouds
2	3/18/04	0945-1630	Jun Powell	70 º F;2 mph winds;0 % clouds	68 º F; 3mph winds;0 % clouds
3	3/27/04	0920-1200	Jun Powell	66 º F;3 mph winds;0 % clouds	74 º F;3 mph winds; 0% clouds
4	3/31/04	1045-1245	Jun Powell	67 º F;4 mph winds;40 % clouds	71 º F;4 mph winds;25 % clouds
5	4/7/04	1400-1700	Dale Powell	70 º F; 4mph winds; 35% clouds	64 º F;7 mph winds;35 % clouds

TABLE 2Z
SCHEDULE OF QUINO CHECKERSPOT BUTTERFLY SURVEYS – UNIT 26

WEEK	DATE	HOURS	PERSONNEL	STARTING CONDITIONS	ENDING CONDITIONS
1	3/12/04	1015-1545	Jun Powell	65 º F;2 mph winds;0 % clouds	74 º F; 3mph winds;0 % clouds
2 (1st part)	3/17/04	0940-1345	JDP	72 º F; 0-1 mph winds; 0% clouds	83 º F; 0-3 mph winds; 0% clouds
2 (2nd part)	3/21/04	1100-1300	JDP	78 º F; 0-3 mph winds; 0% clouds	82 º F; 2-4 mph winds; 0% clouds
3	3/25/04	0800-1510	JDP	75 º F; 0-1 mph winds; 50% clouds	85 º F; 4-6 mph winds; 0% clouds
*	4/1/04	0900-1200	JDP	66 º F; < 1 mph winds; 100% clouds	66 º F; 1-4 mph winds; 100% clouds
*	4/2/04	1315-1415	JDP	72 º F; 4-6 mph winds with gusts to 8 mph; 100% clouds	71 º F; 3-7 mph winds; 100% clouds
4 (1st part)	4/5/04	1145-1615	JDP	78º F; 1-4 mph winds; 15% clouds	82º F; 4-8 mph winds; 2% clouds
4 (2nd part)	4/6/04	1230-1515	JDP	86 º F; 2-5 mph winds; 5% clouds	86 º F; 3-5 mph winds with gusts to 7 mph; 0% clouds
5	4/13/04	0915-1630	PML	73 º F;2-4 mph winds;0 % clouds	78 º F;3-5 mph winds;0 % clouds

* Cancelled due to inclement weather.

TABLE 3
SURVEYED AREA ACREAGES BY UNIT

UNIT NUMBER	HABITAT TYPE	ACREAGE
Unit 1	CSS	1.5
	DH	1.6
	SMX	7.3
		10.4
Unit 2	AGL	4.3
	CSS	33.0
	DH	2.7
	LOW	0.6
	ORF	6.5
	SMX	71.5

TABLE 3
SURVEYED AREA ACREAGES BY UNIT

UNIT NUMBER	HABITAT TYPE	ACREAGE
	VGL	2.2
	dCSS/AGL	14.8
	dCSS/BBS	1.0
		136.5 (minus approx. 30 acres for dense grass cover)
Unit 3	CSS/SMX	13.5
	DH	0.6
	SMX	9.5
	dCSS/AGL	1.7
		25.2
Unit 4	DH	1.8
	SMX	71.2
	dCSS/AGL	2.8
		75.7
Unit 5	AGL	1.3
	CSS	61.2
	DH	1.6
	LOW	0.4
	ORF	3.0
	SMX	0.1
	VGL	1.2
	dCSS	7.3
	dCSS/BBS	1.2
		77.0
Unit 6	AGL	25.7
	BBS	1.5
	CSS	27.7
	DH	8.9
	LOW	1.4
	ORF	6.5
	SAW	0.2
	VGL	16.1
	dCSS	2.5
	dCSS/AGL	10.7

TABLE 3
SURVEYED AREA ACREAGES BY UNIT

UNIT NUMBER	HABITAT TYPE	ACREAGE
		101.2
Unit 7	CSS	28.8
	DH	0.9
	SMX	47.0
		76.6
Unit 8	AGL	0.1
	CSS	66.8
	DH	0.1
	SMX	9.7
		76.6
Unit 9	CSS	26.7
	DH	2.3
	SMX	11.8
		40.8
Unit 10	CSS	46.5
	DH	1.9
	SMX	69.6
		118.0
Unit 11	AGL	32.5
	CSS	38.8
	DH	4.1
	RUD	0.4
	SAW	13.7
	VGL	12.7
	dCSS/AGL	0.6
		102.8
Unit 12	AGL	2.1
	CSS	86.1
	DH	0.5
	LOW	0.1
	SMX	27.8
		116.5

TABLE 3
SURVEYED AREA ACREAGES BY UNIT

UNIT NUMBER	HABITAT TYPE	ACREAGE
Unit 13	AGL	25.1
	CAM	0.6
	CSS	28.2
	DH	5.2
	DW	0.1
	FWM	0.2
	LOW	0.1
	MFS	0.2
	ORF	0.2
	RUD	1.6
	SAW	1.6
	SMX	3.5
	SWS	1.5
	VGL	31.6
	dCSS	0.9
	dCSS/AGL	0.3
	dCSS/VGL	18.4
		119.0
Unit 14	BBS	1.9
	CSS	31.8
	DH	2.6
	SMX	57.6
	dCSS	21.1
		114.9
Unit 15	Unmapped	42.3
	AGL	2.4
	CSS	0.1
	DH	7.1
	LOW	3.3
	SMX	32.5
	VGL	5.8
	dCSS	32.0
	dCSS/VGL	1.8
		127.3

TABLE 3
SURVEYED AREA ACREAGES BY UNIT

UNIT NUMBER	HABITAT TYPE	ACREAGE
Unit 16	AGL	12.0
	BBS	0.8
	CAM	0.3
	DH	7.1
	VGL	42.8
	dCSS	26.0
	dCSS/AGL	18.0
	dCSS/BBS	0.1
		107.0
Unit 17	AGL	52.2
	BBS	1.4
	CSS	7.4
	DH	3.5
	SWS	0.1
	VGL	7.1
	dCSS	37.4
		108.9
Unit 18	CSS	44.4
	DH	2.5
	dCSS	19.9
	dCSS/AGL	10.5
	dCSS/VGL	21.9
		99.1
Unit 19	CSS	1.0
	CSS/dVGL	0.1
	DH	8.2
	MFS	0.2
	ORN	0.9
	RUD	5.8
	VGL	9.4
	dCSS	79.3
	dCSS/BBS	4.8
		109.2

TABLE 3
SURVEYED AREA ACREAGES BY UNIT

UNIT NUMBER	HABITAT TYPE	ACREAGE
Unit 20	AGL	1.2
	CSS	63.2
	DH	5.2
	VGL	1.7
	dCSS/AGL	2.9
		74.2
Unit 21	AGL	0.1
	CSS	60.1
	CSS/dVGL	28.2
	DH	2.2
	dCSS/VGL	0.8
		91.3
Unit 22	AGL	4.3
	CSS	17.1
	CSS/VGL	9.4
	CSS/dVGL	7.1
	DEV	2.2
	DH	25.4
	NAP	4.3
	ORN	2.7
	RUD	7.4
	RVG	22.8
	VGL	5.0
	dCSS	24.6
		132.3
Unit 23	AGL	4.8
	BBS	2.3
	DH	4.0
	RUD/DH	2.9
	VGL	8.9
	dCSS	51.2
	dCSS/AGL	13.9
		87.8

TABLE 3
SURVEYED AREA ACREAGES BY UNIT

UNIT NUMBER	HABITAT TYPE	ACREAGE
Unit 24	AGL	6.6
	BBS	0.4
	CSS	8.2
	DH	0.9
	RUD/DH	0.6
	dCSS	59.9
	dCSS/AGL	0.6
		77.2
Unit 25	AGL	7.6
	BBS	0.3
	CSS	52.7
	DEV	1.1
	DH	2.6
	NAP	0.1
	ORN	0.5
	RUD/DH	8.1
	RVG	12.2
	VGL	23.0
	dCSS	0.4
		108.5
Unit 26	AGL	21.9
	CSS	33.1
	DH	3.7
	RUD/DH	11.0
	VGL	8.0
	dCSS/AGL	29.5
		107.2
TOTAL		**2,421.0**

The project area was divided into 26 separate survey units (*Figure 3*) for the first pass. After the first pass, it became clear that Units 1 and 9 could be combined because they had not burned and most of the habitat within those Units was too dense to support QCB. Polygons 4 and 7 also had reduced acreage due to intact unburned dense vegetation. In addition, Dale and Jun Rong Powell surveyed Units 3, 4, 10, and 14 and 22, 23, 24, and 25 as single large units between weeks 2

through 5. Thus, the total survey effort for these areas should be used when calculating covered acreage per hour. The survey methodology consisted of slowly walking roughly parallel transects throughout all potential habitat within the survey area (*i.e.*, protocol indicates: sage scrub, open chaparral, grasslands, open or sparsely vegetated areas, hilltops, ridgelines, rocky outcrops, trails and dirt roads). Survey routes were arranged to thoroughly cover the survey area at a rate of no more than 10-15 acres per hour with transects roughly 10-20 meters apart. Ridgeline roads were covered twice per survey by adjacent surveyors.

Surveys were conducted only during acceptable weather conditions (*i.e.*, surveys were not conducted during fog, drizzle, or rain; sustained winds greater than 15 miles per hour measured 4-6 feet above ground level; temperature in the shade at ground level less than 60□ Fahrenheit (F) on a clear, sunny day; or temperature in the shade at ground level less than 70□ F on an overcast or cloudy day). A 200'-scale (1 inch = 200 feet) aerial photographic base (Aerial Access, Inc. January/March 2003) of the project site was used to map any detected QCB or host plants. Binoculars (7x50 and 10x50) were used to aid in detecting and identifying butterfly and other wildlife species.

Surveys were conducted under generally favorable weather conditions (*Tables 2a-2z*). Two surveys on April 1 and 2, 2004, were cancelled due to unsuitable weather conditions (*i.e.*, temperatures below 70□ F on overcast days).

RESULTS

No QCB were detected during the surveys. Numerous dot-seed plantain (*Plantago erecta*), purple owl's clover (*Castilleja exerta*), and owl's clover (*Castilleja* sp.) occurrences within the study area were mapped and are shown on *Figure 3*. These mapped areas represent areas with scattered and sometimes dense populations of these species. Very suitable areas which supported fairly dense populations of plantain occurred at the junction of Survey Units 5, 7, and 8 and in the northeastern portion of Unit 15. These areas also had hilltops and cryptogamic soils present.

The peninsula portion of Survey Unit 15 (planned Magnolia Avenue road extension area) contained large patches of Desert Indian wheat *(Plantago ovata*). These patches were primarily situated on older off-road motorcycle trails, along trail edges, and in other disturbed areas. It almost appeared as though these areas had been seeded with *P. o*vata.

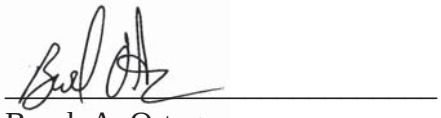
A list of botanical and wildlife species will be sent at a later date under separate cover

CONCLUDING REMARKS

California Natural Diversity Database (CNDDB) forms are not included as there were no QCB detections. Please feel free to call me at (760) 942-5147 if you have any questions regarding the contents of this letter.

Very truly yours,

DUDEK & ASSOCIATES, INC.



Brock A. Ortega
Senior Wildlife Biologist
Permit Number #TE 813545-4

cc: Nick Aurthur, Barratt American Inc.
Mick Pattinson, Barratt American Inc.
Douglas Williford, City of Santee
Jim Whalen, J. Whalen Associates
Jeff D. Priest, Dudek & Associates, Inc.
Anita M. Hayworth, Ph.D., Dudek & Associates, Inc.
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Kam Muri, Dudek & Associates, Inc.
David Flietner, Dudek & Associates, Inc.
Dale Powell/Jun Rong Powell

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APPENDIX A

Flowering Plants and Faunal Compendium

APPENDIX A
FLOWERING PLANTS AND FAUNAL COMPENDIUM

FLOWERING VASCULAR PLANT SPECIES

ANGIOSPERMAE (DICOTYLEDONES)

APIACEAE - CARROT FAMILY

Lomatium sp. – lomatium

ASTERACEAE - SUNFLOWER FAMILY

Ambrosia psilostachya var. *californica* - western ragweed
Artemisia californica - coastal sagebrush
Baccharis salicifolia - mule fat
* *Filago gallica* - narrow-leaf filago
Hemizonia sp. – tarplant
Lasthenia californica - coast goldfields
Lessingia filaginifolia - virgate cudweed aster

BORAGINACEAE - BORAGE FAMILY

Amsinckia menziesii - yellow fiddleneck
Cryptantha sp. –
Plagiobothrys sp. - popcorn flower

BRASSICACEAE - MUSTARD FAMILY

* *Brassica* sp. - *mustard* *Lepidium* sp. – peppergrass
* *Raphanus sativus* - wild radish
* *Sisymbrium* sp. –

CACTACEAE - CACTUS FAMILY

Opuntia littoralis - coastal prickly-pear

CHENOPODIACEAE - GOOSEFOOT FAMILY

* Atriplex semibaccata - Australian saltbush

CONVOLVULACEAE - MORNING-GLORY FAMILY

Calystegia macrostegia - western bindweed

CRASSULACEAE - STONECROP FAMILY

Crassula connata - dwarf stonecrop

CUSCUTACEAE - DODDER FAMILY

Cuscuta californica - California dodder

APPENDIX A
FLOWERING PLANTS AND FAUNAL COMPENDIUM

EUPHORBIACEAE - SPURGE FAMILY

Chamaesyce sp. – spurge

FABACEAE - PEA FAMILY

Astragalus sp. – locoweed
Lotus scoparius – deerweed
Lupinus sp. – lupine

GERANIACEAE - GERANIUM FAMILY

* *Erodium botrys* - broad-lobed filaree
* *Erodium cicutarium* - red-stemmed filaree

HYDROPHYLLACEAE - WATERLEAF FAMILY

Phacelia sp. – phacelia

MALVACEAE - MALLOW FAMILY

Malva parviflora - cheeseweed

NYCTAGINACEAE - FOUR O'CLOCK FAMILY

Mirabilis californica var. *californica* - California wishbone-bush

ONAGRACEAE - EVENING-PRIMROSE FAMILY

Camissonia bistorta - California sun cup

PLANTAGINACEAE - PLANTAIN FAMILY

Plantago erecta - dot-seed plantain

POLYGONACEAE - BUCKWHEAT FAMILY

Eriogonum fasciculatum - California buckwheat

SCROPHULARIACEAE - FIGWORT FAMILY

Castilleja exserta - common owl's-clover

VIOLACEAE - VIOLET FAMILY

Viola pedunculata - johnny jump-up

APPENDIX A
FLOWERING PLANTS AND FAUNAL COMPENDIUM

ANGIOSPERMAE (MONOCOTYLEDONES)

LILIACEAE - LILY FAMILY

Dichelostemma capitata - blue dicks

* signifies introduced (non-native) species

WILDLIFE SPECIES -VERTEBRATES

AMPHIBIANS

BUFONIDAE - TRUE TOADS

Bufo boreas - western toad

HYLIDAE – TREEFROGS

Hyla regilla - Pacific treefrog

REPTILES

IGUANIDAE - IGUANID LIZARDS

Sceloporus occidentalis - western fence lizard
Uta stansburiana - side-blotched lizard

SCINCIDAE – SKINKS

Eumeces skiltonianus - western skink

COLUBRIDAE - COLUBRID SNAKES

Hypsiglena torquata - night snake
Pituophis melanoleucus - gopher snake

VIPERIDAE – VIPERS

Crotalus viridis - western rattlesnake

BIRDS

CATHARTIDAE - NEW WORLD VULTURES

Cathartes aura - turkey vulture

APPENDIX A
FLOWERING PLANTS AND FAUNAL COMPENDIUM

ACCIPITRIDAE – HAWKS

Accipiter cooperii - Cooper's hawk
Buteo jamaicensis - red-tailed hawk
Buteo lineatus - red-shouldered hawk
Circus cyaneus - northern harrier
Elanus caeruleus - white-tailed kite

FALCONIDAE – FALCONS

Falco sparverius - American kestrel

CHARADRIIDAE – PLOVERS

Charadrius vociferus – killdeer

COLUMBIDAE - PIGEONS & DOVES

Columba livia - rock dove
Columbina passerina - common ground-dove
Zenaida macroura - mourning dove

TROCHILIDAE – HUMMINGBIRDS

Calypte anna - Anna's hummingbird
Selasphorus sasi - Allen's hummingbird

PICIDAE – WOODPECKERS

Colaptes auratus - northern flicker
Picoides nuttallii - Nuttall's woodpecker

TYRANNIDAE - TYRANT FLYCATCHERS

Sayornis nigricans - black phoebe
Sayornis saya - Say's phoebe
Tyrannus vociferans - Cassin's kingbird

ALAUDIDAE – LARKS

Eremophila alpestris - horned lark

HIRUNDINIDAE – SWALLOWS

Hirundo pyrrhonota - cliff swallow
Stelgidopteryx serripennis - northern rough-winged swallow

CORVIDAE - JAYS & CROWS

Aphelocoma coerulescens - scrub jay
Corvus brachyrhynchos - American crow
Corvus corax - common raven

AEGITHALIDAE – BUSHTITS

Psaltriparus minimus – bushtit

TROGLODYTIDAE – WRENS

Troglodytes aedon - house wren

MUSCICAPIDAE - KINGLETS, GNATCATCHERS, THRUSHES & BABBLERS

Chamaea fasciata – wrentit
Polioptila californica californica- coastal California gnatcatcher

MIMIDAE – THRASHERS

Mimus polyglottos - northern mockingbird
Toxostoma redivivum - California thrasher

LANIIDAE – SHRIKES

Lanius ludovicianus - loggerhead shrike

STURNIDAE – STARLINGS

* *Sturnus vulgaris* - European starling

EMBERIZIDAE - WOOD WARBLERS, TANAGERS, BUNTINGS & BLACKBIRDS

Agelaius phoeniceus - red-winged blackbird
Aimophila ruficeps - rufous-crowned sparrow
Chondestes grammacus - lark sparrow
Dendroica coronata - yellow-rumped warbler
Euphagus cyanocephalus - Brewer's blackbird
Geothlypis trichas - common yellowthroat
Melospiza melodia - song sparrow
Pipilo crissalis - California towhee
Pipilo erythrophthalmus - spotted towhee
Sturnella neglecta - western meadowlark
Zonotrichia leucophrys - white-crowned sparrow

FRINGILLIDAE – FINCHES

Carpodacus mexicanus - house finch
Carduelis psaltria - lesser goldfinch

MAMMALS

LEPORIDAE - HARES & RABBITS

Lepus californicus bennettii- black-tailed jackrabbit
Sylvilagus bachmani - brush rabbit

SCIURIDAE – SQUIRRELS

Spermophilus beecheyi - California ground squirrel

GEOMYIDAE - POCKET GOPHERS

Thomomys bottae - Botta's pocket gopher

MURIDAE - RATS & MICE

Neotoma sp. - woodrat (midden)

CANIDAE - WOLVES & FOXES

Canis latrans – coyote

PROCYONIDAE - RACCOONS & RELATIVES

Procyon lotor - common raccoon

MUSTELIDAE - WEASELS, SKUNKS, & OTTERS

Mephitis mephitis - striped skunk

CERVIDAE – DEERS

Odocoileus hemionus - mule deer

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

DANAIDAE - MILKWEED BUTTERFLIES

Danaus plexippus – Monarch

HESPERIIDAE – SKIPPERS

Erynnis sp. - unidentified duskywing species

LYCAENIDAE - BLUES, HAIRSTREAKS, & COPPERS

Glaucopsyche lygdamus australis - southern blue
Plebejus acmon - acmon blue

NYMPHALIDAE - BRUSH-FOOTED BUTTERFLIES

Coenonympha tullia - California ringlet
Danaus gilippus – queen
Junonia coenia – buckeye
Vanessa annabella - west coast lady
Vanessa sp.- unidentified lady butterfly

PAPILIONIDAE – SWALLOWTAILS

Papilio rutulus - tiger swallowtail

PIERIDAE - WHITES, SULFURS, MARBLES AND ORANGE-TIPS

Anthocharis sara - sara orange-tip
Pieris rapae - cabbage butterfly
Pontia protodice - common white

RIODINIDAE – METALMARKS

Apodemia mormo virgulti - Behr's metalmark

SATURNIIDAE – SILKMOTHS

Hemileuca sp.(larva) - buckmoth

APPENDIX B

2005 Focused Quino Checkerspot Butterfly Survey Report

October 11, 2005 4151-01

Mr. Daniel Marquez
U. S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92009

Subject: ***Quino Checkerspot Butterfly Survey for the Fanita Ranch Project, City of Santee, California***

Dear Mr. Marquez:

This letter report documents the results of a focused survey conducted by Dudek & Associates, Inc. (Dudek) for the federally-listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) on the Fanita Ranch study area in the City of Santee, California. The results of a QCB habitat assessment on an adjacent 260-acre parcel on Marine Corps Air Station (MCAS) Miramar (Miramar site), under consideration for purchase by the County of San Diego as a potential QCB mitigation site, are also discussed.

The initial habitat assessment and selection of the QCB survey area was conducted on 21 January 2005. Because surveys across the entire property were conducted in 2004, and this site is located in survey area 2, approximately 796 acres of better-quality QCB habitat, including hilltops, ridges, and areas with known host and nectar plants were selected. Surveys for adult QCB were conducted at least once per week during the flight season from 9 March to 17 April 2005, with additional habitat assessments conducted in June and July 2005. Supplementing the 158 survey visits conducted in 2004, an additional 56 survey visits were made over approximately 220 hours to accomplish the focused survey. A single observation of one QCB was made during the survey.

FANITA RANCH PROJECT LOCATION AND EXISTING CONDITIONS

Fanita Ranch, including the alignment of Fanita Parkway south to Carlton Oaks Boulevard, and the Cuyamaca Street extension, is situated in the northwestern portion of the City of Santee in western San Diego County, California (*Figure 1).* The property lies approximately 3 miles northeast of State Route 52. The site is bordered by Sycamore Canyon County Park and other open space to the north and east, by residential development to the south and east, and by vacant land on MCAS Miramar to the west. The site occupies portions of Township 15 South, Range 1 West, projected Sections 2, 3, 4, 8, 9, 10, 16, 17, 20, and 21 on the San Vicente Reservoir, El Cajon, La Mesa, and Poway West U.S. Geological Survey 7.5 minute quadrangle maps (*Figure 2*).

Elevations range from about 320 feet above mean sea level (AMSL) at the southern end of Fanita Parkway to two 1,204 -feet tall peaks in the northeastern part corner of the site. The project site contains a series of northeast to southwest-trending hills and valleys that form a transition between the relatively low, flat Sycamore Canyon on the western end of the site and the foothills of the Peninsular Range to the east. Numerous large rock outcrops also are present onsite, particularly in the northern and northeastern portions of the property.

The project area currently is open space supporting disturbed and undisturbed native plant communities. The site supports a complex system of dirt roads and trails, many of which receive illegal use from off-road vehicle traffic. Some of the dirt roads provide necessary access to power transmission towers. Recent fires have diminished the habitat value of much of the native shrublands onsite, at least temporarily converting coastal sage scrub to non-native grassland.

Soils onsite mostly are loams, including soils in the Redding (ReE, RfF), Cieneba (CmE2), Las Posas (LrE), Las Flores (LeC), Visalia (VbB), and Wyman (WmC) soil series. Two clay-loam complexes, Diablo-Olivenhain series (DoE) and Linne series (LsE), are present in the southeastern portion of the site (Bowman 1973). Redding soils support vernal pools to the west on MCAS Miramar (Wier and Bauder 1991), and Los Posas soils support sensitive plant species at some locations in western San Diego County.

A single series of clay soils, Bosanko clay (BsC), is present in the north-central and eastern north-central portions of the property. Onsite, this soil type mostly supports annual grassland. Significant rock outcrops also are present onsite, particularly in the northern and northeastern portions of the property.

Vegetation communities and land cover mapping, originally conducted in 1997 – 1998, was updated in 2005. Twenty-seven vegetation types and land covers occur within the project site, as shown in *Table 1*. *Figure 3* shows the location of these communities/ of groupings of these communities: grasslands, coastal sage scrub, chaparral, oak woodland, revegetation, riparian, marsh, revegetation, and non-native.

Table 1
Vegetation Communities and Land Cover Types in Project Area

General Group	Vegetation Community and Cover Type	Acreage
Grassland	Annual (Non-native) Grassland	208.9
Grassland	Annual Grassland / Ornamental	19.7
Marsh	Cismontane Alkali Marsh	0.9
	Coastal Sage Scrub - Total	**1344.6**
Coastal Sage Scrub	Broom Baccharis Scrub	8.9

Table 1
Vegetation Communities and Land Cover Types in Project Area

General Group	Vegetation Community and Cover Type	Acreage
Coastal Sage Scrub	Diegan Coastal Sage Scrub	764.3
Coastal Sage Scrub	Coastal Sage Scrub / Southern Mixed Chaparral	13.5
Coastal Sage Scrub	Coastal Sage Scrub / Valley Needlegrass Grassland	9.4
Coastal Sage Scrub	Coastal Sage Scrub / Disturbed Valley Needlegrass Grassland	35.3
Coastal Sage Scrub	Disturbed Coastal Sage Scrub	352.6
Coastal Sage Scrub	Disturbed Coastal Sage Scrub / Annual Grassland	106.0
Coastal Sage Scrub	Disturbed Coastal Sage Scrub / Baccharis Scrub	6.9
Coastal Sage Scrub	Disturbed Coastal Sage Scrub / Valley Needlegrass Grassland	47.7
Non-native	Developed	14.6
Non-native	Disturbed Habitat	107.5
Non-native	Disturbed Wetland	0.3
Marsh	Freshwater and Valley Marsh	0.3
Marsh	Disturbed Freshwater Marsh	0.1
Riparian	Mule Fat Scrub	0.6
Non-native	Ornamental Plantings	5.0
Revegetion	Revegetation	34.9
Non-native	Ruderal	21.9
Non-native	Ruderal/Disturbed Habitat	22.5
Riparian	Southern Coast Live Oak Riparian Forest	16.2
Chaparral	Southern Mixed Chaparral	623.1
Riparian	Southern Willow Scrub	1.9
Riparian	Sycamore Alluvial Woodland	15.5
Grassland	Valley Needlegrass Grassland	175.4
	TOTAL[1]	**2,652.4**

[1] Column may not total precisely due to rounding errors.

A cumulative total of 296 vascular plant species, comprising 233 native species (79%) and 63 non-native species (21%) have been observed on the Fanita Ranch site. These species are listed in *Appendix A*.

FANITA RANCH QCB HABITAT EVALUATION

Methods

On 21 January 2005, shortly after QCB larvae had been observed elsewhere, Dudek biologist Brock Ortega (permit #TE-813545-4), conducted a habitat assessment for QCB larval host and adult nectar plants and selected the QCB survey areas. In 2004, QCB surveys were conducted over the entire Fanita Ranch site (158 field visits), with negative results (Dudek 2004). The site is located in QCB Survey Area 2, which currently only requires one survey prior to development. Therefore it was decided to survey only the better quality QCB habitat areas, based on known host locations, habitat, and nectar plant distribuation vegetation communities, and nectar plant distribution that gave the highest likelihood of detection. Only those areas that supported better potential QCB habitat were selected, including hilltops, ridges, dirt roads, historical host plant patches, large nectar patches, vernal pool areas, and open habitats. Areas that had been occupied by dense chaparral, coastal sage scrub, or grasslands prior to the 2003 Cedar fire were excluded.

This survey is considered to be supplemental to the 2004 survey.

Results

An approximately 796.4-acre survey area was selected and subdivided into eight subareas for the purposes of this survey (*Figure 4*). The vegetation within each of these subareas is shown in *Table 2* and *Figure 5*; the general characteristics of these vegetation communities are discussed below.

Table 2
Vegetation Communities / Land Covers in 2005 QCB Survey Areas

Vegetation Type	Survey Area								Total
	1	2	3	4	5	6	7	8	
Annual (Non-native) Grassland	4.2	36.5	8.0	3.8		0.5	18.6	8.1	79.7
Broom Baccharis Scrub		.	0.6						0.6
Coast Live Oak Woodland	0.4	0.2					3.3		3.9
Coastal Sage Scrub - Total	44.8	53.1	21.6	62.5	6.4	95.1	65.1	62.1	410.7
Broom Baccharis Scrub			0.6						0.6
Coastal Sage Scrub	39.1	46.5	3.1	28.2	4.6	95.1	57.2	1.0	274.8
Coastal Sage Scrub/ Valley Needlegrass Grassland				1.7					1.7

Table 2
Vegetation Communities / Land Covers in 2005 QCB Survey Areas

Vegetation Type	Survey Area								Total
	1	2	3	4	5	6	7	8	
Coastal Sage Scrub/ Disturbed Valley Needlegrass Grassland				6.9					6.9
Disturbed Coastal Sage Scrub		4.9	8.9	19.4	1.8		4.7	53.1	92.8
Disturbed Coastal Sage Scrub/ Annual Grassland	4.7	1.7		4.6				1.4	12.4
Disturbed Coastal Sage Scrub/ Broom Baccharis Scrub	1.0								1.0
Disturbed Coastal Sage Scrub/ Valley Needlegrass Grassland			9.0	1.7			3.2	6.6	20.5
Disturbed Habitat	6.3	7.0	4.2	16.7	6.8	0.1	4.0	7.5	52.6
Developed								2.1	2.1
Revegetation				1.5					1.5
Ruderal		0.4							0.4
Southern Coast Live Oak Riparian Forest	6.4	1.1					0.2		7.7
Southern Mixed Chaparral	31.6				51.1	15.5	49.8	18.4	166.4
Southern Willow Scrub			0.1						0.1
Sycamore Alluvial Woodland		1.4							1.4
Valley Needlegrass Grassland	2.2	28.4	30.7	1.0			7.3	0.3	69.8
TOTAL	**95.8**	**128.2**	**64.6**	**85.5**	**64.3**	**111.2**	**148.3**	**98.5**	**796.4**

Annual Non-native Grassland

Annual (non-native) grassland is characterized by a sparse to dense cover of annual grasses typically up to two feet tall, with many annual wildflowers also present in years with favorable rainfall. This vegetation community typically occurs on fine-textured soils that are moist or wet in the winter and very dry during summer and fall. Plant species present typically include wild oat (*Avena spp.*), bromes (*Bromus* spp.*)*, tarweeds *(Centromadia* spp., *Deinandra* spp.) and filarees (*Erodium* spp.) (Holland 1986). In San Diego County, annual grassland often occurs where the native vegetation has been disturbed by grazing, fire, agriculture, or other activities.

Most of the existing annual grassland onsite evidently is the result of farming, other mechanical disturbances, or repeated fires. Where the disturbance has been frequent and/or intensive, the native vegetation community often does not recover. These areas are characterized by weedy, introduced annuals, primarily grasses, including especially slender wild oat (*Avena barbata*), bromes, mustards (*Brassica* and *Sisymbrium* spp.), filarees, and Russian-thistle (*Salsola tragus*).

Broom Baccharis Scrub

Broom baccharis scrub is not recognized as a native plant community by Holland (1986). It is a distinctive vegetation association in southern California, however, dominated by broom baccharis (*Baccharis sarothroides*) and usually containing scattered individuals of other native shrub species. It frequently is an early successional community that occurs in more mesic sites or along drainages where coastal sage scrub or chaparral have been eliminated by perturbation.
Onsite, this vegetation consists of nearly uniform stands of broom baccharis with a sparse cover of other native shrubs, including California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasiculatum*), and blue elderberry (*Sambucus mexicana*), and non-native herbs and grasses.

Coast Live Oak Woodland

Coast live oak woodland is a broad-leaved, sclerophyllous (stiff, firm-leaved) woodland dominated by coast live oak (*Quercus agrifolia*) trees, that reach from 35 to 80 feet tall. The shrub layer is poorly developed, but may contain native shrubs such as toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), and blue elderberry. A continuous herb layer, dominated by non-native grasses and herbs is typically present. In southern California, coast live oak woodland typically occurs on north-facing slopes and in shaded ravines (Holland 1986).

At Fanita Ranch, coast live oak woodland occurs as scattered patches, each with several trees, in the northern portion of the property. Coast live oaks form small homogeneous stands, with a disturbed understory that includes ripgut grass (*Bromus diandrus*), soft chess (*B. hordeaceus*), red brome (*B. madritensis* ssp. *rubens*), and slender wild oat. It is contiguous, or nearly so, with some areas of southern coast live oak riparian forest, but slightly higher in elevation, and not associated with a drainage.

Coastal Sage Scrub

Diegan coastal sage scrub (coastal sage scrub) is a native plant community composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species such as California sagebrush, California buckwheat, and sages (*Salvia* spp.), with scattered evergreen

shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac and toyon. It typically develops on south-facing slopes and other xeric locations (Holland 1986).

Coastal sage scrub vegetation on Fanita Ranch is dominated by California sagebrush and California buckwheat, with laurel sumac, redberry (*Rhamnus crocea*), white sage (*Salvia apiana*), black sage, San Diego County viguiera (*Viguiera laciniata*), toyon, and bush monkeyflower (*Mimulus aurantiacus*) as lesser components. In the southern portion of the site, some patches are dominated by white sage; in the north, redberry is the dominant shrub in some areas. This community supports a diverse understory of native herbs and forbs, including virgate tarplant (*Holocarpha virgata*), deerweed (*Lotus scoparius*), blue dicks (*Dichelostemma capitata*), Cleveland's shooting-star (*Dodecatheon clevelandii*), blue-eyed grass (*Sisyrinchium bellum*), canchalagua (*Centaurium venustum*), and several species of grasses, both native and introduced. The primary introduced grass is slender wild oat.

Large portions of the site that probably historically supported coastal sage scrub have been disturbed severely or repeatedly by fire or other activities. The history of human and natural disturbances combined with varied environmental conditions such as slope and aspect have resulted in a variety of sub-communities that are different variants of the presumed original Diegan coastal sage scrub vegetation. These communities include coastal sage scrub/ valley needlegrass grassland, coastal sage scrub/ disturbed valley needlegrass grassland, disturbed coastal sage scrub, disturbed coastal sage scrub/ annual (non-native) grassland, and disturbed coastal sage scrub/ valley needlegrass grassland.

Disturbed coastal sage scrub communities contain relatively more non-native grasses and fewer native shrubs. Areas with native coastal sage scrub shrub cover greater than 20 percent are mapped as coastal sage scrub; areas with native shrub cover of 11-20 percent were mapped as disturbed coastal sage scrub; areas with native shrub cover of 5-10 percent were mapped as disturbed coastal sage scrub/annual grassland.

Developed

The paved roadway in the extreme southern part of Fanita Ranch, between Santee Lakes and the residential development is mapped as developed.

Disturbed Habitat

Disturbed habitat refers to land that does not have habitat value for native species due to lawful activities. Disturbed habitat typically includes areas that lack vegetation entirely, generally as the result of severe or repeated mechanical perturbation, and areas dominated by invasive, broadleaved (ruderal) species that typically develop on compacted soils following intense

disturbance. Typical ruderal species in San Diego County include horseweed (*Conyza* spp.), garland chrysanthemum (*Chrysanthemum coronarium*), sow thistle (*Sonchus* spp.) and Russian thistle (County of San Diego 2002).

Unvegetated dirt roads, trails, scrapes, soil test pits, or transmission tower sites at Fanita Ranch are mapped as disturbed habitat.

Revegetation

Revegetation refers to those areas where native vegetation has been planted on cut and/or fill slopes. These areas are found around the water storage facility in the southwestern portion of the property. Revegetation areas are heterogenous - some are dominated by native species and others support a large number of exotics. One patch of revegetated habitat north of the facility supports a dense, uniform stand of broom baccharis; the slope south of the facility supports a sparse mix of coastal sage scrub species. Other slopes have a substantial component of Peruvian pepper-tree (*Schinus molle*) and laurel sumac, with few native shrubs.

Ruderal

Ruderal refers to areas supporting broad-leaved non-native species to the exclusion of native plants. These areas typically form as a result of repeated soil perturbation.

Upland thickets of giant cane (*Arundo donax*) and patches dominated by black mustard (*Brassica nigra*), star-thistle (*Centaurea melitensis*), filaree, or fennel (*Foeniculum vulgare*) are mapped as ruderal

Southern Coast Live Oak Riparian Forest

Southern coast live oak riparian forest is an evergreen riparian woodland dominated by coast live oak. It differs from coast live oak woodland in that it occurs in bottomlands and the outer floodplains of larger streams on fine grained alluvium. It typically contains more herbs but fewer shrubs than other riparian communities (Holland 1986). The structural diversity of southern coast live oak riparian forest and the presence of year-round water make this high quality habitat, with many wildlife species that reside in adjacent scrub foraging in it during the drier season.

Southern coast live oak riparian forest on Fanita Ranch occurs as a broad band of sparsely distributed western sycamore (*Platanus racemosa*) and coast live oak along Sycamore Creek. This community contains scattered Gooding's black willow (*Salix gooddingii*) and mule fat (*Baccharis salicifolia*) and an understory that includes western poison oak (*Toxicodendron diversilobum*), California buckwheat, and deergrass (*Muhlenbergia rigens*).

Southern Mixed Chaparral

Southern mixed chaparral is a drought- and fire-adapted community of woody shrubs from five to ten feet tall that often form dense, impenetrable stands. It develops primarily on mesic north-facing slopes and in canyons, and is characterized by crown- or stump-sprouting species that regenerate following fire. This vegetation community typically contains chamise, mission manzanita (*Xylococcus bicolor*), wild lilac, scrub oak (*Quercus bereberidifolia*), and laurel sumac (Holland 1986).

There is little or no understory in this community at Fanita Ranch, except for in openings. The dominant species in the southern mixed chaparral onsite are chamise, black sage, laurel sumac, coastal spicebush (*Cneoridium dumosum*), and mission manzanita. Understory species include dark-tipped bird's-beak (*Cordylanthus rigidus* ssp. *setiger*), rock-rose (*Helianthemum scoparium*), and ashy spike-moss (*Selaginella cinerascens*).

Southern Willow Scrub

Southern willow scrub is a dense, broad-leafed, winter-deciduous riparian thicket dominated by several species of willow (*Salix* spp.) that occurs on loose, large grained alluvium along stream channels. The closed canopy inhibits the development of a diverse understory. It may contain scattered Fremont cottonwood (*Populus fremontii*) and western sycamore trees emerging above the willow canopy and requires repeated flooding to avoid succession to a community dominated by these trees (Holland 1986).

Onsite, southern willow scrub occurs in the main drainage of Sycamore Canyon along the western edge of the property just north of the Padre Dam facilities. The patches are dominated by arroyo willow (*Salix lasiolepis*) and Gooding's black willow with an understory of mule fat.

Sycamore Alluvial Woodland

Sycamore alluvial woodland is a winter-deciduous, broad-leaved riparian woodland, dominated by well-spaced western sycamore with occasional blue elderberry in the subcanopy. The understory usually is comprised of introduced grasses or mule fat. This community occurs along the braided channels of intermittent streams that may be subject to violent flooding. Sycamores may respond to flood damage or uprooting by vegetative reproduction, giving a clumped appearance to the woodland (Holland 1986).

Most of the sycamore alluvial woodland on Fanita Ranch occurs along the Sycamore Creek drainage, with two tributaries also supporting this vegetation. In Sycamore Creek, coast live oak is an important component, along with deergrass, mulefat, wild rye (*Leymus glaucus*), yerba

mansa (*Anemopsis californica*), yerba mansa, Mexican rush (*Juncus mexicanus*), and western poison oak. Although the vegetation community at Fanita Ranch does not precisely agree with Holland's description of sycamore alluvial woodland, it is closer to this community than any other Holland category.

FANITA RANCH QUINO CHECKESPOT BUTTERFLY SURVEY

Methods

Focused QCB surveys were conducted over 56 visits within a five week period between 9 March and 17 April 2005. Surveys were conducted by Dudek biologists Anita Hayworth, Ph.D. (permit #TE-781084), Brock Ortega (permit #TE-813545-4), David Flietner (permit #TE-008031-0), Jeffrey D. Priest (permit #TE-840619-2), Kamarul Muri (permit #TE-51250-0), Paul M. Lemons (permit # TE-051248-1) and Vipul Joshi (VRJ; permit #TE 019949-0) in accordance with current USFWS protocol (USFWS 2002).

The survey methods consisted of slowly walking roughly parallel transects throughout all potential habitat within the survey area (*i.e.*, protocol indicates: sage scrub, open chaparral, grasslands, open or sparsely vegetated areas, hilltops, ridgelines, rocky outcrops, trails and dirt roads). Survey routes were arranged to thoroughly cover the survey area at a rate of no more than 10-15 acres per hour. Ridgeline roads were covered twice per survey effort by the surveyors in each of the adjacent survey subareas .

Surveys were conducted only during acceptable weather conditions (*i.e.*, surveys were not conducted during fog, drizzle, or rain; sustained winds greater than 15 miles per hour measured 4-6 feet above ground level; temperature in the shade at ground level less than 60^{o} Fahrenheit (F) on a clear, sunny day; or temperature in the shade at ground level less than 70^{o} F on an overcast or cloudy day). A 400-scale (1 inch = 400 feet) aerial photographic base (Aerials Express, Flown May 2004) of the project site was used to map any detected QCB or host plants. Binoculars (7x50 and 10x50) were used to aid in detecting and identifying butterfly and other wildlife species.

Survey times, personnel, and conditions for each of the eight QCB survey subareas are shown in *Table 3.* Photocopies of the surveyor's field notes are included as *Appendix B.*

Results and Discussion

Jeffrey D. Priest observed a single QCB on 9 March 2005 at the top of a knoll in QCB survey subarea 3. A facsimile reporting this occurrence was submitted to USFWS on 17 March 2005 (Dudek 2005) and is included as *Appendix C*. The location of the observed QCB is shown in *Appendix C, Figure 1* and two photographs of the QCB observed are included as *Appendix C,*

Figure 2. The observation was made under slightly breezy conditions while a number of butterfly species were flying northeast to southwest. Only one QCB was detected onsite despite repeated visits to the location and other high likelihood locations.

Thirty-five butterfly species were observed during the surveys. The weeks and areas in which these butterflies were observed are shown in *Table 4*.

Numerous QCB larval host plants (dot-seed plantain and common owl's-clover [*Castilleja exserta* ssp. *exserta*]) occurrences were mapped and are shown on *Figure 5*. These mapped areas represent areas with scattered and sometimes dense populations of these species.

Seven QCB nectar plants (Mattoni et al. 1997, USFWS 2002, USFWS 2003) were noted during surveys: common goldfields (*Lasthenia californica*), popcorn flower (*Cryptantha* spp., *Plagyobothrys spp.*), chia (*Salvia columbariae*), California buckwheat, alkali lotus (*Lotus salsuginosus)*, onion *(Allium* spp.), and blue dicks. The areas where larval food plants and flowering nectar plants were recorded are shown in *Table 5*.

Based on the single sighting, the known location at San Vicente and detections at Mission Trails Regional Park in 2005, it appears that the species occurs in low densities around the east-central portion of San Diego County and periodic movements during good years takes place. Given the single sighting, we believe that the individual was moving through the site and settled elsewhere to the west, possibly at Mission Trails Regional Park. Fanita Ranch has abundant resources for the species, however, it appears that it currently only functions as a movement corridor.

MIRAMAR HABITAT ASSESSMENT

The County of San Diego may purchase 260 acres of MCAS Miramar land located between the Fanita Ranch project site and Sycamore Canyon Open Space Preserve. The site may function as mitigation lands and provide habitat and trail connectivity between Sycamore Canyon and Santee Lakes. Dudek was requested to conduct a QCB habitat assessment of the site and determine how it compared to potential QCB habitat on the Fanita Ranch site.

Project Location

The Mirammar survey area is located adjacent to and north and west of Fanita Ranch, in western San Diego County, California (see *Figure 1)*. The site is primarily contains a portion of Sycamore Canyon and low hillslopes to the east, with a narrow extension extending along the canyon southward. The site is a part of MCAS Miramar, which extends to the west. Directly north of the site is undeveloped land within the City of San Diego. Sycamore Canyon County Open Space Preserve, undeveloped open space in unincorporated San Diego County, and Fanita

Ranch are to the east of the site. Directly south of the site is the Santee Lakes Recreation Park. The site occupies portions of Township 15 South, Range 1 West sections 4, 7, and 8 and Township 14 South, Range 1 West section 33 on the San Vicente Reservoir and Poway U.S. Geological Survey 7.5 minute quadrangle maps (see *Figure 2*).

Elevations range from about 420 feet AMSL at the southern end of Sycamore Canyon about 880 feet AMSL in the lower foothills to the east of the canyon. Redding series soils (Redding cobbly loam, dissected, 15 to 30 percent slopes; Redding gravelly loam, 2 to 9 percent slopes) and stony land predominate onsite with small amounts of Cieneba rocky coarse sandy loam, 9 to 30 percent slopes and Visalia gravelly sandy loam, 2 to 5 percent slopes also present. Except for stony land, these soil series are also present in adjacent Fanita Ranch.

Methods

Dudek biologists Michelle Balk (permit #TE051230-0) and Jeffrey Priest (permit #TE840619-2) conducted a habitat assessment of the site in June and July 2005. They mapped vegetation communities, developed a botanical list, and compared the habitat to Fanita Ranch. Pedestrian surveys were conducted over the entire site to map vegetation communities and land cover types; all plant species encountered were recorded. Access to the site was granted, and the assessment conducted, after most QCB host and nectar plants had dried and were consequently more difficult to detect. The data were digitized into ArcCAD and maps were generated. Survey dates, personnel, and conditions are shown in *Table 4.*

Table 4
Schedule of Habitat Assessment surveys – Miramar Site

Date	Hours	Staff	Starting Conditions
6/29/05	0930 - 1430	JDP	80 - 88º F; 1 – 3 mph; 0% cc
7/6/05	1200 - 1445	JDP	90 - 92º F; 1 – 4 mph; 0% cc
7/11/05	1600 - 2000	MLB	Not recorded
7/12/05	0830 - 1330	MLB	Not recorded

Results

Seventeen vegetation communities or land cover types were mapped for the Miramar site, as shown in *Table 5* and *Figure 6*. The specific characteristics of these onsite vegetation communities are discussed below; where not previously discussed in the context of Fanita Ranch vegetation, the general characteristics of these vegetation communities are also discussed.

Table 5
Vegetation Communities and Land Covers
In the Miramar Site

Vegetation Type	Acreage
Annual (non-native) Grassland	3.7
Burned Chamise Chaparral	13.1
Coast Live Oak Woodland	0.2
Coastal Sage Scrub - Total	46.4
Coastal Sage Scrub	8.3
Disturbed Coastal Sage Scrub	34.4
Burned Disturbed Coastal Sage Scrub	3.7
Developed	0.1
Disturbed Habitat / Ruderal	1.5
Open Channel	1.1
Burned Scrub Oak Chaparral	30.9
Southern Coast Live Oak Riparian Forest	45.5
Southern Mixed Chaparral - Total	105.6
Southern Mixed Chaparral	3.0
Burned Southern Mixed Chaparral	101.6
Disturbed Southern Mixed Chaparral	1.0
Sycamore Alluvial Woodland	7.1
Valley Needlegrass Grassland - Total	5.0
Valley Needlegrass Grassland	1.6
Disturbed Valley Needlegrass Grassland	3.4
TOTAL	**260.2**

Annual Non-Native Grassland

Species present within the annual non-native grassland onsite include foxtail chess wild oat, ripgut grass, soft chess, and Italian ryegrass (*Lolium multiflorum*).

Burned Chamise Chaparral

Chamise chaparral is a drought-resistant and fire-adapted habitat that is dominated by chamise (*Adenostoma fasciculatum*) with few other shrubs, subshrubs or herbs present. It develops in many xeric exposures including south facing slopes, ridgelines and on mesa-tops, Chamise and many of the chamise chaparral constituents are capable of crown- or stump-sprouting or other adaptations that allow rapid regeneration following burns or other ecological disturbances (Holland 1986).

At Miramar, this community is recovering from fire disturbance. Among the dense stands of crown-sprouting chamise, mission manzanita, wild lilac, scrub oak, laurel sumac, and black sage may also be present. Most of the plant species richness is latent within the upper soil surface, awaiting release after fire or other disturbance.

Coastal Sage Scrub

Small patches of coastal sage scrub occur onsite. Disturbed coastal sage scrub occurs throughout the eastern half of the project site, typically on south-facing slopes. This community is in varying stages of post-fire recovery and supports abundant non-native grasses; in most of this vegetation native shrubs comprise less than 30% of the vegetation cover; areas with less shrub cover were classified as either disturbed (if dominated by weeds) or burned.. California sagebrush and California buckwheat are the dominant native shrub species, with co-occurring California everlasting (*Gnaphalium californicum*), white sage, saw-toothed goldenbush (*Hazardia squarrosa* ssp. *grindelioides*), and laurel sumac. In disturbed coastal sage scrub, there is a high cover of non-native annual grasses, such as wild oat, and bromes, long-beak filaree (*Erodium botrys*) and pioneer coastal sage scrub species such as deerweed (*Lotus scoparius*) and spreading goldenbush (*Isocoma menziesii*).

Coast Live Oak Woodland

A single patch of coast live oak woodland occurs in the western portion of the site. Coast live oaks form a small homogeneous stand, with a disturbed understory that includes ripgut grass, soft chess, red brome, and slender wild oat.

Disturbed Habitat

Disturbed habitat was mapped along major dirt roads greater than seven feet wide and where vegetation has been cleared.

Developed

Developed land was mapped where existing high voltage line towers are situated at the western end of the study area.

Open Channel

Open channel typically refers to unvegetated portions of ephemeral drainage channels. At Miramar, open channel occurs in the main canyon bottom as well as small tributaries draining the adjacent hills.

Burned Scrub Oak Chaparral

Scrub oak chaparral is a dense chaparral up to 20 feet tall, dominated by scrub oak. It occurs in more mesic areas than other chaparrals. Associated species may include manzanitas, wild lilac, bedstraw (*Galium* spp.), toyon, honeysuckle (*Lonicera* spp.), holly-leaf cherry (*Prunus ilicifolia*), redberry, and western poison oak (Holland 1986).

Scrub oak chaparral on the Miramar site is found adjacent to the oak riparian forest dominating the lowlands of Sycamore Canyon. These areas support crown-sprouting scrub oak with few associated shrubs. Undertstory species include phacelia (*Phacelia* sp.) and narrow-leaved bedstraw (*Galium angustifolia*).

Southern Coast Live Oak Riparian Forest

This community is recovering from fire and is represented by a broad band of sparsely distributed western sycamore and coast live oak, with scattered individuals of Goodding's black willow and mule fat and an understory that includes western poison oak, California buckwheat, and several annual herbs. It occurs along the clearly-defined waterway of Sycamore Canyon.

Southern Mixed Chaparral

Southern southern mixed chaparral is common on the north-facing slopes of the site. Nearly all of this habitat was burned, but is recovering. Characteristic shrubs at Miramar include wild lilac, chamise, black sage, laurel sumac, coastal spicebush, and mission manzanita.

Sycamore Alluvial Woodland

Sycamore alluvial woodland occupies the northernmost reaches of the site, along bottomland within Sycamore Canyon. Western sycamore, western poison oak, and broom baccharis dominate the tree and shrub layers of this habitat type, while the herbaceous layer is composed of introduced *Bromus* species such as ripgut grass.

Valley Needlegrass Grassland

Almost all valley needlegrass grasslands onsite are disturbed, as indicated by the abundance of invasive non-native species and recovering from fire disturbance. Grasslands in which at least 5% of the cover consists of needlegrass (*Nassella* spp.) and other native species are considered valley needlegrass grasslands; all others were mapped as non-native grasslands.

Floral Diversity

A total of 140 vascular plants species were identified during the survey, comprising 107 (76 percent) native species and 33 (24 percent) non-native species. Willowy monardella (*Monardella viminea*), a CNPS List 1B species, and graceful tarplant (*Holocarpha virgata* ssp. *elongata*), Engelmann oak (*Quercus engelmannii*), and San Diego County viguiera, all CNPS List 4 species, occur onsite. The list of plant species observed is included as *Appendix D.*

QCB larval host plants dot-seed plantain, common owl's-clover, and dark-tipped bird's-beak were present and their locations mapped on *Figure 6.* Seven QCB nectar plants were observed: popcorn flower, Spanish-clover (*Lotus purshianus* var. *purshianus*), thickleaf yerba santa (*Eriodictyon crassifolium* var. *crassifolium*), chia, and blue dicks.

Discussion

The primary constituents of QCB habitat are grassland and open-canopy woody plant communities with QCB larval food plants or adult nectar plants; undeveloped areas containing grassland or open-canopy woody plant communities between habitat patches that QCB may use for mating, basking, and movement; or prominent topographic features, such as hills and/or ridges, with an open woody or herbaceous canopy at the top (USFWS 2002).

Both sites contain QCB larval food plants. Although a relatively larger area is mapped as containing these species in the 2005 QCB survey area than on the Miramar site (see *Figures 5* and *7*), additional host plant locations might have been detected on Miramar had the survey been conducted earlier in the flowering season.

Both sites contain a variety of QCB adult nectar plants. Seven adult nectar plants were observed at Miramar, and of these species were observed on the Miramar site. Nine nectar plant species were recorded during this year's survey, with a total of 13 noted during pervious surveys of the entire Fanita Ranch site. The abundance of these species was not recorded, however, and species richness provides a limited basis for comparison.

The Miramar site mostly lacks ridges or hilltops, being situated in and along Sycamore Canyon. In the western part of the property, the lower portion of a long, northward tending ridge may provide some hilltopping locations. Vegetation along this ridge is a mixture of burned coastal sage scrub and burned chaparral, and could currently provide a potential hilltopping location. In contrast, the Fanita Ranch site contains a series of northeast to southwest-trending hills a series of southwest trending ridges.

Based on a comparison of the mapped vegetation types (see *Tables 1, 2,* and *5*), the Miramar site has a lower proportion of vegetation types that typically provide relatively open habitat for the QCB. The Miramar site has relatively less coastal sage scrub vegetation types (18%) than the Fanita Ranch site as a whole (51%) or the 2005 QCB survey area (52%). Less grassland vegetation is also present at the Miramar site (3%) than in Fanita Ranch (15%) or the 2005 QCB survey area (19%). Conversely, chaparral vegetation is more abundant at the Miramar site (52.5%) than at Fanita Ranch (24%) or the 2005 QCB survey area (21%). Most of the chaparral on the Miramar site is recently burned, however, and could be converted to more open habitat types fairly easily.

Despite these differences, it appears as though the 260-acre area is mostly comparable to the Fanita Ranch project area and would provide suitable QCB habitat. Terrain, vegetation, nectar plants, and hosts plants appear to be suitable. Protection of the area would benefit potential future QCB movement and possibly colonization.

Please feel free to call me at (760) 942-5147 if you have any questions regarding the contents of this letter.

Very truly yours,

DUDEK & ASSOCIATES, INC.

Brock A. Ortega
Senior Wildlife Biologist
Permit Number #TE 813545-4

att: *Appendix A: Cummulative List of Vascular Plant Species Observed on Fanita Ranch*
Appendix B:Notification of QCB Observation, 17 March 2005
Appendix C:Fanita Ranch 2005 QCB Survey Field Notes
Appendix D: List of Vascular Plant Species Observed on Miramar Site

cc: *Douglas Williford, City of Santee*
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Mick Pattinson, Barratt American Inc.
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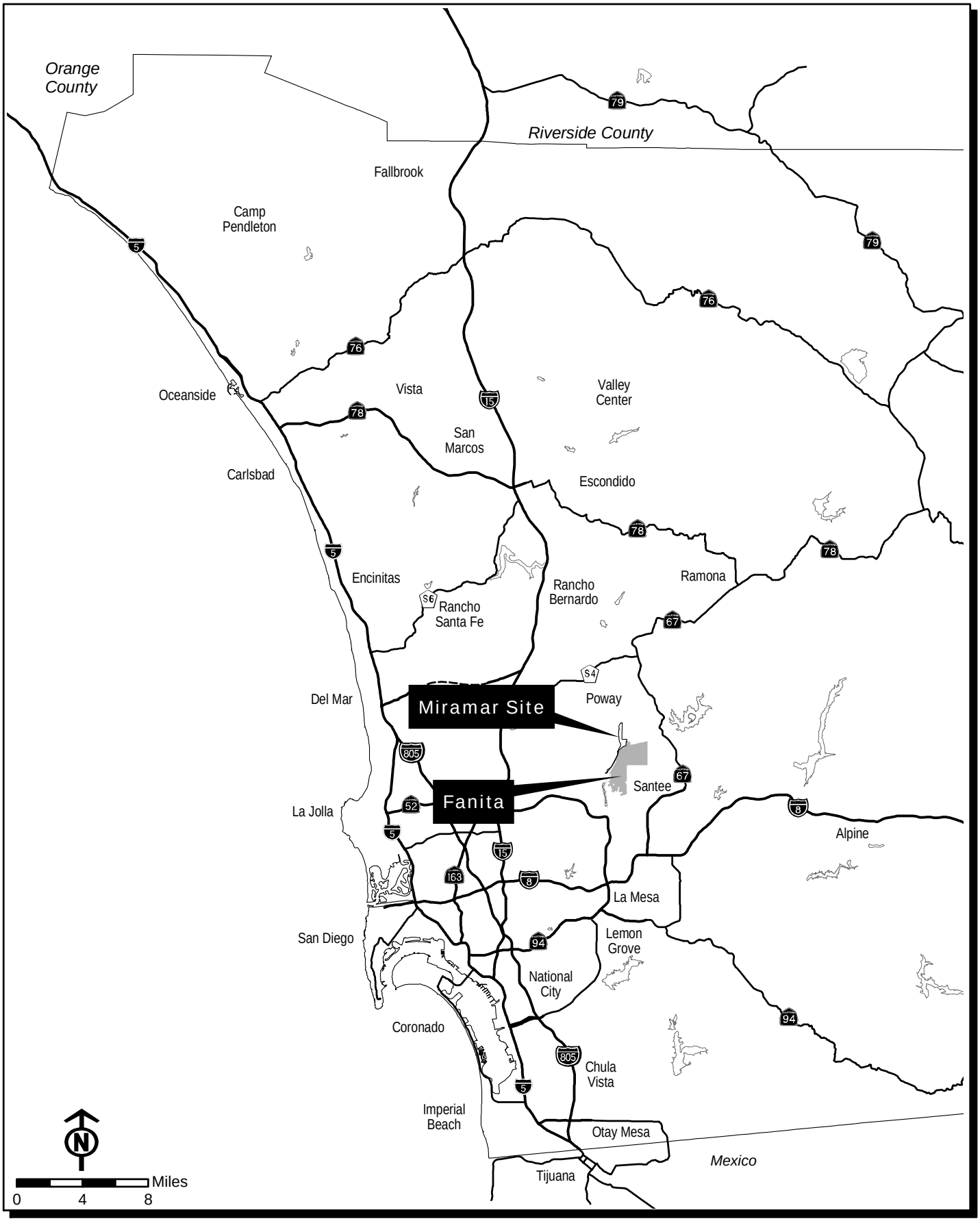
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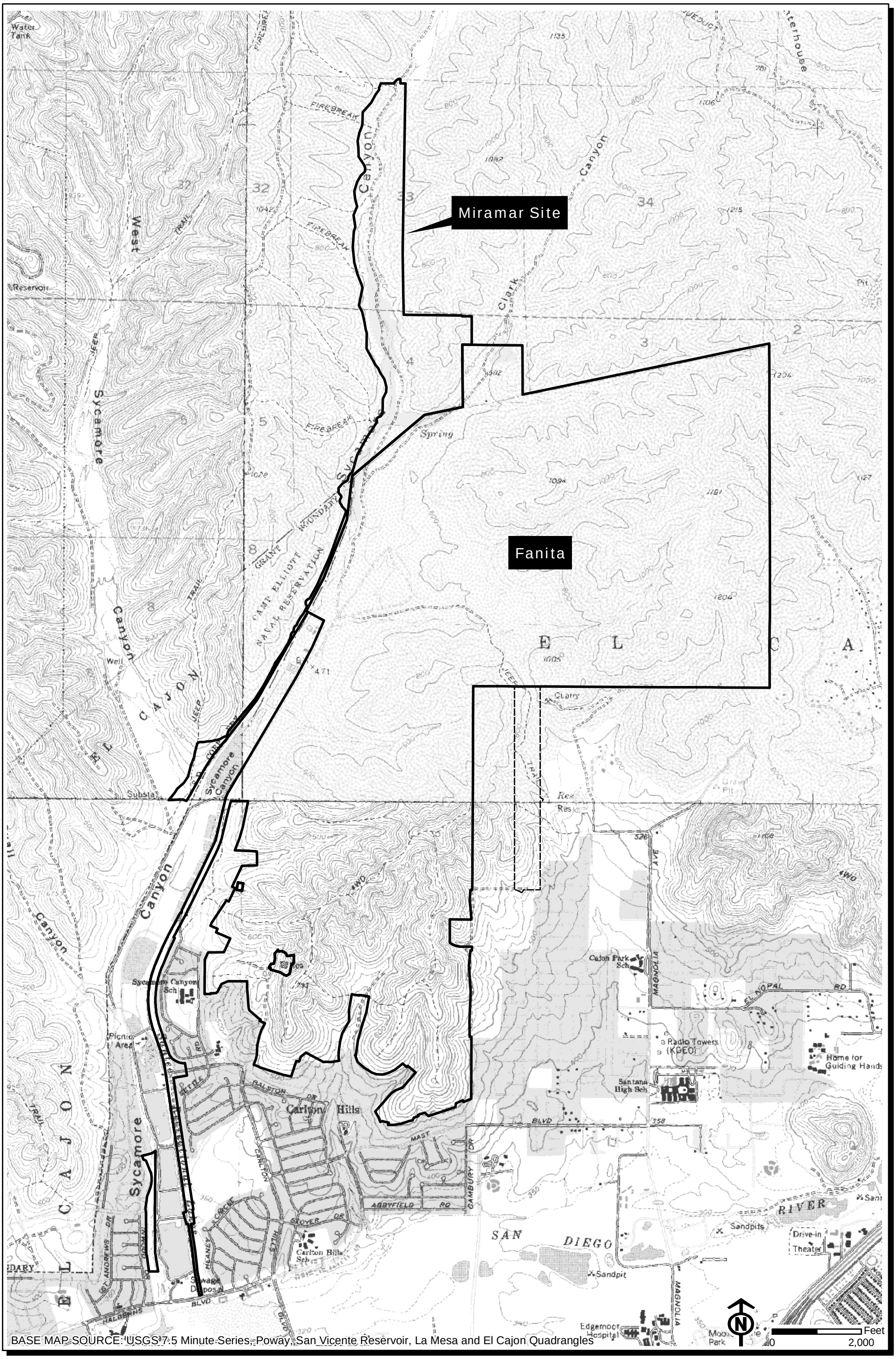
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Fanita - 2005 Quino Checkerspot Butterfly Report

Regional Map

FIGURE 1



BASE MAP SOURCE: USGS 7.5 Minute Series, Poway, San Vicente Reservoir, La Mesa and El Cajon Quadrangles

Fanita - 2005 Quino Checkerspot Butterfly Report

Vicinity Map

FIGURE 2

Generalized Vegetation Types/Landcovers:

- Chaparral
- Coastal Sage Scrub
- Grassland
- Marsh
- Non-native/Developed
- Oak Woodland
- Revegetation Area
- Riparian

N

0 Feet 1,500

Fanita - 2005 Quino Checkerspot Butterfly Report

Fanita Generalized Vegetation Map

FIGURE 3

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2005 QCB Survey Area (with ID)

Generalized Vegetation Types/Landcovers:

- Chaparral
- Coastal Sage Scrub
- Grassland
- Marsh
- Non-native/Developed
- Oak Woodland
- Revegetation Area
- Riparian

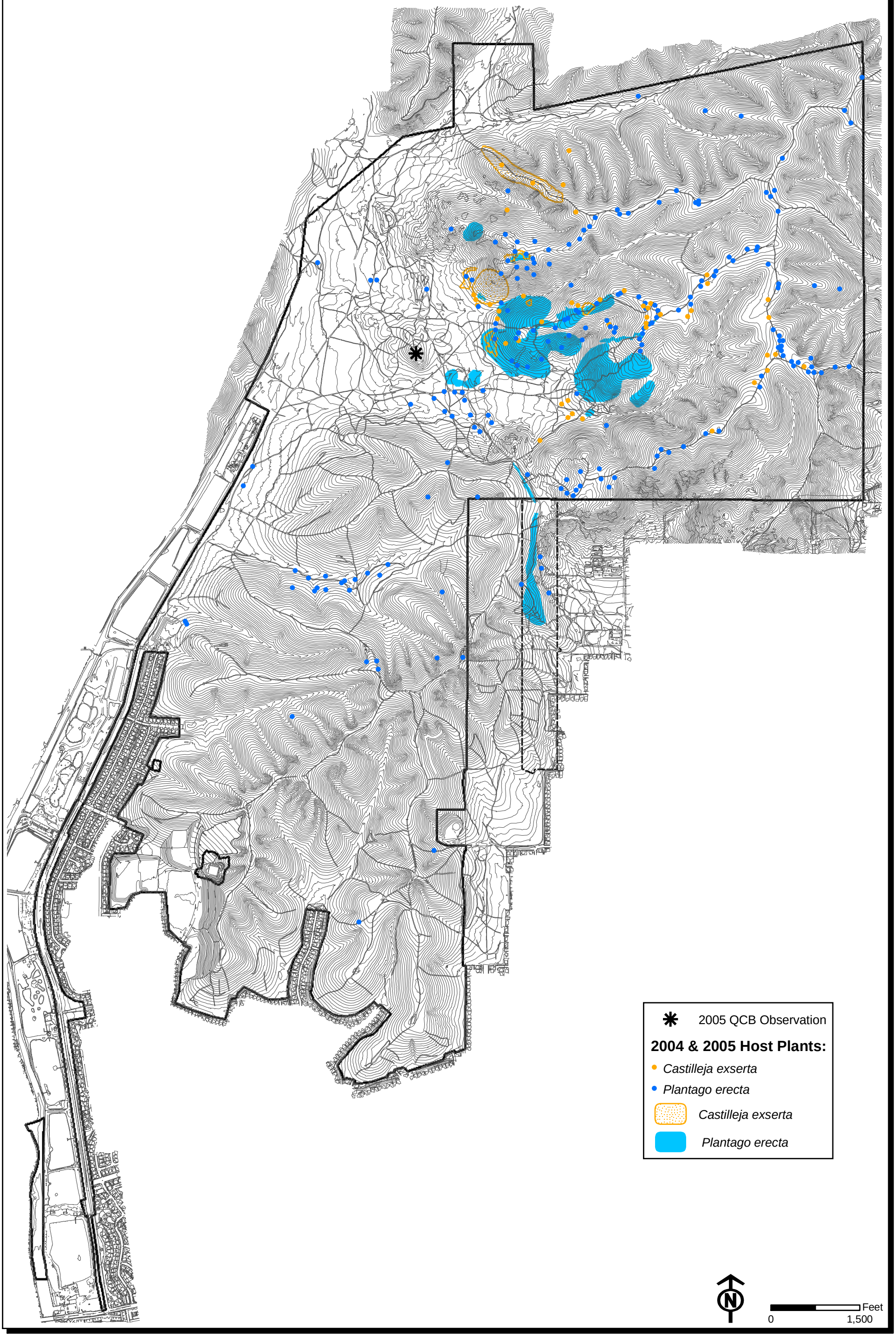
N

0 Feet 1,500

Fanita - 2005 Quino Checkerspot Butterfly Report

2005 QCB Survey Areas with Generalized Vegetation

FIGURE 4



Fanita - 2005 Quino Checkerspot Butterfly Report

2005 QCB Observation and QCB Host Plant Locations

FIGURE 5

Generalized Vegetation Types/Landcovers:

- Chaparral
- Coastal Sage Scrub
- Grassland
- Non-native/Developed
- Oak Woodland
- Riparian

Sensitive Plant Species:

Hv = Holocarpha virgata

Mv = Monardella viminea

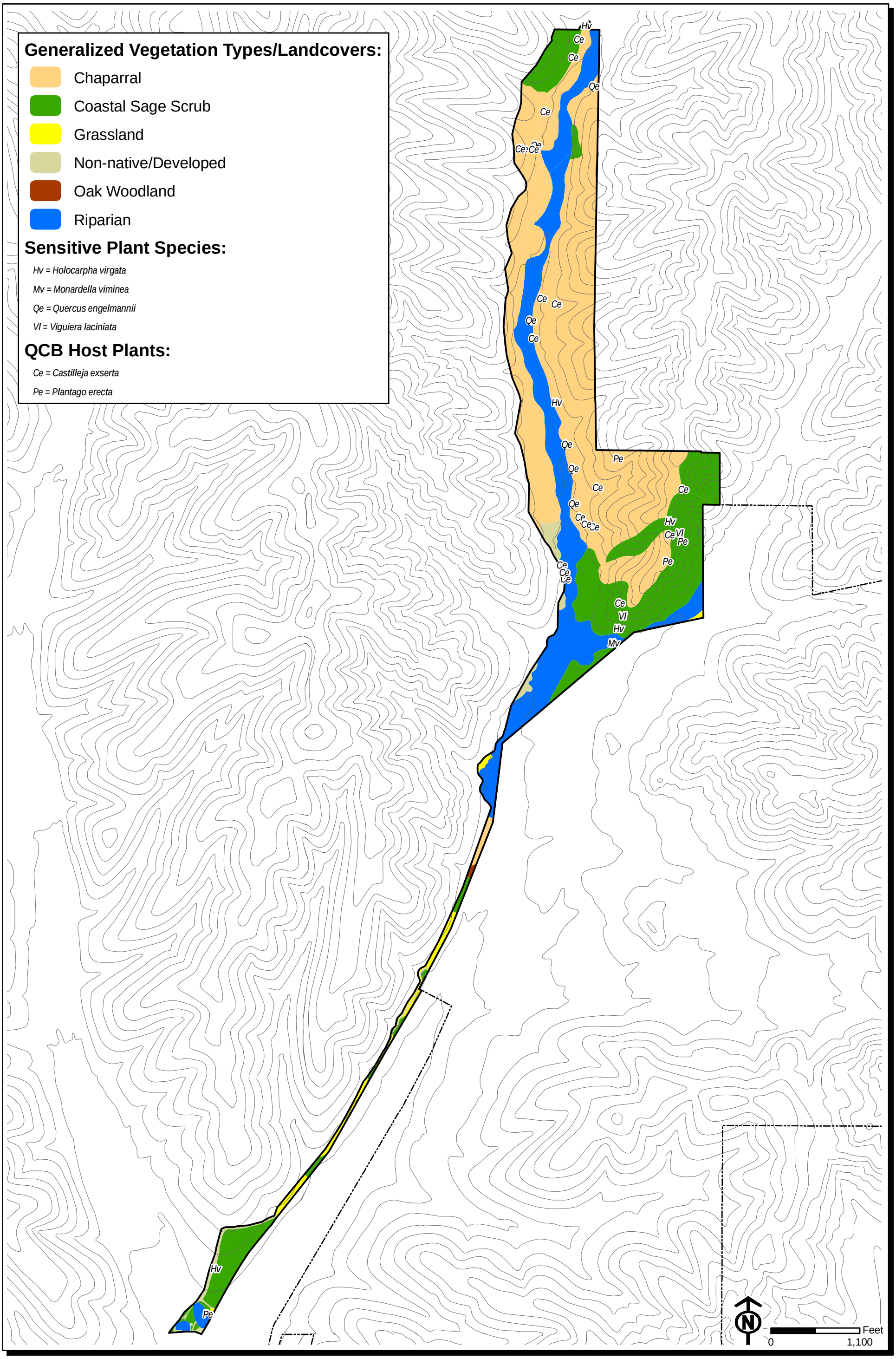
Qe = Quercus engelmannii

Vl = Viguiera laciniata

QCB Host Plants:

Ce = Castilleja exserta

Pe = Plantago erecta



Fanita - 2005 Quino Checkerspot Butterfly Report

Miramar Site Generalized Vegetation Map with Sensitive and QCB Host Plant Locations

FIGURE 6

APPENDIX C

2016 Focused Quino Checkerspot Butterfly Survey Report

DUDEK

MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 T 800.450.1818 F 760.632.0164

June 6, 2016 7490

U.S. Fish and Wildlife Service
Attention: Recovery Permit Coordinator
2177 Salk Avenue #250
Carlsbad, California 92008

Subject: ***2016 Focused Quino Checkerspot Butterfly Survey Report for the Proposed Fanita Ranch Project, City of Santee, County of San Diego, California***

Dear Recovery Permit Coordinator:

This letter report documents the spring 2016 results of a focused survey conducted by Dudek for the federally listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*; Quino). This survey was conducted in support of the Fanita Ranch project (Fanita), located in the City of Santee, California. The Fanita Planned Development proposes two villages and an open space "Preserve" which extends through Fanita, separating the villages and linking natural areas adjoining Fanita to one another. The Fanita project site contains approximately 2,014 acres of potentially Quino-suitable habitat that were surveyed in 2016.

This report is intended to satisfy reporting requirements for the following Quino-permitted biologists:

- Brock Ortega TE813545-6
- Anita Hayworth TE781084-8
- Paul Lemons TE051248-5
- Erin Bergman TE813545-5
- Jeff Priest TE840619-3
- Tricia Wotipka TE840619-2
- Vipul Joshi TE019949-3
- Brian Drake TE006328
- Bonnie Peterson TE038701-02
- Travis Cooper TE170389-5
- Alicia Hill TE06145B-0
- Garrett Huffman TE20186A-1

- David King TE-785148-11
- Nicole Kimball TE-053598
- Erika Eidson TE-051236
- Darin Busby TE-115373-3
- Melissa Busby TE-080779-2
- Crysta Dickson TE-067347-5
- Erik LaCoste TE-027736-5
- Antonette Gutierrez TE-50992B-0
- Diana Saucedo TE-811615-6.1
- Gretchen Cummings TE-031850-4
- Monica Alfaro TE-051242-3

Assistance was provided from Patricia Schuyler (TE-27502B-0), Callie Ford (TE-36118B-0), Marshall Paymard, and Janice Wondolleck as supervised by a permitted biologist. Quino host plant mapping at Fanita was conducted by Andy Thomson, Danielle Mullen, Janice Wondolleck, Jake Marcon, Kathleen Dayton, Kyle Matthews, Kevin Shaw, Marshall Paymard, Shana Carey, and Scott Gressard.

PROJECT LOCATION AND EXISTING CONDITIONS

Fanita, including the alignment of Fanita Parkway south to Carlton Oaks Boulevard, the Cuyamaca Street extension, and the disjunct ownership along the western boundary of Santee Lakes, is situated in the northwestern portion of the City of Santee in western San Diego County, California (Figure 1, Regional Map). The site is bordered by the Sycamore Canyon County Park and other protected open space to the north and east, by residential development to the south and east, and by vacant land on MCAS Miramar to the west. The property lies approximately 3 miles northeast of State Route 52. The site occupies portions of Township 15 South, Range 1 West, projected Sections 2, 3, 4, 8, 9, 10, 16, 17, 20, and 21 on the San Vicente Reservoir, El Cajon, La Mesa, and Poway West U.S. Geological Survey 7.5 minute quadrangle maps (Figure 2, Vicinity Map).

Elevations range from about 320 feet above mean sea level in the southern end of Fanita Parkway to approximately 1,204-foot above mean sea level peaks in the northeastern corner of the site. The project site contains a series of northeast- to southwest-trending hills and valleys that form a transition between the relatively low, flat Sycamore Canyon on the western end of

the site and the foothills of the Peninsular Range to the east. Numerous large rock outcrops also are present on site, particularly in the northern and northeastern portions of the property.

Soils on site consist of Redding series; Wyman loam; sandy loams soils of the Cieneba series, Las Posas series, Las Flores loamy fine sand, and Visalia gravelly sandy loam; clay-loam soil series including Linne clay loam and Salinas clay loam; Diablo-Olivenhain complex; and Bosanko clay (Bowman 1973).

The project site has been subject to a number of fires over its known history. These fires typically have been large scale, burning at least half of the project site and, over time, causing vegetation-type coverage fluctuations and resulting in distributional changes of suitable habitat for various sensitive species. For example, suitable habitats for California gnatcatcher (*Polioptila californica californica*) (coastal sage scrub) and grasshopper sparrow (*Ammodramus savannarum*) (grasslands), have been observed to change so that they have been detected in overlapping areas in different vegetation mapping efforts. From experience, burned areas initially recover to annual grasslands, supporting grasshopper sparrow, and then over time recover to a coastal sage scrub condition supporting California gnatcatcher.

VEGETATION COMMUNITIES

Based on species composition and general physiognomy, 16 vegetation communities, 12 sub-communities or intergraded communities, and 2 land-cover types were identified on the Fanita property and off-site mapping areas (Figure 3, Vegetation Communities). Their acreages are presented in Table 1. Approximately 2,014 acres of Quino-suitable habitat were mapped on the Project site according to Holland (1986) and Oberbauer (2008).

Table 1
Vegetation Communities and Land Cover Types on the Fanita Ranch Project Site

Vegetation Community/Land Cover	Acres
Annual Grassland/Ornamental	19.6
Annual Non-native Grassland	204.7
Cismontane Alkali Marsh	0.9
Coast Live Oak Riparian Forest	16.2
Coast Live Oak Woodland	5.7
Broom Baccharis Scrub	8.9
Coastal Sage Scrub	764.3
Coastal Sage Scrub/Disturbed VGL	35.3
Coastal Sage Scrub/SMX	13.5
Coastal Sage Scrub/VGL	9.4

Table 1
Vegetation Communities and Land Cover Types on the Fanita Ranch Project Site

Vegetation Community/Land Cover	Acres
Disturbed Coastal Sage Scrub	365.8
Disturbed Coastal Sage Scrub/AGL	106.0
Disturbed Coastal Sage Scrub/BBS	6.9
Disturbed Coastal Sage Scrub/VGL	46.7
Coastal Sage Scrub Subtotal	*1,356.7*
Developed Land	12.6
Disturbed Freshwater Marsh	0.1
Disturbed Habitat	110.4
Disturbed Wetlands	0.3
Freshwater Marsh	0.6
Mulefat Scrub	0.6
Open Water	7.2
Ornamental Planting	5.0
Revegetated Area	35.4
Ruderal	21.9
Ruderal/Disturbed Habitat	22.5
Southern Mixed Chaparral	616.9
Southern Willow Scrub	1.9
Sycamore Alluvial Woodland	15.5
Valley Needlegrass Grassland	175.4
Grand Total*	**2,629.9**

Note: * Numbers do not sum precisely due to rounding.

Annual (Non-native) Grassland

Annual (non-native) grassland is characterized by a sparse to dense cover of annual grasses typically up to 2 feet tall, with many annual wildflowers also present in years with favorable rainfall. This vegetation community typically occurs on fine-textured soils that are moist or wet in the winter and very dry during summer and fall. Plant species present typically include wild oat (*Avena* spp.), bromes (*Bromus* spp.), tarweeds (*Centromadia* spp., *Deinandra* spp.), and filarees (*Erodium* spp.) (Holland 1986). In San Diego County, annual grassland often occurs where the native vegetation has been disturbed by grazing, fire, agriculture, or other activities.

A total of 224.3 acres of annual grassland communities was mapped on the project area. Most of the existing annual grassland on site evidently is the result of ranching, other mechanical disturbances, or repeated fires. Where the disturbance has been frequent and/or intensive, the native vegetation community often does not recover. These areas are characterized by weedy, introduced annuals,

primarily grasses, including especially slender wild oat (*Avena barbata*), bromes, mustards (*Brassica* spp. and *Sisymbrium* spp.), filarees, and Russian-thistle (*Salsola tragus*).

Broom Baccharis Scrub

Broom baccharis scrub is not recognized as a native plant community by Holland (1986). It is a distinctive vegetation association in Southern California, dominated by broom baccharis (*Baccharis sarothroides*) and usually containing scattered individuals of other native shrub species. It frequently is an early successional community that occurs in more mesic sites or along drainages where coastal sage scrub or chaparral has been eliminated by perturbation.

On Fanita Ranch, this vegetation consists of nearly uniform stands of broom baccharis with a sparse cover of other native shrubs, including California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and Mexican elderberry (*Sambucus mexicanus*), and non-native herbs and grasses. Approximately 8.9 acres of broom baccharis scrub are present on Fanita Ranch.

Broom baccharis scrub typically is considered a subcategory of coastal sage scrub by the Wildlife Agencies because its general plant architecture and density are similar enough to the latter to support many of the "target" coastal sage scrub animal species, including the coastal California gnatcatcher.

Cismontane Alkali Marsh

Cismontane alkali marsh is a wetland community dominated by perennial, emergent, herbaceous monocots that grow up to 7 feet tall. Sites that support this vegetation have standing water or saturated soil during most of the year, with evaporation faster than freshwater inputs, causing soil to be somewhat alkaline (Holland 1986). Typical species found in cismontane alkali marsh include sedges (*Carex* spp.), saltgrass (*Distichlis spicata*), rushes (*Juncus* spp.), bulrushes (*Scirpus* spp.), and cattails (*Typha* spp.).

Three patches of cismontane alkali marsh, totaling 0.9 acre, occur along the Sycamore Creek and a tributary drainage. Low herbaceous plants, such as saltgrass, pale spike-sedge (*Eleocharis macrostachya*), toad rush (*Juncus bufonius* var. *bufonius*), and curly dock (*Rumex crispus*), are characteristic of this vegetation community.

Coast Live Oak Woodland

Coast live oak woodland is a broad-leaved, sclerophyllous (stiff, firm-leaved) woodland dominated by coast live oak (*Quercus agrifolia*) trees that reach from 35 to 80 feet tall. The shrub layer is poorly developed but may contain native shrubs such as toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), and Mexican elderberry. A continuous herb layer dominated by non-native grasses and herbs is typically present. In Southern California, coast live oak woodland typically occurs on north-facing slopes and in shaded ravines (Holland 1986).

Coast live oak woodland on site occurs as several scattered patches totaling 5.7 acres in the northern part of Fanita Ranch. Coast live oaks form small homogeneous stands, with a disturbed understory that includes ripgut grass (*Bromus diandrus*), soft chess (*B. hordeaceus*), red brome (*B. madritensis* ssp. *rubens*), and slender wild oat. It is contiguous, or nearly so, with some areas of southern coast live oak riparian forest, but occurs slightly higher topographically and not in association with a drainage.

Coastal and Valley Freshwater Marsh

Coastal and valley freshwater marsh (freshwater marsh) typically is dominated by tall, perennial, emergent monocots, such as cattails and bulrushes. Freshwater marsh receives a more constant input of fresh water than cismontane alkali marsh, such as quiet, permanently flooded sites that develop deep, peaty soils (Holland 1986). These wetlands often develop where the water table is at or just above the ground surface, such as the margins of lakes, ponds, slow-moving streams, ditches, and seepages. Areas with greater than 50% non-native species are mapped as disturbed freshwater marsh.

On Fanita Ranch, freshwater marsh occurs as several small patches of emergent monocots (totaling 0.6 acre) along the improved or maintained drainage adjacent to Fanita Parkway and the access road to the upper Santee Lakes. More extensive occurrences are found on the fringe of an off-site settling pond. These areas are generally dominated by non-native or introduced hydrophytic species, including umbrella sedge (*Carex alternifolius*), rabbit's-foot grass (*Polypogon monspeliensis*), and Mexican fan-palm (*Washingtonia robusta*). One patch of freshwater marsh in a relatively natural area adjacent to the Santee Lakes access road is dominated by Mexican rush (*Juncus mexicanus*) and spiny cocklebur (*Xanthium strumarium*). In the central part of the site near sycamore alluvial woodland, freshwater marsh contains Mexican rush and yerba mansa (*Anemopsis californica*).

Coastal Sage Scrub Communities

The majority of the project area, approximately 1,347.8 acres, contains coastal sage scrub vegetation types. Large portions of the site that probably historically supported coastal sage scrub have been disturbed severely or repeatedly by fire or other activities, such as ranching and off-road vehicles. The history of human and natural disturbances, combined with varied environmental conditions such as slope and aspect, has resulted in sub-communities that are different variants of the presumed original Diegan coastal sage scrub vegetation.

Diegan coastal sage scrub (coastal sage scrub) is a native plant community composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species, such as California sagebrush, California buckwheat, and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac, and toyon. It typically develops on south-facing slopes and other xeric locations (Holland 1986).

Coastal sage scrub vegetation on site is dominated by California sagebrush and California buckwheat, with laurel sumac, spiny redberry (*Rhamnus crocea*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), San Diego County viguiera (*Viguiera laciniata*, a special-status plant), toyon, and bush monkeyflower (*Mimulus aurantiacus*) as lesser components. In the southern portion of the site, some patches are dominated by white sage; in the north, redberry is the dominant shrub in some areas. This community supports a diverse understory of native herbs and forbs, including virgate tarplant (*Holocarpha virgata*), deerweed (*Lotus scoparius*), blue dicks (*Dichelostemma capitatum*), Cleveland's shooting-star (*Dodecatheon clevelandii*), blue-eyed grass (*Sisyrinchium bellum*), canchalagua (*Centaurium venustum*), and several species of grasses, both native and introduced. The primary introduced grass is slender wild oat.

Disturbed coastal sage scrub communities contain relatively more non-native grasses and fewer native shrubs. Areas with native coastal sage scrub shrub cover greater than 20% are mapped as coastal sage scrub; areas with native shrub cover of 11% to 20% are mapped as disturbed coastal sage scrub; areas with native shrub cover of 5% to 10% are mapped as disturbed coastal sage scrub/annual grassland. In addition, transitional areas containing a mix of coastal sage scrub types and baccharis scrub, valley needlegrass grasslands, or southern mixed chaparral have been identified and mapped.

Coastal sage scrub is recognized as a sensitive plant community by local, state, and federal Wildlife Agencies. It supports a rich diversity of sensitive plants and animals, and it is estimated that it has been reduced by 75% to 80% of its historical coverage throughout Southern

California. It is the focus of the current State of California Natural Community Conservation Planning program in Southern California.

Developed

The paved roadway in the extreme southern part of the site, between Santee Lakes and the residential development, and existing residential lots adjacent to the Cuyamaca Street extension are mapped as developed. A total of 12.6 acres is mapped as developed land.

Disturbed Habitat

Disturbed habitat refers to land that has little habitat value for native species due to lawful activities (San Diego County 2004). Disturbed habitat typically includes areas that lack vegetation entirely, generally as the result of severe or repeated mechanical perturbation, and areas dominated by invasive, broadleaved (ruderal) species that typically develop on compacted soils following intense disturbance.

Approximately 110.4 acres on site are unvegetated dirt roads, trails, scrapes, soil test pits, or transmission tower sites.

Disturbed Wetlands

Hydrophytic vegetation with over 80% cover of non-native species is mapped as disturbed wetlands. Several patches of disturbed wetlands are mapped along Fanita Parkway; a single patch occurs at the downstream end of Sycamore Creek on the project site. Component species in disturbed wetlands on site include Bermuda grass (*Cynodon dactylon*), umbrella sedge, and saltcedar (*Tamarix ramosissima*). A total of 0.3 acre is mapped as disturbed wetlands.

Mulefat Scrub

Mulefat scrub is a tall, herbaceous riparian scrub strongly dominated by mulefat (*Baccharis salicifolia*). It typically occurs along intermittent stream channels on sandy soils with a moderate depth to the water table and is maintained in an early successional stage by frequent floods (Holland 1986).

Three patches of mulefat scrub totaling 0.6 acre occur in the lower portion of the Sycamore Creek drainage and along Fanita Parkway.

Open Water

Open water refers to areas that support standing water most or all of the year and do not contain any emergent vegetation. Open water was mapped within a western off-site area where Padre Dam Municipal Water District operates a storage pond for recycled water. Open water totals 7.2 acres within the mapped project site.

Ornamental Plantings

Ornamental plantings refer to areas where ornamentals and landscaping have been installed. These areas are concentrated around the southern edge of Fanita Ranch in patches adjacent to the existing residential development. The most common ornamental species are eucalyptus (*Eucalyptus* sp.) and pepper trees (*Schinus* spp.). A total of 5.0 acres of ornamental plantings was mapped on the project site.

Revegetated Area

Revegetation refers to those areas where native vegetation has been planted on cut and/or fill slopes. These areas are found around the water storage facility in the southwestern portion of the property. Revegetation areas are heterogeneous: some are dominated by native species, and others support a large number of exotics. One revegetated patch habitat of the facility supports a dense, uniform stand of broom baccharis; the slope south of the facility supports a sparse mix of coastal sage scrub species. Other slopes have a substantial component of Peruvian pepper-tree (*Schinus molle*) and laurel sumac, with few native shrubs. A total of 35.4 acres of revegetated areas occur in the project mapping area.

Ruderal

Ruderal refers to areas supporting broad-leaved non-native species to the exclusion of native plants. These areas typically form as a result of repeated soil perturbation.

A total of 21.5 acres in the western portion of Fanita Ranch include a dense upland thicket of giant reed (*Arundo donax*) and patches dominated by black mustard (*Brassica nigra*), star-thistle (*Centaurea melitensis*), filarees, or sweet fennel (*Foeniculum vulgare*). An additional 21.9 acres along the southern boundary of the project site support similar species, as well as bare ground due to ongoing brush management practices, and is mapped as ruderal/disturbed habitat.

Southern Coast Live Oak Riparian Forest

Southern coast live oak riparian forest is an evergreen riparian woodland dominated by coast live oak. It differs from coast live oak woodland in that it occurs in bottomlands and the outer floodplains of larger streams, on fine-grained alluvium. It typically contains more herbs but fewer shrubs than other riparian communities (Holland 1986). The structural diversity of southern coast live oak riparian forest and the presence of year-round water make this high-quality habitat, with many wildlife species that reside in adjacent scrub foraging in it during the drier season.

The 16.2 acres of southern coast live oak riparian forest on Fanita Ranch occur as a broad band of sparsely distributed western sycamore (*Platanus racemosa*) and coast live oak along Sycamore Creek. This community contains scattered black willow (*Salix gooddingii*) and mulefat and an understory that includes western poison-oak (*Toxicodendron diversilobum*), California buckwheat, and deergrass (*Muhlenbergia rigens*).

Southern Mixed Chaparral

Southern mixed chaparral is a drought- and fire-adapted community of woody shrubs from 5 to 10 feet tall that often forms dense, impenetrable stands. It develops primarily on mesic north-facing slopes and in canyons and is characterized by crown- or stump-sprouting species that regenerate following fire. This association typically contains chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicolor*), wild lilac (*Ceanothus* spp.), California scrub oak (*Quercus berberidifolia*), and laurel sumac.

Southern mixed chaparral is the second most common vegetation type to coastal sage scrub in the project area, with approximately 616.9 acres in the northern portion of the project area. Due to its high-density cover, there is little or no understory in this community, except for in openings. The dominant species in the southern mixed chaparral on site are chamise, black sage, laurel sumac, coastal spicebush (*Cneoridium dumosum*), and mission manzanita. Understory species include rigid bird's beak (*Cordylanthus rigidus*), rock-rose (*Helianthemum scoparium*), and ashy spike-moss (*Selaginella cinerascens*).

Regionally, southern mixed chaparral is not considered a sensitive vegetation type; however, when it occurs in a mosaic distribution with other native communities, such as coastal sage scrub and oak woodland, it may be of high value for native wildlife, contributing to the overall habitat heterogeneity and patch size. Southern mixed chaparral that contains special-status plant species also may be considered sensitive.

Southern Willow Scrub

Southern willow scrub is a dense, broad-leafed, winter-deciduous riparian thicket dominated by several species of willow (*Salix* spp.) that occurs on loose, large-grained alluvium along stream channels. The closed canopy inhibits the development of a diverse understory. It may contain scattered Fremont's cottonwood (*Populus fremontii*) and western sycamore trees emerging above the willow canopy and requires repeated flooding to avoid succession to a community dominated by these trees (Holland 1986).

On site, southern willow scrub occupies 1.9 acres in patches in the main drainage of Sycamore Canyon along the western edge of the property just north of the Padre Dam facilities and along Fanita Parkway. The patches are dominated by arroyo willow (*Salix lasiolepis*) and black willow, with an understory of mulefat.

Sycamore Alluvial Woodland

Sycamore alluvial woodland is a winter-deciduous, broad-leaved riparian woodland, dominated by well-spaced western sycamore with occasional Mexican elderberry in the subcanopy. The understory usually is comprised of introduced grasses or mulefat. This community occurs in braided channels of intermittent streams that may be subject to violent flooding. Sycamores may respond to flood damage or uprooting by vegetative reproduction, giving a clumped appearance to the woodland (Holland 1986).

Most of the 15.5 acres of sycamore alluvial woodland on site occurs along the Sycamore Creek drainage, with two tributaries also supporting this vegetation. In Sycamore Creek, sycamore and oaks are an important component, along with deergrass, mulefat, wild rye (*Leymus glaucus*), yerba mansa, Mexican rush, and western poison-oak. Although this vegetation type at Fanita Ranch does not precisely agree with Holland's description of sycamore alluvial woodland, it is closer to this community than any other Holland category.

Valley Needlegrass Grassland

Valley needlegrass grassland is a native grassland dominated by perennial bunchgrasses, such as purple needlegrass (*Nassella pulchra*). It typically occurs on clay soils that are moist or waterlogged in winter and dry in summer. Grasses and annual herbs occur between the bunchgrasses and often form a greater portion of the vegetative cover (Holland 1986). This plant community typically occurs in a patchy mosaic with coastal sage scrub on clay soils with northerly exposures or at the bases of slopes but also may occur in large patches. Grasslands with

at least 5% cover of purple needlegrass or other native grass species are mapped as valley needlegrass grassland.

The 175.4 acres mapped as valley needlegrass grassland on Fanita Ranch are dominated by non-native grasses, such as red brome, soft chess (*Bromus hordeaceus*), and ripgut grass, with tussocks of purple needlegrass scattered throughout. Native herbs that occur in the valley needlegrass grassland are blue-eyed grass, morning-glory (*Calystegia macrostegia*), blue dicks, wild onion (*Allium* sp.), Cleveland's shooting-star, San Diego goldenstar (*Bloomeria clevelandii*, a special-status species), purple sanicle (*Sanicula arguta*), dot-seed plantain (*Plantago erecta*), purple owl's clover (*Castilleja exserta*), and common goldenstar (*Bloomeria crocea*).

QUINO CHECKERSPOT BUTTERFLY SURVEY

Background Information

The Quino was added to the federal Endangered Species List by U.S. Fish and Wildlife Service (USFWS) on January 16, 1997 (62 FR 2313–2322). The species (*E. editha*) has a range extending from British Columbia and Alberta, Canada, south through Colorado and Utah, and west along the coast to northern Baja California. It is divided into 20 subspecies, each of which has its own range and biological and morphological characteristics. In California, there are 12 subspecies (Garth and Tilden 1986). Three other subspecies of *E. editha* are currently known to occur in Southern California. The Quino is the southwestern most subspecies of *E. editha* (Mattoni et al. 1997).

The Quino is known to occur in association with a variety of plant communities, soil types, and elevations (up to 5,000 feet). The plant communities include clay soil meadows, open grasslands, coastal sage scrub, chamise chaparral, red shank chaparral, juniper woodlands, and semi-desert scrub (Ballmer et al. 2001). The Quino is also associated with clay soils that possess cryptogamic crusts and vernal pools (USFWS 2002).

The Quino is a medium-sized butterfly (approximately 0.8-to 1.1-inch wingspan) belonging to the family Nymphalidae. The adults are primarily orange-red with white and have black markings on the dorsal wing surface. They are active primarily in March and April. This active period may vary depending on weather conditions (Ballmer et al. 2001). The adult butterfly feeds on nectar, which it obtains from spring annuals such as popcorn flower (*Cryptantha* spp.), Layia (*Layia glandulosa*), goldenbush (*Ericameria* spp.), pincushion (*Chaenactis* spp.), fiddleneck (*Amsinckia intermedia*), chia (*Salvia columbariae*), and blue dicks, among others.

Adult males and virgin females sometimes "hilltop," or travel to elevated locations to find mates. While waiting for females to arrive, the males will often exhibit "territorial behavior" and will

chase other butterflies that approach them. Frequently, the butterflies are observed in meadows or clearings where their host plants occur (Ballmer et al. 2001).

A female may lay 20 to 75 eggs at one time and may produce up to 1,200 eggs in her lifetime. The eggs hatch in approximately 10 days under favorable weather conditions and the young larvae will immediately begin to feed upon a host plant. The feeding larvae use the dot-seed plantain, woolly plantain (*Plantago patagonica*), white snapdragon (*Antirrhinum coulterianum*), and Chinese houses (*Collinsia concolor*) as their host plants (Pratt 2009). Rigid bird's beak and purple owl's clover are considered secondary hosts (USFWS 2002).

After feeding, the early larva enters an obligatory aestival diapause (dormant stage), which may be broken after fall or winter rains (Murphy and White 1984; Osborne 1998). If adverse weather conditions occur, the emergent larva may reenter a diapause stage repeatedly, for up to 5 or 6 years, until favorable weather conditions permit sufficient growth of the host plant to allow the larva to complete its development.

The Quino was once common in Southern California. It ranged north into Ventura County, west to the Pacific Ocean, east to the deserts, and south into northern Baja California. Currently, it is known to occur only in a few, probably isolated, colonies in southwestern Riverside County, San Diego County, and northern Baja California.

Reasons for the butterfly's reduction in population are not well understood. Habitat loss due to degradation and fragmentation caused by urban and rural development, agricultural conversion, off-road-vehicular use, the invasion of nonnative plants and insects, fire management practices, over collecting, and adverse weather conditions have likely contributed to the species' decline (62 FR 2313–2322).

Methods

Focused Quino Surveys

The surveys were conducted in accordance with the description in the most recent Quino checkerspot butterfly survey guidelines (December 15, 2014) as modified by the 2016 Building Industry Association (BIA) deviation (Appendix C).

According to the December 15, 2014, USFWS protocol, the first weekly survey shall begin during the third week of February, and the survey season will end the second Saturday in May. Surveys shall be conducted weekly and spaced no closer than 4 days apart. To avoid starting the survey effort prior to the onset of the flight of the butterfly, Dudek conducted the 2016 surveys in

accordance to the protocol outlined in the negotiated *Proposed 2016 Quino Checkerspot Survey Protocol* (BIA 2016) (Appendix C). This proposed protocol was prepared in conjunction with the USFWS. The proposed protocol combines elements of the 2002 and 2014 (early and late) protocols with key modifications to the 2014 USFWS Quino survey guidelines (December 15, 2014) including the following:

- A reference site was surveyed to determine the life stage of Quino and define the flight season.
- Surveys were initiated within 1 week of observed Quino flight at the reference site(s).
- At a minimum, surveys were conducted for 5 continuous weeks. Since no Quino were detected during the first 5 weeks, surveys continued until the end of the season, as determined by USFWS.
- Host plant species were mapped using population density estimates: low density (20–100 plants), medium density (100–1,000 plants), and high density (1,000–10,000 plants) with the addition of a very low category (1–19 plants) which can be collapsed into the low density category per the BIA protocol where warranted. High density patches of host plant were mapped as polygons if they were in areas larger than approximately 250 square feet. If observed during host plant mapping, Quino larvae will be recorded and a permitted biologist will be present to document the observation.

Focused Quino surveys were conducted over 196 surveys within a 7-week period between February 23, 2016, and April 7, 2016, per the Quino Checkerspot Butterfly Survey Guidelines published on February 1, 2016.

Surveys were conducted by Quino-permitted biologists Brock Ortega (TE813545-6), Anita Hayworth (TE781084-8), Paul Lemons (TE051248-5), Erin Bergman (TE813545-5), Jeff Priest (TE840619-3), Tricia Wotipka (TE840619-2), Vipul Joshi (TE019949-3), Brian Drake (TE006328), Bonnie Peterson (TE038701-02), Travis Cooper (TE170389-5), Alicia Hill (TE06145B-0), Garrett Huffman (TE20186A-1), David King (TE-785148-11), Nicole Kimball (TE-053598), Erika Eidson (TE-051236), Darin Busby (TE-115373-3), Melissa Busby (TE-080779-2), Crysta Dickson (TE-067347-5), Erik LaCoste (TE-027736-5), Diana Saucedo (TE-811615-6.1), Gretchen Cummings (TE-031850-4), and Monica Alfaro (TE-051242-3). Assistance was provided from Patricia Schuyler (TE-27502B-0), Callie Ford (TE-36118B-0), Marshall Paymard, Danielle Mullen, Kathleen Dayton, and Janice Wondolleck as supervised by a permitted biologist. Surveys were conducted in accordance with the Proposed 2016 Quino Checkerspot Survey Protocol (BIA 2016).

The site was divided into 28 survey polygons for weeks 1 through 7 (Figure 4, Survey Areas), each representing a single-day survey effort at a rate no greater than 5 to 10 acres per hour (i.e., in accordance with USFWS-approved protocol deviation) (see Table 2, 2016 Quino Survey Polygons) resulting in 170 person days of effort. Closed-canopy woody vegetation communities in the northeastern portion of the site were excluded from the Quino surveys as determined by the USFWS-approved protocol deviation (BIA 2016). These survey areas were numbered and assigned to Dudek's permitted biologists and independent investigators. The biologists were provided with 200-scale (1 inch = 200 feet) aerial photographs of each survey polygon. These photographs were used for mapping host plant populations and Quino, if observed. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species. Global Positioning System (GPS) units also were available for recording locations of host plant populations.

Table 2
2016 Quino Survey Polygons

Survey Area	Acreage of Survey Area
1	64.59
2	74.57
3	74.84
4	71.27
5	63.68
6	72.20
7	69.38
8	69.98
9	69.29
10	75.77
11	77.39
12	77.22
13	71.04
14	77.83
15	75.75
16	74.23
17	75.77
18	73.00
19	62.58
20	69.20
21	75.03
22	66.01
23	72.15
24	76.05

Table 2
2016 Quino Survey Polygons

Survey Area	Acreage of Survey Area
25	75.63
26	73.01
27	62.13
28	74.49

The survey methods consisted of slowly walking roughly parallel transects spaced approximately 30 feet (10 meters) apart throughout all habitats within the approximately 2,600-acre survey area. Survey routes were arranged to thoroughly cover the survey area at a rate of approximately 5–10 acres per person hour.

Surveys were conducted only during acceptable weather conditions (i.e., surveys were not conducted during fog, drizzle, or rain; winds greater than 15 miles per hour measured 4–6 feet above ground level for more than 30 seconds; temperature in the shade at ground level less than 60° Fahrenheit (°F) on a clear, sunny day with less than 50% cloud cover; or temperature in the shade at ground level less than 70°F on an overcast or cloudy day with 50% or more cloud cover. Survey times, personnel, and conditions during the Quino survey are shown in Table 3, Schedule of Focused Quino Surveys, and Table 4, Schedule of Host Plant Mapping Surveys. Photocopies of the surveyor's field notes are included as Appendix B.

Table 3
Schedule of Focused Quino Surveys

Date	Hours	Personnel	Survey Area	Conditions
Survey Pass 1				
2/26/2016	12:20 PM–3:30 PM	BP	1	79°F–82°F; 20%–70% cc; 1 to 1.5 mph winds
2/28/2016	9:30 AM–11:30 AM	BP	1	63°F–78°F; 20%–40% cc; 0 to 4.6 mph winds
2/26/2016	8:30 AM–4:00 PM	TW	2	57°F–89°F; 0%–0% cc; 0-1 to 2-3 mph winds
3/1/2016	8:00 AM–3:30 PM	JP	3	65°F–82°F; 40%–50% cc; 0-1 to 2-6 mph winds
2/29/2016	8:30 AM–4:15 PM	TW	4	62°F–78°F; 0%–10% cc; 0-1 to 5-8 mph winds
2/26/2016	8:35 AM–3:20 PM	PL	5	63°F–80°F; 0%–50% cc; 1-2 to 1-4 mph winds, 5-12 mph gusts
2/29/2016	8:30 AM–4:00 PM	JP	6	63°F–82°F; 10% cc; 0-1 to 7-12 mph winds
2/25/2016	8:20 AM–3:30 PM	PL	7	63°F–79°F; 0%–0% cc; 0-1 to 2-5 mph winds, 6-10 mph gusts
2/26/2016	8:00 AM–3:00 PM	JP	8	66°F–78°F; 0%–30% cc; 0-1 to 2-6 mph winds

Table 3
Schedule of Focused Quino Surveys

Date	Hours	Personnel	Survey Area	Conditions
2/25/2016	8:50 AM–3:30 PM	BP	9	61°F–84°F; 0%–0% cc; 0 to 2.7 mph winds
2/26/2016	9:40 AM–12:40 PM	BP	9	61°F–89°F; 20%–30% cc; 1 to 2.4 mph winds
3/1/2016	8:10 AM–4:15 PM	PL	10	63°F–87°F; 10%–30% cc; 0-1 to 3-6 mph winds, 7-10 mph gusts
2/24/2016	8:45 AM–4:30 PM	PL	11	65°F–77°F; 0% cc; 0 to 5 mph winds, 6-12 mph gusts
2/26/2016	8:30 AM–4:30 PM	DB	12	60°F–77°F; 0%–40% cc; 0 to 1-5 mph winds
2/24/2016	8:15 AM–3:30 PM	JP	13	66°F–80°F; 0%–0% cc; 0-1 to 3-5 mph winds
2/27/2016	8:30 AM–5:00 PM	BD	14	60.5°F–77.8°F; 0%–0% cc; 2.7 mph winds, 4.8 mph gusts to 3.1 mph winds, 5.3 mph gusts
2/25/2016	8:30 AM–4:20 PM	JP	15	66°F–80°F; 0%–0% cc; 0-1 to 2-5 mph winds
2/25/2016	8:15 AM–3:45 PM	TW	16	60°F–81°F; 0%–0% cc; 0-1 to 1-2 mph winds
2/23/2016	9:00 AM–4:30 PM	DB	17	68°F–82°F; 10%–20% cc; 0-1 to 3-5 mph winds
2/24/2016	8:00 AM–5:00 PM	BD	18	64.8°F–82.4°F; 0%–10% cc; 0-1 to 1.9, 2.7 mph gusts
2/25/2016	8:00 AM–5:00 PM	BD	19	61.3°F–78.3°F; 0%–0% cc; 0-1 to 4.1 mph winds, 5.3 mph gusts
2/26/2016	8:00 AM–4:45 PM	BD	20	68.4°F–72.5°F; 10%–60% cc; 0-1 to 1.6 mph winds, 2.7 mph gusts
3/1/2016	8:30 AM–5:00 PM	BD	21	66.7°F–79.1°F; 20%–40% cc; 1.7 mph winds, 2.1 mph gusts to 3.9 mph winds, 5.5 mph gusts
2/23/2016	9:30 AM–5:00 PM	BD	22	71.7°F–83.7°F; 30%–40% cc; 0-1 to 1.9 mph winds, 2.9 mph gusts
2/25/2016	12:30 PM–4:15 PM	DB, MB	23	77°F–83°F; 0%–0% cc; 1-3 to 1-5 mph winds
2/25/2016	8:15 AM–3:55 PM	EE	24	60°F–81°F; 0%–0% cc; 0-1 to 1-5 mph winds
2/25/2016	7:30 AM–3:50 PM	AH	25	81°F; 0%–0% cc; 0-1 to 1-5 mph winds
2/28/2016	8:45 AM–4:55 PM	AH	26	68°F–71°F; 10%–10% cc; 0-1 to 1-2 mph winds
2/28/2016	8:45 AM–4:55 PM	TC	27	68°F–71°F; 10%–10% cc; 0-1 to 1-2 mph winds
2/25/2016	8:45 AM–12:30 PM	DB, MB	28	60°F–83°F; 0%–0% cc; 0-1 to 1-3 mph winds
Survey Pass 2				
3/3/2016	8:30 AM–3:00 PM	TW	1	62°F–72°F; 30%–100% cc; 0-1 to 3-6 mph winds
3/4/2016	10:30 AM–2:25 PM	BP	2	64°F–85°F; 20%–30% cc; 0.6 to 1.4 mph winds
3/5/2016	8:20 AM–4:00 PM	PL	3	70°F–83°F; 30%–90% cc; 0-2 to 3-6 mph winds, 7-10 mph gusts
3/9/2016	8:25 AM–3:45 PM	PL	4	63°F–78°F; 0%–10% cc; 0-1 to 3-6 mph winds, 7-16 mph gusts
3/2/2016	9:45 AM–3:45 PM	BP	5	69°F–81°F; 20%–30% cc; 0.5 to 4.8 mph winds
3/8/2016	8:30 AM–3:45 PM	JP	6	55°F–67°F; 0%–0% cc; 0-3 to 4-8 mph winds
3/3/2016	10:00 AM–2:40 PM	BP	7	68°F–88°F; 30%–100% cc; 1 to 1.5 mph winds
3/3/2016	8:30 AM–3:30 PM	EB, MP	8	71.6°F–73.2°F; 20%–30% cc; 1.8 to 1.9 mph winds

Table 3
Schedule of Focused Quino Surveys

Date	Hours	Personnel	Survey Area	Conditions
3/4/2016	9:35 AM–4:35 PM	TW	9	65°F–68°F; 0%–50% cc; 0-1 to 2-3 mph winds
3/8/2016	8:35 AM–4:15 PM	TW	10	50°F–64°F; 0%–0% cc; 1-2 to 6-8 mph winds
3/4/2016	9:35 AM–2:00 PM	JP	11	65°F–70°F; 40%–50% cc; 0-1 to 3-7 mph winds
3/5/2016	10:00 AM–1:30 PM	JP	11	65°F–72°F; 80%–90% cc; 1-4 to 2-5 mph winds
3/2/2016	8:15 AM–4:15 PM	JP	12	64°F–72°F; 30%–50% cc; 0-1 to 1-5 mph winds
3/4/2016	2:00 PM–4:50 PM	BO	13	70°F–76°F; 10%–40% cc; 3 to 5 mph winds
3/5/2016	11:10 AM–4:20 PM	BO	13	70°F–70°F; 40%–50% cc; 3-5 to 3-5 mph winds, 10 mph gusts
3/3/2016	8:30 AM–4:15 PM	EL	14	60°F–70°F; 10%–80% cc; 1-3 to 4-7 mph winds
3/12/2016	11:10 AM–2:15 PM	JP	15	67°F–70°F; 50%–50% cc; 0-2 to 4-7 mph winds
3/13/2016	10:05 AM–2:45 PM	JP	15	66°F–76°F; 50%–90% cc; 0-2 to 5-10 mph winds (ridgeline)
3/3/2016	8:20 AM–4:05 PM	JP	16	64°F–70°F; 30%–90% cc; 0-1 to 2-7 mph winds
3/2/2016	9:00 AM–4:10 PM	BD	17	61°F–74°F; 10%–10% cc; 0-1 to 3-6 mph winds
3/3/2016	8:00 AM–4:00 PM	BD	18	64.1°F–77.2°F; 20%–90% cc; 0-1 to 2.9 mph winds, 3.9 mph gusts
3/4/2016	8:15 AM–4:30 PM	BD	19	64.2°F–74.7°F; 20%–90% cc; 0-1 to 5.3 mph winds, 7.1 mph gusts
3/5/2016	8:15 AM–3:30 PM	BD	20	70.3°F–71.8°F; 80%–90% cc; 0-1 to 5.3 mph winds, 8.2 mph gusts
3/8/2016	8:15 AM–5:00 PM	BD	21	61.3°F–71.4°F; 0%–0% cc; 0-1 to 3.3 mph winds, 4.0 mph gusts
3/2/2016	8:00 AM–5:00 PM	BD	22	71.2°F–83.2°F; 20%–30% cc; 0-1 to 2.9 mph winds, 3.7 mph gusts
3/9/2016	8:15 AM–5:00 PM	BD	22	70.7°F–73.5°F; 10%–40% cc; 0-1 to 2.7 mph winds, 3.7 mph gusts
3/2/2016	8:30 AM–3:45 PM	EL	23	61°F–72°F; 10%–10% cc; 0-1 to 4-7 mph winds
3/2/2016	8:35 AM–4:10 PM	EE	24	65°F–75°F; 0%–10% cc; 0-2 to 1-3 mph winds
3/4/2016	11:15 AM–4:15 PM	EE	25	70°F–71°F; 10%–80% cc; 1-3 to 1-4 mph winds
3/5/2016	10:05 AM–12:45 PM	EE	25	72°F–78°F; 10%–90% cc; 0-3 to 1-3 mph winds
3/4/2016	8:30 AM–4:00 PM	EL	26	68°F–69°F; 70%–90% cc; 0-1 to 4-7 mph winds
3/3/2016	9:00 AM–4:00 PM	GH	27	68°F–72.5°F; 10%–60% cc; 0-3 to 2-5 mph winds
3/3/2016	8:40 AM–2:20 PM	EE	28	63°F–78°F; 10%–10% cc; 0-3 to 1-5 mph winds
3/4/2016	9:20 AM–11:10 AM	EE	28	70°F–71°F; 10%–80% cc; 1-4 to 1-4 mph winds
Survey Pass 3				
3/11/2016	12:15 PM–3:00 PM	BP	1	65°F–76°F; 20%–100% cc; 7.8 to 10 mph winds
3/13/2016	1:00 PM–2:35 PM	BP	1	66°F–71°F; 40%–70% cc; 2.3 to 5 mph winds

Table 3
Schedule of Focused Quino Surveys

Date	Hours	Personnel	Survey Area	Conditions
3/14/2016	8:40 AM–4:00 PM	PL	2	70°F–71°F; 90%–100% cc; 1-4 to 2-5 mph winds, 6-10 mph gusts
3/20/2016	9:10 AM–4:40 PM	PL	3	75°F–77°F; 30%–70% cc; 1-3 to 2-4 mph winds
3/16/2016	8:20 AM–3:40 PM	PL	4	73°F–88°F; 0%–0% cc; to 3-6 mph winds
3/10/2016	9:00 AM–3:15 PM	DS	5	74°F–79°F; 25%–100% cc; 0-1 to 0-5 mph winds
3/15/2016	9:30 AM–4:45 PM	EL	6	67°F–77°F; 0%–0% cc; 0-1 to 4-7 mph winds
3/9/2016	8:00 AM–3:00 PM	JP	7	62°F–76°F; 0%–40% cc; 0-1 to 2-7 mph winds
3/10/2016	9:00 AM–2:45 PM	BP	8	66°F–84°F; 10%–60% cc; 0 to 3.2 mph winds
3/15/2016	9:30 AM–4:30 PM	MA	9	69°F–77°F; 0%–0% cc; 0-1 to 4-7 mph winds
3/15/2016	8:40 AM–4:20 PM	DB	10	60°F–79°F; 0%–10% cc; 1-2 to 2-6 mph winds
3/9/2016	9:45 AM–3:50 PM	BP	11	67°F–81°F; 0%–40% cc; 1 to 3.2 mph winds
3/11/2016	1:45 PM–3:15 PM	EL	12	66°F–70°F; 10%–100% cc; 4-7 to 7-12 mph winds
3/13/2016	10:00 AM–4:15 PM	EL	12	68°F–69°F; 50%–50% cc; 0-1 to 4-7 mph winds
3/11/2016	9:30 AM–11:45 AM	EL, CD	13	69°F–71°F; 100%–100% cc; 1-3 to 8-12 mph winds
3/10/2016	8:00 AM–4:00 PM	JP	14	60°F–76°F; 10%–90% cc; 0-1 to 2-5 mph winds
3/15/2016	9:15 AM–4:55 PM	EE	15	65°F–77°F; 0%–0% cc; 0-2 to 1-4 mph winds
3/12/2016	10:30 AM–4:15 PM	AH	16	66°F–78°F; 10%–100% cc; 1-2 to 4-7 mph winds
3/12/2016	2:00 PM–4:00 PM	TC	16	64°F–71°F; 10%–10% cc; 2-5 to 2-5 mph winds
3/9/2016	2:10 PM–4:50 PM	BO	17	73°F–75°F; 20%–20% cc; 5 to 5 mph winds
3/10/2016	9:00 AM–4:00 PM	BO	17	62°F–73°F; 10%–30% cc; 0 to 3 mph winds
3/15/2016	9:00 AM–5:00 PM	BD	18	60.6°F–78°F; 10%–10% cc; 0-1 to 3.6 mph winds, 4.0 mph gusts
3/11/2016	10:25 AM–1:25 PM	JP	19	66°F–69°F; 20%–70% cc; 2-6 to 5-10 mph winds, 15 mph gusts
3/17/2016	8:30 AM–12:00 PM	JP	19	62°F–82°F; 0%–0% cc; 0-1 to 0-5 mph winds
3/14/2016	11:00 AM–1:30 PM	JP	20	65°F–67°F; 90%–100% cc; 0-5 to 5-10 mph winds
3/17/2016	12:00 PM–4:30 PM	JP	20	76°F–82°F; 0%–0% cc; 0-5 to 2-6 mph winds
3/15/2016	8:30 AM–4:15 PM	JP	21	60°F–77°F; 0%–0% cc; 0-5 to 3-8 mph winds
3/22/2016	9:15 AM–5:00 PM	BD	22	70.9°F–73.2°F; 20%–90% cc; 1.2 mph winds, 3.9 mph gusts to 3.0 mph winds, 4.6 mph gusts
3/10/2016	8:00 AM–4:00 PM	BD	23	69.3°F–77.8°F; 30%–90% cc; 0-1 to 2.3 mph winds, 2.6 mph gusts
3/15/2016	9:20 AM–4:30 PM	BO	24	65°F–76°F; 10%–20% cc; 0 to 3 mph winds
3/16/2016	8:00 AM–5:00 PM	BD	25	73.4°F–79.1°F; 0% cc; 0-3.2 mph winds, 4.8 mph gusts
3/17/2016	9:00 AM–5:00 PM	BD	26	67.7°F–77°F; 0% cc; 0-1 to 2.3 mph winds, 3.7 mph gusts
3/10/2016	9:00 AM–3:30 PM	EL	27	61°F–73°F; 10%–90% cc; 1-3 to 4-7 mph winds

Table 3
Schedule of Focused Quino Surveys

Date	Hours	Personnel	Survey Area	Conditions
3/11/2016	9:10 AM–1:30 PM	BO	28	70°F–75°F; 40%–60% cc; 3 to 3-7 mph winds
3/12/2016	10:30 AM–4:00 PM	BO	28	70°F–75°F; 30%–40% cc; 3-5 to 3-5 mph winds
Survey Pass 4				
3/18/2016	10:05 AM–2:35 PM	BP	1	66°F–76°F; 0%–30% cc; 1.4 to 2.1 mph winds
3/18/2016	9:30 AM–5:00 PM	TW	2	63°F–78°F; 10%–70% cc; 2-3 to 3-6 mph winds
3/18/2016	9:30 AM–5:00 PM	JP	3	67°F–75°F; 0%–70% cc; 0-1 to 3-7 mph winds
3/21/2016	9:45 AM–5:00 PM	TW	4	64°F–71°F; 60%–70% cc; 1-2 to 3-6 mph winds
3/21/2016	9:30 AM–4:00 PM	PL	5	70°F–83°F; 10%–80% cc; 1-3 to 3-6 mph winds, 7-10 mph gusts
3/21/2016	9:45 AM–5:00 PM	JP	6	64°F–73°F; 10%–70% cc; 0-2 to 4-7 mph winds
3/18/2016	9:20 AM–4:20 PM	PL	7	70°F–86°F; 0%–80% cc; 0-2 to 3-7 mph winds
3/16/2016	8:30 AM–3:30 PM	JP	8	66°F–82°F; 0%–0% cc; 0-1 to 2-7 mph winds
3/21/2016	11:00 AM–5:30 PM	BP	9	66°F–76°F; 30%–60% cc; 1.2 to 5.6 mph winds
3/22/2016	11:10 AM–4:00 PM	PL	10	70°F–72°F; 10%–30% cc; 2-5 to 6-10 mph winds, 4-8 mph gusts
3/26/2016	9:40 AM–12:45 PM	PL	10	64°F–78°F; 0%–10% cc; 0-3 to 1-3 mph winds, 4-8 mph gusts
3/16/2016	9:40 AM–3:20 PM	BP	11	73°F–86°F; 0%–0% cc; 0 to 4.7 mph winds
3/18/2016	9:30 AM–5:25 PM	EL	12	69°F–74°F; 0%–90% cc; 0-1 to 4-7 mph winds
3/19/2016	9:20 AM–4:30 PM	JP	13	65°F–78°F; 30%–90% cc; 0-1 to 2-5 mph winds
3/24/2016	9:30 AM–2:30 PM	AG	14	74°F–82°F; 0%–0% cc; 0-1 to 2-3 mph winds
3/26/2016	9:00 AM–4:35 PM	JP	15	64°F–76°F; 0%–30% cc; 0-1 to 3-7 mph winds
3/19/2016	8:30 AM–4:30 PM	GH	16	62°F–78°F; 20%–40% cc; 0-3 to 2-4 mph winds
3/18/2016	9:30 AM-5:15 PM	CD	17	70°F–77°F; 0%–100% cc; 0-1 to 4-7 mph winds
3/11/2016	10:25 AM–1:25 PM	TW	18	66°F–69°F; 20%–70% cc; 2-6 to 5-10 mph winds
3/22/2016	10:00 AM–2:25 PM	TW	18	64°F–68°F; 20%–60% cc; 4-8 to 7-10 mph winds
3/19/2016	8:00 AM–5:00 PM	BD	19	71.6°F–78.8°F; 10%–100% cc; 0-1 to 4.4 mph winds, 6.2 mph gusts
3/20/2016	9:15 AM–5:00 PM	BD	20	72.7°F–74.5°F; 30%–100% cc; 0-1 to 2.2 mph winds, 3.9 mph gusts
3/21/2016	9:15 AM–5:00 PM	BD	21	70.2°F–71.7°F; 20%–90% cc; 2.4 mph winds, 3.2 mph gusts to 2.4 mph winds, 3.2 mph gusts
3/29/2016	9:20 AM–2:30 PM	JP	22	60°F–62°F; 40%–60% cc; 1-4 to 6-12 mph winds, gusts 15-20 mph (ridge)
4/2/2016	12:15 PM–2:15 PM	JP	22	78°F–80°F; 0%–0% cc; 3-7 to 3-7 mph winds
3/19/2016	9:15 AM-4:30 PM	CD	23	68°F–74°F; 5%–50% cc; 0-1 to 2-3 mph winds

Table 3
Schedule of Focused Quino Surveys

Date	Hours	Personnel	Survey Area	Conditions
3/18/2016	8:45 AM–5:00 PM	BD	24	70.4°F–77.9°F; 0%–100% cc; 0-1 to 2.9 mph winds, 3.8 mph gusts
3/16/2016	8:00 AM–5:00 PM	BD	25	73.4°F–83.7°F; 0%–0% cc; 0-1 to 3.2 mph winds, 4.8 mph gusts
3/21/2016	9:30 AM–4:30 PM	GH	25	62°F–75°F; 20%–50% cc; 2-5 to 2-6 mph winds
3/22/2016	8:25 AM–4:15 PM	EE	26	63°F–78°F; 10%–70% cc; to 1-5 mph winds
3/21/2016	9:40 AM–5:05 PM	EE	27	60°F–76°F; 60%–80% cc; 0-3 to 0-4 mph winds
3/21/2016	10:45 AM–3:25 PM	GC, EL	28	66°F–72°F; 40%–50% cc; 2 to 3 mph winds, 9 mph gusts
Survey Pass 5				
3/23/2016	10:25 AM–3:15 PM	BP	1	68°F–82°F; 0%–0% cc; 0.4 to 7.2 mph winds
3/24/2016	8:15 AM–3:45 PM	PL	2	63°F–90°F; 0%–0% cc; 0 to 1-4 mph winds, 5-10 mph gusts
4/2/2016 make-up from 3/28	8:15 AM–3:45 PM	PL	3	63°F–85°F; 0%–0% cc; 0-1 to 3-6 mph winds, 7-12 mph gusts
4/3/2016 make-up from 3/29	8:15 AM–3:30 PM	PL	4	65°F–84°F; 0%–30% cc; 0-1 to 3-7 mph winds, 8-15 mph gusts
4/2/2016 make-up from 3/28	9:00 AM–3:30 PM	TW	5	68°F–84°F; 0%–0% cc; 0-1 to 4-8 mph winds
3/25/2016	8:15 AM-3:30 PM	CD	6	69°F–85°F; 0%–30% cc; 0-1 to 4-6 mph winds
3/23/2016	8:30 AM–3:30 PM	JP	7	62°F–73°F; 0%–0% cc; 0-1 to 4-10 mph winds
3/25/2016	9:30 AM–4:40 PM	EB	8	63.8°F–81.3°F; 0%–0% cc; 0.2 to 3.2 mph winds
3/25/2016	9:30 AM–3:45 PM	BP	9	63°F–78°F; 0%–10% cc; 0 to 5 mph winds
3/31/2016	10:40 AM–5:40 PM	BP	10	64°F–68°F; 0%–0% cc; 3 to 3 mph winds
3/25/2016	8:00 AM–3:45 PM	PL	11	67°F–81°F; 0%–10% cc; 0-1 to 1-4 mph winds, 5-10 mph gusts
3/24/2016	8:40 AM–4:05 PM	EB, JW	12	67.2°F–76.3°F; 0%–0% cc; 1.1 to 2.4 mph winds
3/26/2016	8:30 AM-3:45 PM	CD	13	63°F–78°F; 0%–25% cc; 0-1 to 9 mph winds
4/2/2016	9:30 AM–3:30 PM	AG	14	74°F–79°F; 0%–0% cc; 0 to 1-2 mph winds, 5 mph gusts
3/31/2016	9:10 AM–4:45 PM	EL	15	63°F–70°F; 0%–0% cc; 1-3 to 7-10 mph winds
3/23/2016	10:05 AM–5:45 PM	EB, JW	16	61.3°F–74.2°F; 0%–0% cc; 1.3 to 1.9 mph winds
3/23/2016	8:30 AM–4:15 PM	EL	17	56°F–77°F; 0%–10% cc; 0-1 to 4-7 mph winds
3/24/2016	8:20 AM–3:40 PM	EL	18	60°F–84°F; 0%–0% cc; 0-1 to 4-7 mph winds
3/25/2016	8:40 AM–3:00 PM	JP	19	64°F–82°F; 0%–20% cc; 0-1 to 2-6 mph winds
3/24/2016	9:00 AM–4:00 PM	VJ	20	62°F–82°F; 0%–0% cc; 0-1 to 0-8 mph winds
4/1/2016	9:15 AM–4:45 PM	EL	21	65°F–73°F; 0%–50% cc; 0-1 to 4-7 mph winds

Table 3
Schedule of Focused Quino Surveys

Date	Hours	Personnel	Survey Area	Conditions
3/24/2016	9:10 AM–4:10 PM	JP	22	68°F–80°F; 0%–0% cc; 0-2 to 5-10 mph winds, 10-15 mph gusts
3/23/2016	8:30 AM–4:30 PM	GH	23	62°F–76°F; 0%–0% cc; 0-3 to 3-6 mph winds
3/24/2016	9:00 AM–4:45 PM	TC	24	68°F–72°F; 0%–0% cc; 1-2 to 2-5 mph winds
3/25/2016	9:30 AM–4:45 PM	TC	25	68°F–72°F; 0%–0% cc; 1-2 to 2-5 mph winds
3/30/2016	10:25 AM–2:55 PM	DK, EE	26	63°F–67°F; 30%–50% cc; 1-3 to 3-7 mph winds
3/29/2016	10:15 AM–3:15 PM	DK, EE	27	60°F–63°F; 30%–40% cc; 1-3 to 2-6 mph winds
3/25/2016	9:45 AM–5:15 PM	AH	28	67°F–84°F; 0%–0% cc; 1-3 to 1-5 mph winds
Survey Pass 6				
4/1/2016	11:00 AM–3:30 PM	BP	1	75°F–75°F; 0%–0% cc; 1 to 6 mph winds
4/6/2016	10:30 AM–2:35 PM	BP	1	74°F–77°F; 100%–100% cc; 1 to 3.4 mph winds
4/1/2016	8:30 AM–4:00 PM	PL	2	65°F–80°F; 0%–50% cc; 0-1 to 2-6 mph winds
4/5/2016	8:20 AM–3:50 PM	PL	3	70°F–93°F; 80%–90% cc; 0-2 to 3-6 mph winds, 7-10 mph gusts
4/5/2016	10:15 AM–3:30 PM	BP	4	67°F–85°F; 60%–80% cc; 1 to 7 mph winds
4/4/2016	8:10 AM–2:40 PM	PL	5	64°F–87°F; 0%–0% cc; 0-2 to 3-8 mph winds, 10-15 mph gusts
4/5/2016	9:00 AM–4:15 PM	JP	6	64°F–84°F; 70%–90% cc; 0-3 to 5-10 mph winds
3/31/2016	8:30 AM–3:30 PM	JP	7	56°F–70°F; 0%–0% cc; 0-1 to 3-7 mph winds
4/4/2016	9:10 AM–2:30 PM	BP	8	66°F–81°F; 0%–0% cc; 1.2 to 4.5 mph winds
4/1/2016	9:30 AM–4:35 PM	AH	9	65°F–83°F; 0%–40% cc; 0-1 to 1-2 mph winds
4/4/2016	7:50 AM–4:00 PM	EB	10	57.1°F–82.6°F; 0%–10% cc; 0.3 to 2.6 mph winds
4/1/2016	10:00 AM–4:10 PM	EE	11	62°F–75°F; 0%–40% cc; 0-3 to 1-4 mph winds
4/4/2016	10:00 AM–12:45 PM	EE	11	69°F–86°F; 0%–0% cc; 1-3 to 1-4 mph winds
4/5/2016	8:15 AM–5:00 PM	EB, JW	12	58.9°F–91°F; 30%–70% cc; 0.5 to 2.3 mph winds
4/1/2016	9:00 AM–4:30 PM	GH	13	61°F–74°F; 0%–50% cc; 2-3 to 3-8 mph winds
3/31/2016	9:45 AM–5:00 PM	EB	14	63.2°F–69.9°F; 0%–0% cc; 2.2 to 1.7 mph winds
4/4/2016	9:00 AM–4:40 PM	JP	15	68°F–77°F; 10%–10% cc; 0-2 to 8-12 mph winds, 12-18 mph gusts
4/5/2016	9:00 AM–4:30 PM	EL	16	69°F–84°F; 60%–80% cc; 0-1 to 4-7 mph winds
3/30/2016	9:15 AM–2:30 PM	JP	17	58°F–60°F; 20%–70% cc; 0-2 to 1-5 mph winds
4/2/2016	8:45 AM–11:45 AM	JP	17	60°F–78°F; 0%–0% cc; 0-2 to 1-5 mph winds
4/1/12016	9:15 AM-4:15 PM	CD	18	69°F–80°F; 0%–50% cc; 3-5 to 4-5 mph winds
4/1/2016	9:30 AM–3:50 PM	JP	19	66°F–77°F; 0%–80% cc; 0-3 to 3-6 mph winds, gusts 7-9 mph
3/31/2016	10:15 AM–5:20 PM	AH	20	63°F–73°F; 0%–10% cc; 1-2 to 2-5 mph winds
4/4/2016	8:30 AM–4:00 PM	AH	21	71°F–86°F; 0%–10% cc; 0-1 to 4-10 mph winds

Table 3
Schedule of Focused Quino Surveys

Date	Hours	Personnel	Survey Area	Conditions
3/31/2016	9:30 AM–5:20 PM	TC	22	63°F–73°F; 0%–10% cc; 1-3 to 2-5 mph winds
3/31/2016	9:45 AM–1:20 PM	DK	23	60°F–70°F; 0%–0% cc; 1-2 to 3-7 mph winds
4/6/2016	8:10 AM–3:35 PM	NK	23	63°F–83°F; 30%–100% cc; 0-1 to 4-6 mph winds
4/4/2016	8:45 AM–4:25 PM	NK	24	65°F–86°F; 0%–10% cc; 0-1 to 4-10 mph winds
4/4/2016	9:45 AM–5:25 PM	TW	25	74°F–85°F; 10%–10% cc; 1-3 to 2-5 mph winds
4/4/2016	8:30 AM–4:30 PM	GH	26	67°F–76°F; 0%–10% cc; 1-4 to 3-8 mph winds
4/4/2016	8:45 AM–4:50 PM	TC	27	84°F–84°F; 0%–0% cc; 0-2 to 3-7 mph winds
3/30/2016	9:30 AM–4:45 PM	TC	28	63°F–72°F; 10%–30% cc; 1-5 to 1-5 mph winds
Survey Pass 7 (Quino survey season was declared over by FWS on April 6, 2016)				
4/6/2016	8:30 AM–4:30 PM	GH	7	61°F–76°F; 30%–40% cc; 2-5 to 4-10 mph winds
4/6/2016	7:40 AM–4:35 PM	EB	14	54.3°F–76.3°F; 30%–100% cc; 0.9 to 2.4 mph winds
4/6/2016	8:10 AM–2:30 PM	JP	19	64°F–84°F; 40%–100% cc; 0-1 to 0-3 mph winds

Notes: AG = Antonette Gutierrez; AH = Alicia Hill (TE06145B-0); BO = Brock Ortega (TE813545-6); BD = Brian Drake (TE006328); BP = Bonnie Peterson (TE038701-02); CD = Crysta Dickson; CF = Callie Ford (TE-36118B-0); DB = Darin Busby; DK = David King (TE-785148-11); DS = Diana Saucedo (TE-811615-6.1); EB = Erin Bergman (TE-813545-5); EE = Erika Eidson (TE-051236); EL = Erik LaCoste; GC = Gretchen Cummings (TE-031850-4); GH = Garrett Huffman (TE20186A-1); JP = Jeffrey Priest (TE-840619-3); JW = Janice Wondolleck; MA = Monica Alfaro (TE 051242-3); MB = Melissa Busby; NK = Nicole Kimball (TE-053598); PL = Paul Lemons (TE-051248-5); PS = Patricia Schuler (TE-27502B-0); MP = Marshall Paymard ; TC = Travis Cooper (TE170389-5); TW = Tricia Wotipka (TE840619-2); VJ = Vipul Joshi (TE019949-3).

Host Plant Mapping

Quino host plant mapping surveys were conducted within a 6-week period between March 9, 2016, and April 20, 2016, in accordance with the schedule provided in Table 4. Botanical surveys were conducted by biologists Kathleen Dayton, Danielle Mullen, Kevin Shaw, Scott Gressard, Callie Ford, Jake Marcon, Janice Wondolleck, Shana Carey, and Kyle Matthews. All surveys were conducted on foot. Approximately 24 person-days were spent conducting host plant mapping within the study area.

Biologists were able to observe reference populations of dot-seed plantain, which was one of the two host plants previously observed on site in 2004 and 2005 (Dudek 2008), to develop a search-image before conducting surveys of the site. Host plant mapping surveys focused on the identification and location of all seven recognized host plants for Quino: dot-seed plantain, woolly plantain, Coulter's snapdragon, rigid bird's beak, purple owl's clover, Chinese houses (*Collinsia concolor*), and purple Chinese houses (*Collinsia heterophylla*) (USFWS 2014; BIA 2016). All host plants were included in the survey; however, woolly plantain and Chinese houses do not have a western San Diego county distribution.

Table 4
Schedule of Host Plant Mapping Surveys

Date	Hours	Personnel	Survey Area	Conditions (temperature, cloud cover, wind speed)
3/9/2016	9:00 AM–2:00 PM	AT	1	66°F–76°F; 0%–0% cc; 0-2 to 4-8 mph winds
3/9/2016	8:45 AM–2:15 PM	JM	3	65°F–75°F; 0%–10% cc; 0-2 to 0-2 mph winds
3/9/2016	9:05 AM–2:15 PM	JW	4	52°F–75°F; 10%–10% cc; 0-1 to 1-3 mph winds
3/9/2016	8:00 AM–2:40 PM	DM	2	52°F–72°F; 0%–20% cc; 2 to 3 mph winds
3/9/2016	2:15 PM–4:00 PM	AT	12	76°F–78°F; 0%–0% cc; 2-4 to 4-8 mph winds
3/9/2016	9:20 AM–2:00 PM	KM	5	63°F–74°F; 0%–10% cc; 1 to 1 mph winds
3/9/2016	2:15 PM–3:45 PM	KM	12	68°F–76°F; 0%–30% cc; 1 to 1 mph winds
3/10/2016	8:45 AM–2:10 PM	JM	6	66°F–79°F; 0%–10% cc; 0 to 0-3 mph winds
3/10/2016	2:15 PM–4:35 PM	JM	10	72°F–79°F; 10%–10% cc; 0-3 to 0-3 mph winds
3/10/2016	8:30 AM–4:40 PM	SC	10	57°F–70°F; 0%–50% cc; 7 to 1-2 mph winds
3/10/2016	8:30 AM–5:25 PM	SG	9	60°F–65°F; 10%–20% cc; 0-2 to 0-3 mph winds
3/10/2016	8:30 AM–4:45 PM	KD	8, 9, 11	59°F–68°F; 0%–10% cc; 1 to 2 mph winds
3/11/2016	8:00 AM–12:15 PM	JW	7	54°F–66°F; 20%–90% cc; 0-1 to 2-3 mph winds
3/11/2016	8:25 AM–1:00 PM	JM	11	65°F–68°F; 40%–90% cc; 0-2 to 0-6 mph winds
3/11/2016	8:25 AM–12:25 PM	KM	13	54°F–68°F; 20%–90% cc; 1 to 3 mph winds
3/28/2016	8:05 AM–2:30 PM	JM	14	59°F–60°F; 100%–100% cc; 2-5 to 3-10 mph winds
3/28/2016	2:50 PM–4:10 PM	JM	10	60°F–61°F; 100%–100% cc; 3-5 to 5-10 mph winds
3/28/2016	7:55 AM–5:00 PM	KS	15	59°F–61°F; 60%–100% cc; 7 to 15 mph winds
3/28/2016	10:15 AM–4:15 PM	MP	19	60°F–61°F; 90%–100% cc; 2-4 to 2-4 mph winds
3/29/2016	8:20 AM–2:00 PM	AT	17	52°F–65°F; 30%–50% cc; 2-8 to 4-10 mph winds
3/29/2016	8:25 AM–2:00 PM	JM	16	57°F–65°F; 30%–40% cc; 0-1 to 2-5 mph winds
3/29/2016	9:30 AM–1:55 PM	JW	18	57°F–57°F; 30%–30% cc; 0-2 to 1-3 mph winds
3/29/2016	12:45 PM–3:15 PM	KS	15	60°F–62°F; 50%–60% cc; 10 to 17 mph winds
3/29/2016	7:15 AM–11:00 AM	MP	19	50°F–72°F; 70%–70% cc; 0-1 to 2-3 mph winds
3/29/2016	11:10 AM–4:05 PM	MP	20	70°F–73°F; 50%–70% cc; 2-3 to 3-4 mph winds
3/30/2016	8:20 AM–3:00 PM	KS	22	45°F–65°F; 10%–50% cc; 3 to 10 mph winds
3/31/2016	7:50 AM–1:00 PM	JW	25	48°F–64°F; 0%–0% cc; 0-1 to 0-1 mph winds
3/31/2016	12:20 PM–3:30 PM	KS	15	68°F–70°F; 0%–0% cc; 10 to 10 mph winds
3/31/2016	7:55 AM–2:00 PM	DM	23	48°F–72°F; 0%–0% cc; 1 to 3 mph winds
3/31/2016	9:00 AM–5:10 PM	MP	21	58°F–72°F; 0%–0% cc; 0-1 to 0-2 mph winds
3/31/2016	8:00 AM–2:55 PM	SG	9,28	63°F–75°F; 0%–0% cc; 0-1 to 0-2 mph winds
4/1/2016	8:00 AM–1:45 PM	JW	26	55°F–55°F; 0%–100% cc; 0-1 to 0-2 mph winds
4/1/2016	8:20 AM–2:15 PM	DM	24	50°F–75°F; 0%–100% cc; 1 to 3 mph winds
4/5/2016	8:40 AM–3:25 PM	SG	27, 28	61°F–87°F; 80%–80% cc; 0-2 to 0-3 mph winds
4/7/2016	11:35 AM–1:25 PM	KS	22	61°F–63°F; 100%–100% cc; 1 to 3 mph winds
4/12/2016	8:30 AM–3:40 PM	SG	27	63°F–79°F; 10%–70% cc; 0-1 to 0-1 mph winds
4/13/2016	8:45 AM–2:40 PM	KS	22	60°F–75°F; 0%–100% cc; 1 to 5 mph winds

Table 4
Schedule of Host Plant Mapping Surveys

Date	Hours	Personnel	Survey Area	Conditions (temperature, cloud cover, wind speed)
4/14/2016	7:45 AM–1:30 PM	KS	22	60°F–75°F; 0%–80% cc; 2 to 4 mph winds
4/20/2016	2:30 PM–6:00 PM	MP	22	78°F–90°F; 0%–0% cc; 0-1 to 0-1 mph winds

Notes: AT = Andy Thomson; DM = Danielle Mullen; JM = Jake Marcon; JW = Janice Wondollec ; KD = Kathleen Dayton; KM = Kyle Matthews; KS = Kevin Shaw; MP = Marshall Paymard; SC = Shana Carey; SG = Scott Gressard.

Dudek biologists recorded locations of Quino host plants using a mobile application. Data collected included the surveyor(s), date, species of host plant, and density of the host plant at the point at which the host plant was found. All host plant occurrences were mapped as points. Density was assessed per square meter and was collected using the following classes:

- Very Low: 1–19 plants per square meter
- Low: 20–100 plants per square meter
- Medium: 100–1,000 plants per square meter
- High: 1,000–10,000+ plants per square meter

Points were collected within patches of host plant at least as close as every 3 meters (10 feet). At each host plant point, surveyors recorded nectar plants observed at the host plant location, including *Allium* spp., *Asteraceae* spp., *Cryptantha* spp., *Ericameria* spp., *Lasthenia* spp., and *Layia* spp. In addition, all blooming nectar plants were recorded for the entire survey area.

At the conclusion of surveys, Dudek geographic information systems (GIS) analysts created a GIS coverage for host plants. After review by a biologist, a geodatabase was created to ensure these data are topologically correct and met final quality control and assurance procedures.

Results

Focused Quino Surveys

No Quino were observed during the 2016 focused survey. Fifty-two butterfly species were observed during the surveys. The weeks in which these butterflies were observed are shown in Table 5, Butterflies Observed on Site.

Table 5
Butterflies Observed on Site

Scientific Name	Common Name	Week						
		1	*2*	*3*	*4*	*5*	*6*	*7*
Hesperiidae – Skippers								
Atalopedes campestris	Sachem	—	—	—	—	X	—	—
Erynnis funeralis	Funereal duskywing	X	X	X	X	X	X	X
Erynnis pacuvius	Pacuvius duskywing	—	—	X	—	—	—	—
Erynnis propertius	Propertius duskywing	—	—	—	—	X	X	X
Erynnis tristis	Mournful duskywing	—	—	—	X	X	—	—
Heliopetes ericetorum	Northern white-skipper	—	—	—	X	X	X	—
Hylephila phyleus	Fiery skipper	—	—	X	X	X	X	—
Pholisora catullus	Common sootywing	—	—	—	—	—	—	X
Pyrgus albescens	White checkered-skipper	X	X	X	X	X	X	X
Pyrgus scriptura	Small checkered-skipper	X	X	X	X	—	—	—
Nymphalidae – Brush-Footed Butterflies								
Adelpha bredowii	California sister	—	X	X	X	X	—	—
Chlosyne californica	California patch	X	X	X	—	—	X	—
Chlosyne gabbii	Gabb's checkerspot	—	X	X	X	X	X	X
Coenonympha tullia california	Common California ringlet	X	X	X	—	X	—	—
Danaus gilippus	Queen	—	X	—	—	—	X	X
Danaus plexippus	Monarch	—	X	X	X	X	X	X
Euphydryas chalcedona	Chalcedon checkerspot	—	—	—	—	X	—	—
Junonia coenia	Common buckeye	X	X	X	X	X	X	X
Nymphalis antiopa	Mourning cloak	X	X	—	—	—	X	—
Phyciodes mylitta	Mylitta crescent	—	—	—	—	—	X	—
Speyeria callippe comstocki	Comstock's fritillary	—	—	—	—	—	X	—
Vanessa annabella	West coast lady	X	X	X	X	X	X	—
Vanessa atalanta	Red admiral	X	X	X	X	X	X	—
Vanessa cardui	Painted lady	X	X	X	X	X	X	X
Vanessa virginiensis	American lady	X	X	X	X	X	X	—
Lycaenidae – Blues and Hairstreaks								
Atlides halesus	Great purple hairstreak	—	—	X	X	—	—	—
Brephidium exile	Western pygmy blue	X	X	X	X	X	X	—

Table 5
Butterflies Observed on Site

Scientific Name	Common Name	Week						
		1	*2*	*3*	*4*	*5*	*6*	*7*
Callophrys augustinus	Brown elfin	X	—	—	—	—	X	—
Callophrys dumetorum	Bramble hairstreak	X	X	X	—	—	—	—
Callophrys perplexa	Perplexing green hairstreak	X	X	—	—	—	—	—
Euphilotes battoides bernardino	Bernardino square-spotted blue	—	—	—	—	—	—	X
Glaucopsyche lygdamus australis	Southern blue	X	X	X	X	X	X	—
Hemiargus ceraunus gyas	Edward's blue	X	X	—	—	—	X	—
Leptotes marina	Marine blue	X	X	X	X	X	X	X
Plebejus acmon	Acmon blue	X	X	X	X	X	X	X
Strymon melinus	Gray hairstreak	X	X	X	X	X	X	X
Papilionidae – Swallowtails								
Papilio eurymedon	Pale swallowtail	X	X	X	X	X	X	X
Papilio rutulus	Western tiger swallowtail	X	X	X	X	X	X	X
Papilio zelicaon	Anise swallowtail	X	X	X	X	X	X	X
Peiridae – Whites and Sulfurs								
Anthocharis cethura	Desert orangetip	—	—	X	—	—	—	—
Anthocharis sara sara	Pacific sara orangetip	X	X	X	X	X	X	X
Colias eurydice	California dogface	X	X	X	X	X	X	X
Colias eurytheme	Orange sulphur	—	X	X	X	X	X	X
Colias harfordi	Harford's Sulfur	X	X	X	X	X	X	X
Eurema nicippe	Sleepy orange	—	—	—	—	—	X	X
Nathalis iole	Dainty sulphur	—	—	—	X	X	X	X
Phoebis sennae	Cloudless sulphur	X	X	—	X	—	X	—
Pieris rapae rapae	Cabbage white	X	X	X	X	X	X	—
Pontia protodice	Checkered white	X	X	X	X	X	X	X
Pontia sisymbrii	Spring white	X	X	X	X	X	X	—
Riodinidae – Metalmarks								
Apodemia virgulti	Behr's metalmark	X	X	X	X	X	X	X
Calephelis wrighti	Wright's metalmark	—	X	—	—	—	—	—

Host Plant Mapping

Three Quino larval host plants—dot-seed plantain, purple owl's clover, and purple Chinese houses—were observed within the study area during focused surveys (Figure 5, Quino Host Plant Locations). Dot-seed plantain is the dominant host plant observed and is commonly found in open patches and ridgetops. Purple owl's clover is densely populated on the central and northern edge of the site. Table 6, Quino Adult Nectar Plants, includes all adult Quino nectar plants observed in each focused survey area. No Quino larvae were observed during focused Quino and Host Plant Mapping surveys.

Table 6
Quino Adult Nectar Plants

Survey Area	Nectar Plants
1	*Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Sonchus oleraceus*, *Mirabilis laevis*, *Hedypnois rhagadioloides*
2	*Allium* spp., *Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum, Lasthenia* spp.
3	*Allium* spp., *Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Ericameria* spp., *Salvia columbariae*
4	*Dichelostemma capitatum*
5	*Allium* spp., *Amsinckia* spp., *Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*
6	*Allium* spp., *Asteraceae* spp., *Dichelostemma capitatum*
7	*Asteraceae* spp., *Dichelostemma capitatum*
8	*Allium* spp., *Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Ericameria* spp.
9	*Allium* spp., *Amsinckia* spp., Asteraceae spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Ericameria* spp., *Lasthenia* spp., *Salvia columbariae*
10	*Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Layia* spp., *Ericameria* spp., *Lasthenia* spp.
11	*Dichelostemma capitatum*
12	*Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Lasthenia* spp.
13	*Allium* spp., *Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Lasthenia* spp., *Salvia columbariae*
14	*Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Ericameria* spp., *Layia* spp.
16	*Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Salvia columbariae*
17	*Allium* spp., *Asteraceae* spp., *Dichelostemma capitatum*, *Bloomeria clevelandii*, *Fritillaria biflora*, *Calochortus splendens, Eschscholzia californica, Mirabilis laevis, Sidalcea malachroides, Brodiaea* spp., *Linanthus* spp.
18	*Asteraceae* spp., *Dichelostemma capitatum, Lasthenia* spp.
19	*Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum, Lasthenia* spp., *Salvia columbariae*
20	*Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Salvia columbariae*
21	*Dichelostemma capitatum*
22	*Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Lasthenia* spp., *Salvia columbariae*
23	*Allium* spp., *Amsinckia* spp., *Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*
24	*Allium* spp., *Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Eriogonum fasciculatum*
25	*Asteraceae* spp., *Dichelostemma capitatum*, *Lasthenia* spp., *Salvia columbariae*
26	*Asteraceae* spp., *Dichelostemma capitatum*, *Lasthenia* spp., *Salvia columbariae*

Table 6
Quino Adult Nectar Plants

Survey Area	Nectar Plants
27	*Amsinckia* spp., *Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Ericameria* spp., *Salvia columbariae*
28	*Allium* spp., *Amsinckia* spp., *Asteraceae* spp., *Cryptantha* spp., *Dichelostemma capitatum*, *Ericameria* spp., *Lasthenia* spp., *Salvia columbariae*

One hundred and sixty-one (161) wildlife species were recorded during this survey effort and are included in Appendix A, Wildlife Observed during the 2016 Fanita Quino Survey.

Dudek certifies that the information in this survey report and attached exhibits fully and accurately represents the work conducted by the Quino-permitted biologists who conducted this focused survey. Please feel free to contact Brock Ortega, bortega@dudek.com if you have any questions regarding the contents of this report.

Sincerely,

Paul M. Lemons
Permit #TE051248-4

Brock Ortega
Permit #TE813545-6

Erin Bergman
Permit #TE813545-5

Jeffrey D. Priest
Permit #TE840619-5

Anita Hayworth
Permit #TE781084-8

Tricia Wotipka
Permit #TE840619-2

Vipul Joshi
Permit #TE019949-3

Brian Drake
Permit #TE006328

Bonnie Peterson
Permit #TE038701-02

Travis Cooper
Permit #TE170389-5

Alicia Hill
Permit #TE06145B-0

Garrett Huffman
Permit #TE20186A-1

David King
Permit #TE-785148-11

Nicole Kimball
Permit #TE-053598

Recovery Permit Coordinator
Subject: 2016 Focused Quino Checkerspot Butterfly Survey Report for the Proposed Fanita Ranch Project, City of Santee, County of San Diego, California.

Erika Eidson Permit #TE-051236	Darin Busby Permit #TE-115373-3	Melissa Busby Permit #TE-080779-2
Crystá Dickson Permit #TE-067347-5	Erik LaCoste Permit #TE-027736-5	Antonette Gutierrez Permit #TE-50992B-0
Diana Saucedo Permit #TE-811615-6.1	Gretchen Cummings Permit #TE-031850-4	Monica Alfaro Permit #TE-051242-3

Att: Figure 1, Regional Map
Figure 2, Vicinity Map
Figure 3, Vegetation Communities
Figure 4, Survey Areas
Figure 5, Quino Host Plant Locations
Appendix A, Wildlife Species Observed during the 2016 Fanita Quino Survey
Appendix B, 2016 Fanita Quino Survey Field Notes
Appendix C, Proposed 2016 Quino Checkerspot Survey Protocol

cc: Paul Lemons, Dudek

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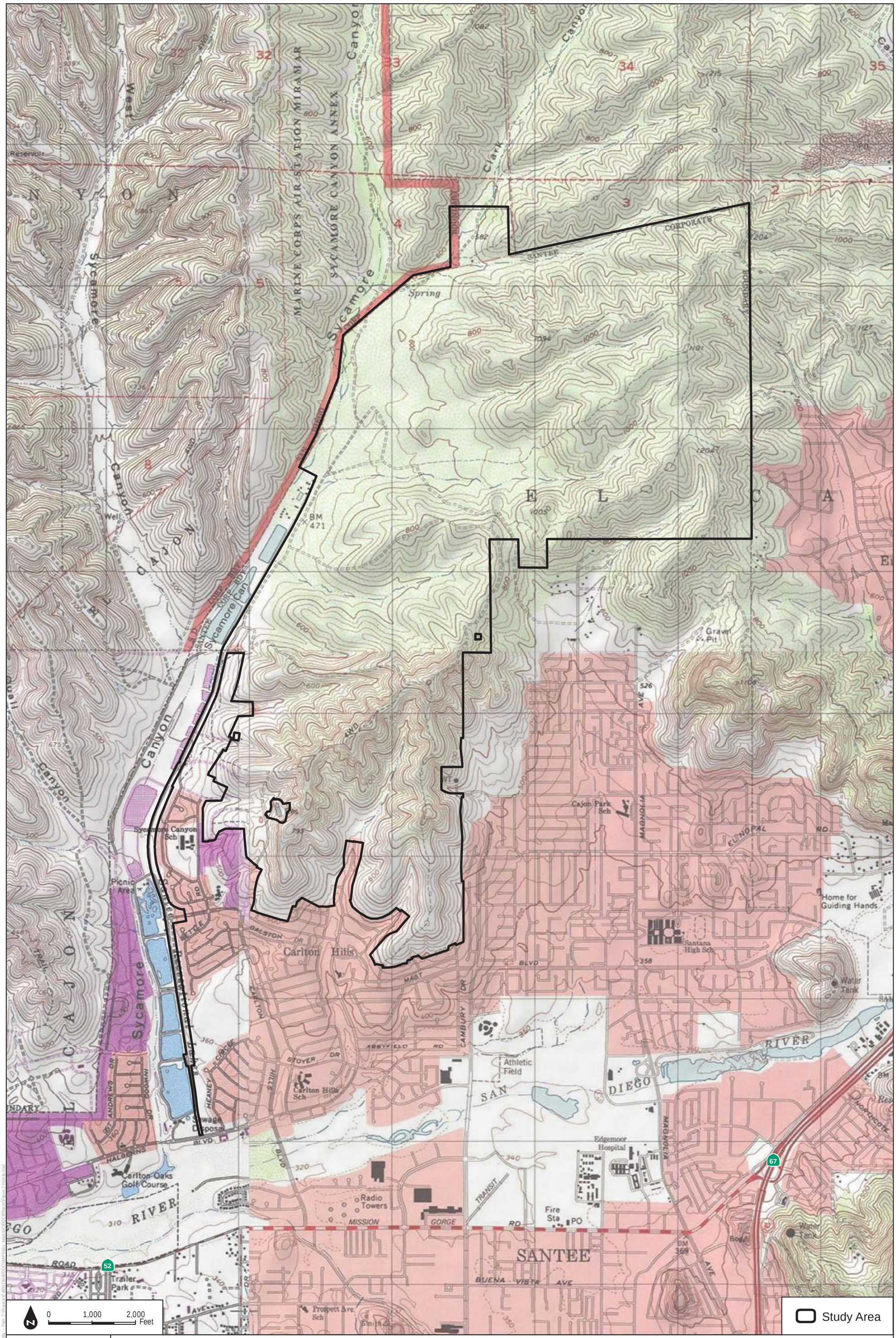
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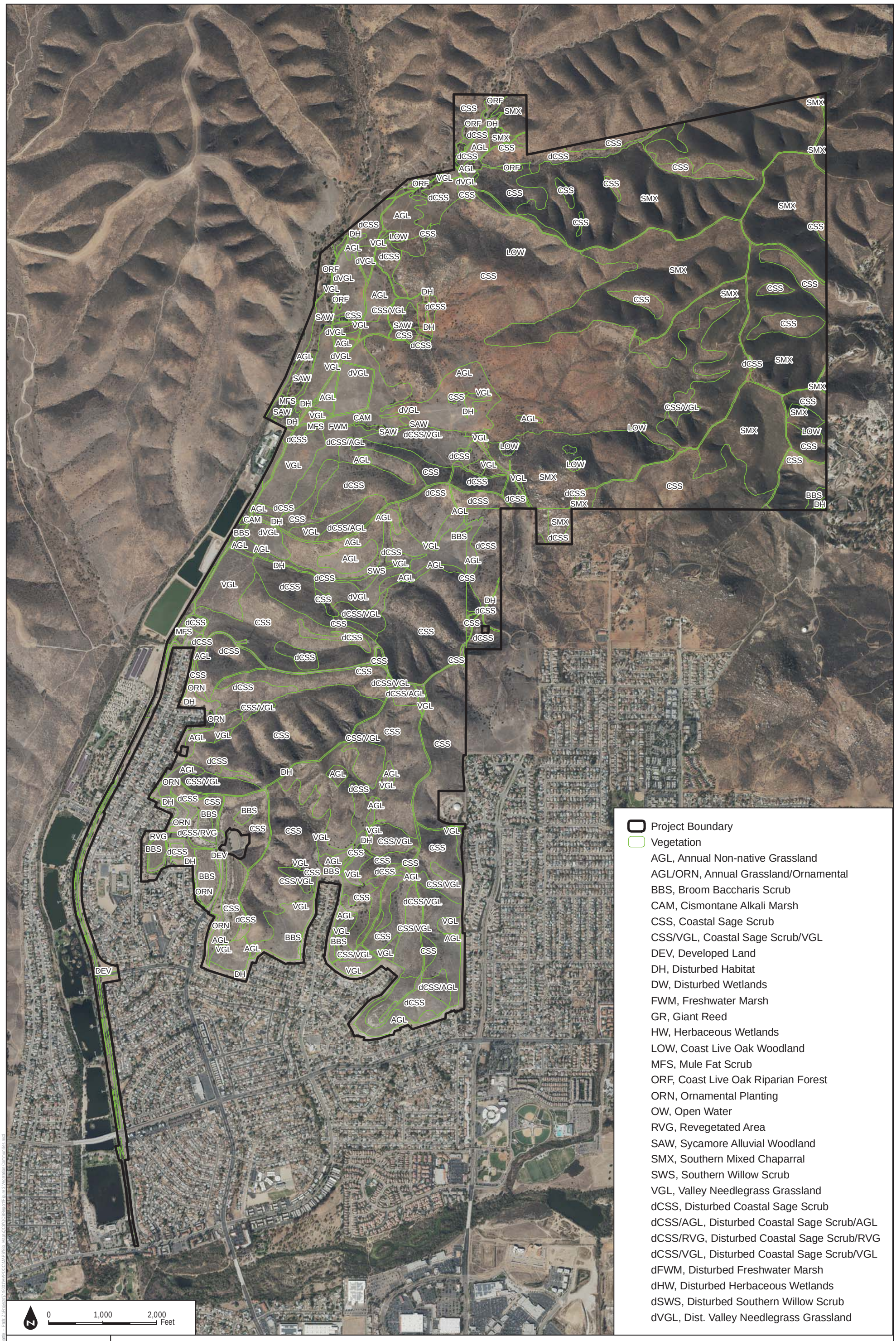
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FIGURE 1

Regional Map

Fanita Ranch - 45-Day Report for the Quino Checkerspot Focused Surveys


Study Area
0
1,000
2,000
Feet
SOURCE: SOURCE: USGS 7.5-Minute Series San Vicente Reservoir, Poway, El Cajon, & La Mesa Quadrangles
DUDEK
FIGURE 2
Vicinity Map
Fanita Ranch - 45-Day Report for the Quino Checkerspot Focused Surveys



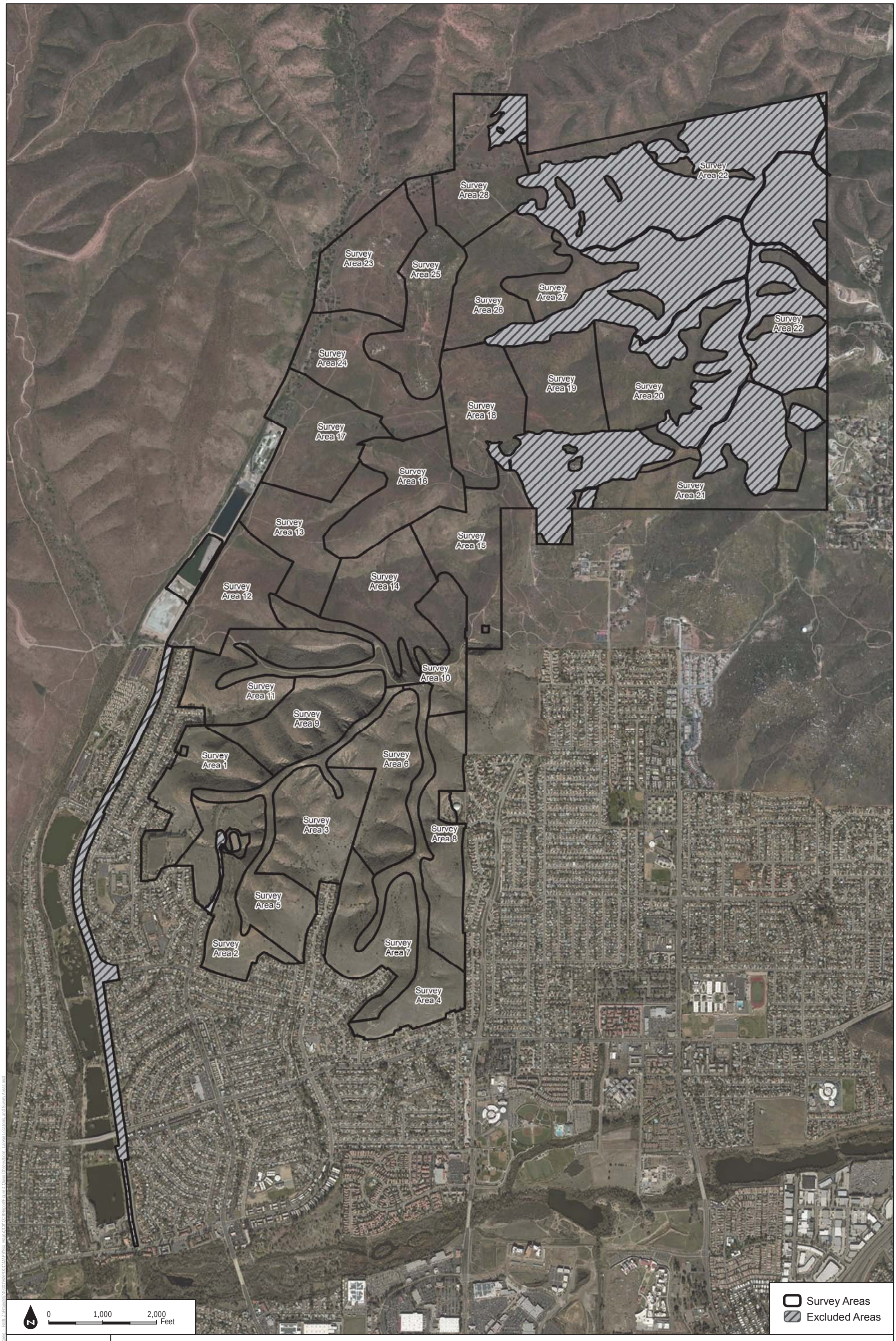
SOURCE: Sourcing Information: SANDAG Imagery 2014

DUDEK

FIGURE 3

Vegetation Communities

Fanita Ranch - 45-Day Report for the Quino Checkerspot Focused Surveys



SOURCE: Sourcing Information: SANDAG Imagery 2014

FIGURE 4
Survey Areas

DUDEK

Fanita Ranch - 45-Day Report for the Quino Checkerspot Focused Surveys

Date: 5/13/2016 Last saved by: jsimps Path: Z:\Projects\RZ14001\MAPDOC\MAPS\Bio_Mem\QCB\QCBReport\Figure 4 Quino Observations, Larval Locations, and Survey Areas.mxd

Project Boundary

Quino Host Plant, Density

Dotseed plantain *(Plantago erecta)*
Exserted Indian paintbrush *(Castilleja exserta)*
Purple Chinese houses *(Collinsia heterophylla)*

- *Plantago erecta*, Very low
- *Plantago erecta*, Low
- *Plantago erecta*, Medium
- *Plantago erecta*, High
- *Castilleja exserta*, Very low
- *Castilleja exserta*, Low
- *Castilleja exserta*, Medium
- *Castilleja exserta*, High
- *Collinsia heterophylla*, Very low
- *Collinsia heterophylla*, Low
- *Collinsia heterophylla*, Medium
- *Collinsia heterophylla*, High

DENSITY DESCRIPTIONS:

Very Low: 1□19 plants per square meter
Low: 20□100 plants per square meter
Medium: 100□1,000 plants per square meter
High: 1,000□10,000+ plants per square mete

N

0 1,000 2,000 Feet

SOURCE: Bing Maps, 2014

FIGURE 5

Quino Host Plant Locations

DUDEK

Fanita Ranch - 45-Day Report for the Quino Checkerspot Focused Surveys

Date: 5/13/2016 - Last saved by: jones - Path: Z:\Projects\27-00001\MAPDOC\MXD\SIBio_Maps\QCB\QCBReport\Figure 5_QCB Host Plant Map.mxd

APPENDIX A

Wildlife Species Observed
during the 2016 Fanita Quino Survey

APPENDIX A
Wildlife Species Observed during the 2016 Fanita Quino Survey

AMPHIBIAN

FROGS

HYLIDAE—TREEFROGS

Pseudacris hypochondriaca—Baja California treefrog

BIRDS

BLACKBIRDS, ORIOLES AND ALLIES

ICTERIDAE—BLACKBIRDS

Agelaius phoeniceus—red-winged blackbird
Euphagus cyanocephalus—Brewer's blackbird
Sturnella neglecta—western meadowlark
* *Molothrus ater*—brown-headed cowbird
Icterus cucullatus—hooded oriole

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

CORMORANTS

PHALACROCORACIDAE—CORMORANTS

Phalacrocorax auritus—double-crested cormorant

EMBERIZINES

EMBERIZIDAE—EMBERIZIDS

Ammodramus savannarum—grasshopper sparrow
Chondestes grammacus—lark sparrow
Melospiza melodia—song sparrow
Melozone crissalis—California towhee
Passerculus sandwichensis—savannah sparrow
Pipilo maculatus—spotted towhee
Spizella atrogularis—black-chinned sparrow
Spizella breweri—Brewer's sparrow

Aimophila ruficeps canescens—Southern California rufous-crowned sparrow
Artemisiospiza belli—Bell's sparrow
Aimophila ruficeps—rufous-crowned sparrow

FALCONS

FALCONIDAE—CARACARAS AND FALCONS
Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES
Spinus psaltria—lesser goldfinch
Haemorhous mexicanus—house finch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS
Myiarchus cinerascens—ash-throated flycatcher
Sayornis nigricans—black phoebe
Sayornis saya—Say's phoebe
Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin's kingbird
Empidonax difficilis—Pacific-slope flycatcher

GOATSUCKERS

CAPRIMULGIDAE—GOATSUCKERS
Chordeiles acutipennis—lesser nighthawk
Phalaenoptilus nuttallii—common poorwill

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES
Accipiter cooperii—Cooper's hawk
Buteo jamaicensis—red-tailed hawk
Buteo lineatus—red-shouldered hawk
Circus cyaneus—northern harrier
Pandion haliaetus—osprey

HERONS AND BITTERNS

ARDEIDAE—HERONS, BITTERNS, AND ALLIES

Ardea alba—great egret
Egretta thula—snowy egret

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird
Calypte costae—Costa's hummingbird
Selasphorus sasin—Allen's hummingbird

JAYS, MAGPIES AND CROWS

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—western scrub-jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven

KINGFISHERS

ALCEDINIDAE—KINGFISHERS

Megaceryle alcyon—belted kingfisher

LARKS

ALAUDIDAE—LARKS

Eremophila alpestris—horned lark

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird
Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

NEW WORLD VULTURES

CATHARTIDAE—CARDINALS AND ALLIES

Cathartes aura—turkey vulture

OLD WORLD SPARROWS

PASSERIDAE—OLD WORLD SPARROWS

* *Passer domesticus*—house sparrow

OLD WORLD WARBLERS AND GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Polioptila caerulea—blue-gray gnatcatcher

Polioptila californica californica—coastal California gnatcatcher

OWLS

STRIGIDAE—TYPICAL OWLS

Athene cunicularia—burrowing owl

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

* *Columba livia*—rock pigeon (rock dove)

RAILS, GALLINULES AND COOTS

RALLIDAE—RAILS, GALLINULES, AND COOTS

Fulica americana—American coot

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

SHOREBIRDS

CHARADRIIDAE—LAPWINGS AND PLOVERS

Charadrius vociferus—killdeer

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

STARLINGS AND ALLIES

STURNIDAE—STARLINGS

* *Sturnus vulgaris*—European starling

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Petrochelidon pyrrhonota—cliff swallow

Stelgidopteryx serripennis—northern rough-winged swallow

Tachycineta bicolor—tree swallow

SWIFTS

APODIDAE—SWIFTS

Aeronautes saxatalis—white-throated swift

TERNS AND GULLS

LARIDAE—GULLS, TERNS, AND SKIMMERS

Sterna forsteri—Forster's tern

THRUSHES

TURDIDAE—THRUSHES

Sialia mexicana—western bluebird

TITMICE

PARIDAE—CHICKADEES AND TITMICE

Baeolophus inornatus—oak titmouse

VIREOS

VIREONIDAE—VIREOS

Vireo bellii pusillus—least Bell's vireo

WATERFOWL

ANATIDAE—DUCKS, GEESE, AND SWANS

Aix sponsa—wood duck
Anas clypeata—northern shoveler
Anas platyrhynchos—mallard
Oxyura jamaicensis—ruddy duck

WOOD WARBLERS AND ALLIES

PARULIDAE—WOOD-WARBLERS

Geothlypis trichas—common yellowthroat
Setophaga coronata—yellow-rumped warbler

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Melanerpes formicivorus—Acorn woodpecker
Picoides nuttallii—Nuttall's woodpecker
Colaptes auratus—northern flicker

WRENS

TROGLODYTIDAE—WRENS

Catherpes mexicanus—canyon wren
Salpinctes obsoletus—rock wren
Thryomanes bewickii—Bewick's wren
Troglodytes aedon—house wren
Campylorhynchus brunneicapillus—cactus wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

INVERTEBRATES

BUTTERFLIES

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Atlides halesus—great purple hairstreak
Callophrys augustinus—brown elfin

Callophrys dumetorum—bramble hairstreak
Callophrys perplexa—perplexing (green) hairstreak
Euphilotes battoides bernardino—Bernardino square-spotted blue
Glaucopsyche lygdamus australis—southern blue
Hemiargus ceraunus gyas—Edward's blue
Leptotes marina—marine blue
Philotes sonorensis—Sonoran blue
Plebejus acmon—Acmon blue
Strymon melinus—gray hairstreak
Brephidium exile—western pygmy-blue

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Adelpha bredowii—California sister
Chlosyne californica—California patch
Chlosyne gabbii—Gabb's checkerspot
Coenonympha tullia california—common california ringlet
Danaus gilippus—queen
Euphydryas chalcedona—variable checkerspot
Junonia coenia—common buckeye
Nymphalis antiopa—mourning cloak
Phyciodes mylitta—Mylitta crescent
Speyeria callippe comstocki—Comstock's fritillary
Vanessa annabella—west coast lady
Vanessa atalanta—red admiral
Vanessa cardui—painted lady
Vanessa virginiensis—American lady
Danaus plexippus—monarch

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark
Calephelis wrighti—Wright's metalmark

HESPERIIDAE—SKIPPERS

Atalopedes campestris—sachem
Erynnis funeralis—funereal duskywing
Erynnis pacuvius—Pacuvius duskywing
Erynnis propertius—Propertius duskywing
Erynnis tristis—mournful duskywing
Heliopetes ericetorum—northern white-skipper
Hylephila phyleus—fiery skipper

Pyrgus scriptura—small checkered-skipper
Pholisora catullus—common sootywing
Pyrgus albescens—white checkered-skipper

PAPILIONIDAE—SWALLOWTAILS

Papilio eurymedon—pale swallowtail
Papilio rutulus—western tiger swallowtail
Papilio zelicaon—anise swallowtail

PIERIDAE—WHITES AND SULFURS

Anthocharis cethura—desert orangetip
Anthocharis sara sara—Pacific sara orangetip
Colias eurydice—California dogface
Colias eurytheme—orange sulphur
Colias harfordii—Harford's sulphur
Eurema nicippe—sleepy orange
Nathalis iole—dainty sulphur
Phoebis sennae—cloudless sulphur
Pieris rapae—cabbage white
Pontia protodice—checkered white
Pontia sisymbrii—spring white

MOTHS

ARCTIIDAE—TIGER MOTHS

Arctiidae—tiger moth

MAMMALS

CANIDS

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

CATS

FELIDAE—CATS

Lynx rufus—bobcat

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Lepus californicus bennettii—San Diego black-tailed jackrabbit
Sylvilagus audubonii—desert cottontail
Sylvilagus bachmani—brush rabbit
Lepus californicus—black-tailed jackrabbit

POCKET GOPHERS

GEOMYIDAE—POCKET GOPHERS

Thomomys bottae—Botta's pocket gopher

SQUIRRELS

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

REPTILES

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Phrynosoma blainvillii—Blainville's horned lizard
Phrynosoma platyrhinos—desert horned lizard
Sceloporus occidentalis—western fence lizard
Sceloporus orcutti—granite spiny lizard
Uta stanburiana—common side-blotched lizard

ANGUIDAE—ALLIGATOR LIZARDS

Elgaria multicarinata—southern alligator lizard

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis hyperythra beldingi—Belding's orange-throated whiptail
Aspidoscelis tigris stejnegeri—San Diegan tiger whiptail

SNAKES

COLUBRIDAE—COLUBRID SNAKES

Coluber lateralis—striped racer
Pituophis catenifer—gophersnake
Lampropeltis californiae—California kingsnake

BOIDAE—BOAS

Lichanura trivirgata—rosy boa

VIPERIDAE—VIPERS

Crotalus oreganus—western rattlesnake
Crotalus ruber—red diamondback rattlesnake

* signifies introduced (non-native) species

APPENDIX B

2016 Fanita Quino Field Data Report

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-26
Biologist(s)	Bonnie Peterson
Survey Area	1
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
	12:50:00	82		20	1.5		
End	15:20:00	79	79	70	1.0		

BUTTERFLY LIST *SPECIES (COUNT)*		
Painted lady (1)		

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
California towhee (1+)	mourning dove (1+)	wrentit (1+)
house finch (1+)	spotted towhee (1+)	

INCIDENTAL PLANT LIST		
Dichelostemma capitatum		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-03
Biologist(s)	Tricia Wotipka
Survey Area	1
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	62	66	30	0-1	patchy	
End	15:00:00	72	80	100	3-6	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	Pacific sara orangetip (1+)	southern blue (1+)
Behr's metalmark (1+)	pale swallowtail (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	common raven (1+)	northern mockingbird (1+)
Anna's hummingbird (1+)	funereal duskywing (1+)	Say's phoebe (1+)
Bewick's wren (1+)	house finch (1+)	spotted towhee (1+)
brush rabbit (1+)	lesser goldfinch (1+)	western fence lizard (1+)
California towhee (1+)	mourning dove (1+)	western scrub-jay (1+)

INCIDENTAL PLANT LIST		
Cryptantha angustifolia	*Dichelostemma capitatum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-13
Biologist(s)	Bonnie Peterson
Survey Area	1
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	13:00:00	66	71	40	2.3	patchy	
	13:48:00	69	75	70	5	patchy	
End	14:35:00	71	76	50	5	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Harford's sulphur (1)	Pacific sara orangetip (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	house finch (1+)	white-crowned sparrow (1+)
Cassin's kingbird (1+)	lesser goldfinch (1+)	
common raven (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-13
Biologist(s)	Bonnie Peterson
Survey Area	1
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	12:15:00	71	73	20	8	patchy	
	13:00:00		76	30	10	patchy	
	14:55:00	68	72	100	8	overcast	
End	15:00:00	65	69	100	7.8	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (4)	funereal duskywing (2)	small checkered-skipper (1)
checkered white (1)	Harford's sulphur (2)	southern blue (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American kestrel (1+)	Cassin's kingbird (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	house finch (1+)	spotted towhee (1+)
California towhee (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
Cryptantha sp	*Dichelostemma capitatum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-18
Biologist(s)	Bonnie Peterson
Survey Area	1
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:05:00	66	66	30	2.1	patchy	
End	14:35:00	76	93	0	1.4	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (2)	monarch (1)	white checkered-skipper (1)
Blue sp. (1+)	Pacific sara orangetip (22)	
Harford's sulphur (1)	southern blue (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	greater roadrunner (1+)	spotted towhee (1+)
Bewick's wren (1+)	house finch (1+)	white-crowned sparrow (1+)
black phoebe (1+)	lesser goldfinch (1+)	wrentit (1+)
California towhee (1+)	mourning dove (1+)	yellow-rumped warbler (1+)
common raven (1+)	northern mockingbird (1+)	
Costa's hummingbird (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Cryptantha sp	*Dichelostemma capitatum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-23
Biologist(s)	Bonnie Peterson
Survey Area	1
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:24:00	68	70	0	0.4	clear	
End	15:15:00	82	84	0	7.2	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (9)	Harford's sulphur (1)	white checkered-skipper (9)
checkered white (1)	Pacific sara orangetip (25)	
funereal duskywing (3)	southern blue (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	Cassin's kingbird (1+)	northern mockingbird (1+)
bushtit (1+)	common raven (1+)	red-tailed hawk (1+)
California thrasher (1+)	house finch (1+)	Say's phoebe (1+)
California towhee (1+)	lesser goldfinch (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Allium sp.	*Cryptantha sp.*	*Dichelostemma capitatum*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-01
Biologist(s)	Bonnie Peterson
Survey Area	1
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:00:00	75	76	0	1	clear	
End	15:30:00	75	82	0	6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (14)	funereal duskywing (1)	southern blue (1)
Blue sp (4)	Harford's sulphur (2)	white checkered-skipper (3)
checkered white (4)	Pacific sara orangetip (39)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
California towhee (1+)	greater roadrunner (1+)	mourning dove (1+)
Cassin's kingbird (1+)	house finch (1+)	spotted towhee (1+)
Costa's hummingbird (1+)	lesser goldfinch (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Cryptantha sp	*Dichelostemma capitatum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-06
Biologist(s)	Bonnie Peterson
Survey Area	1
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
End	02:35:00	77	87	100	3.4	overcast	
Start	10:30:00	74	86	100	1	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (12)	Harford's sulphur (4)	pale swallowtail (2)
checkered white (4)	Pacific sara orangetip (10)	Sulphur sp. (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
California towhee (1+)	lesser goldfinch (1+)	rufous-crowned sparrow (1+)
Cassin's kingbird (1+)	mourning dove (1+)	spotted towhee (1+)
common raven (1+)	northern mockingbird (1+)	wrentit (1+)
house finch (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Cryptantha sp	*Dichelostemma capitatum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-26
Biologist(s)	Tricia Wotipka
Survey Area	2
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	57	60	0	0-1	clear	
End	16:00:00	89	98	0	2-3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1+)	southern blue (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
northern harrier (1+)	California towhee (1+)	red-tailed hawk (1+)
American crow (1+)	funereal duskywing (1+)	Say's phoebe (1+)
Anna's hummingbird (1+)	house finch (1+)	spring white (1+)
black-tailed jackrabbit (1+)	house sparrow (1+)	turkey vulture (1+)
black phoebe (1+)	lesser goldfinch (1+)	western fence lizard (1+)
brush rabbit (1+)	mourning dove (1+)	Woodrat sp. (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-04
Biologist(s)	Bonnie Peterson
Survey Area	2
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:30:00	64	68	30	0.6	patchy	
	12:15:00	73	72	20	1.4	patchy	
End	14:25:00	85	86	30	1.0	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (9)	Edward's blue (2)	
checkered white (1)	pale swallowtail (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
northern harrier (1+)	common raven (1+)	song sparrow (1+)
Anna's hummingbird (1+)	house finch (1+)	spotted towhee (1+)
black-tailed jackrabbit (1)	lesser goldfinch (1+)	wrentit (1+)
California towhee (1+)	mourning dove (1+)	
Cassin's kingbird (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Dichelostemma capitatum		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-14
Biologist(s)	Paul Lemons
Survey Area	2
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:40:00		71	90	1-4	overcast	waited until weather met protocol conditions at 0940.
End	15:00:00		70	100	2-5, 6-10 gusts	overcast	Survey cut short, bad weather. Need 2:15 more hours

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	funereal duskywing (1+)	
California dogface (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	cliff swallow (1+)	spotted towhee (1+)
American kestrel (1+)	Costa's hummingbird (1+)	western meadowlark (1+)
Baja California treefrog (1+)	mourning dove (1+)	white-crowned sparrow (1+)
California quail (1+)	northern mockingbird (1+)	white-throated swift (1+)
California towhee (1+)	red-tailed hawk (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-18
Biologist(s)	Tricia Wotipka
Survey Area	2
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	63	70	70	2-3	patchy	
End	17:00:00	78	82	10	3-6	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	Pacific sara orangetip (1+)	southern blue (1+)
cloudless sulphur (1+)	pale swallowtail (1+)	west coast lady (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	California towhee (1+)	rufous-crowned sparrow (1+)
Allen's/rufous hummingbird (1+)	common raven (1+)	spotted towhee (1+)
Anna's hummingbird (1+)	funereal duskywing (1+)	western fence lizard (1+)
black phoebe (1+)	house finch (1+)	western scrub-jay (1+)
bushtit (1+)	lesser goldfinch (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Cryptantha angustifolia	*Erodium cicutarium*	
Eriogonum fasciculatum	*Salvia mellifera*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-24
Biologist(s)	Paul Lemons
Survey Area	2
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:15:00		63	0	0 mph	clear	
	12:00:00		90	0	0-1, 4-10 gusts	clear	
End	15:45:00		87	0	1-4, 5-10 gusts	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (1+)	gray hairstreak (1+)	southern blue (1+)
Behr's metalmark (1+)	monarch (1+)	
cabbage white (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	California quail (1+)	red-shouldered hawk (1+)
Cooper's hawk (1+)	common raven (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	coyote (1+)	Say's phoebe (1+)
black phoebe (1+)	gophersnake (1+)	Sulfur sp. (1+)
brush rabbit (1+)	house finch (1+)	wrentit (1+)
bushtit (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-01
Biologist(s)	Paul Lemons
Survey Area	2
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00		65	50	0-1	patchy	
End	16:00:00		80	0	2-6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	checkered white (1+)	Pacific sara orangetip (1+)
cabbage white (1+)	marine blue (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	common raven (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	Costa's hummingbird (1+)	spotted towhee (1+)
California ground squirrel (1+)	house finch (1+)	white-crowned sparrow (1+)
California towhee (1+)	lesser goldfinch (1+)	Woodrat sp. (1+)
Cassin's kingbird (1+)	red-shouldered hawk (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-01
Biologist(s)	Jeffrey Priest
Survey Area	3
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	65	69	40	0-1	patchy	Hazy clouds
End	15:30:00	82	85	50	2-6	patchy	Hazy clouds

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	funereal duskywing (1+)	Senna sulphur (1+)
Behr's metalmark (1+)	marine blue (1+)	southern blue (1+)
California dogface (1+)	Pacific sara orangetip (1+)	western pygmy-blue (1+)
checkered white (1+)	painted lady (1+)	western tiger swallowtail (1+)
common buckeye (1+)	San Diegan tiger whiptail (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	Costa's hummingbird (1+)	northern mockingbird (1+)
American kestrel (1+)	coyote (1+)	Perplexing green hairstreak (1+)
Anna's hummingbird (1+)	European starling (1+)	red-tailed hawk (1+)
Bewick's wren (1+)	greater roadrunner (1+)	rock pigeon (rock dove) (1+)
black phoebe (1+)	house finch (1+)	rufous-crowned sparrow (1+)
brush rabbit (1+)	house sparrow (1+)	western meadowlark (1+)
bushtit (1+)	lesser goldfinch (1+)	white-crowned sparrow (1+)
California towhee (1+)	mourning dove (1+)	wrentit (1+)
common raven (1+)	mule deer (1+)	
common side-blotched lizard (1+)	northern flicker (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-05
Biologist(s)	Paul Lemons
Survey Area	3
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:20:00		70	90	0-2		
	12:20:00		83	30	2-5		
End	16:00:00		71	90	3-6, 7-10 gusts		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	Pacific sara orangetip (1+)	west coast lady (1+)
checkered white (1+)	southern blue (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
California thrasher (1+)	lesser goldfinch (1+)	Say's phoebe (1+)
California towhee (1+)	northern mockingbird (1+)	western meadowlark (1+)
house finch (1+)	red-tailed hawk (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-18
Biologist(s)	Jeffrey Priest
Survey Area	3
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	67	70	70	0-1		Clouds breaking, clear by 0950
End	17:00:00	75	82	0	3-7		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	checkered white (1+)	Pacific sara orangetip (1+)
Behr's metalmark (1+)	funereal duskywing (1+)	pale swallowtail (1+)
California dogface (1+)	marine blue (1+)	Senna sulphur (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	cliff swallow (1+)	Neotoma sp. (midden) (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	northern flicker (1+)
Bewick's wren (1+)	Costa's hummingbird (1+)	northern mockingbird (1+)
black-tailed jackrabbit (1+)	coyote (1+)	Perplexing green hairstreak (1+)
Botta's pocket gopher (1+)	house finch (1+)	rufous-crowned sparrow (1+)
bushtit (1+)	house sparrow (1+)	spotted towhee (1+)
California quail (1+)	house wren (1+)	turkey vulture (1+)
California thrasher (1+)	lesser goldfinch (1+)	white-crowned sparrow (1+)
California towhee (1+)	mourning dove (1+)	white-throated swift (1+)
Cassin's kingbird (1+)	mule deer (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Castilleja exserta	*Plantago erecta*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-20
Biologist(s)	Paul Lemons
Survey Area	3
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:10:00		75	70	1-3		
End	12:40:00		77	30	2-4	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Blue sp. (1+)	funereal duskywing (1+)	Pacific sara orangetip (1+)
cabbage white (1+)	Harford's sulphur (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	Checkered skipper (1+)	lesser goldfinch (1+)
California quail (1+)	common raven (1+)	mourning dove (1+)
California towhee (1+)	house finch (1+)	red-tailed hawk (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-02
Biologist(s)	Paul Lemons
Survey Area	3
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:15:00		63	0	0-1		
End	15:45:00		85	0	3-6, 7-12 gusts		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	funereal duskywing (1+)	
checkered white (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	house finch (1+)	Say's phoebe (1+)
Belding's orange-throated whiptail (1+)	lesser goldfinch (1+)	white-crowned sparrow (1+)
black phoebe (1+)	mourning dove (1+)	wrentit (1+)
brush rabbit (1+)	northern flicker (1+)	
California quail (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-05
Biologist(s)	Paul Lemons
Survey Area	3
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
End	15:50:00		93	80	3-6, 7-10 gusts		
Start	20:20:00		70	90	0-2		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	funereal duskywing (1+)	Pacific sara orangetip (1+)
Blue sp. (1+)	gray hairstreak (1+)	white checkered-skipper (1+)
checkered white (1+)	Harford's sulphur (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American kestrel (1+)	cliff swallow (1+)	spotted towhee (1+)
black phoebe (1+)	common raven (1+)	western fence lizard (1+)
brush rabbit (1+)	coyote (1+)	western scrub-jay (1+)
California thrasher (1+)	mourning dove (1+)	white-throated swift (1+)
California towhee (1+)	red-tailed hawk (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-29
Biologist(s)	Tricia Wotipka
Survey Area	4
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	62	66	10	0-1	patchy	
End	16:15:00	78	84	0	5-8	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	Pacific sara orangetip (1+)	southern blue (1+)
Behr's metalmark (1+)	painted lady (1+)	west coast lady (1+)
marine blue (1+)	pale swallowtail (1+)	western tiger swallowtail (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	common raven (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	funereal duskywing (1+)	red admiral (1+)
bushtit (1+)	gray hairstreak (1+)	small checkered-skipper (1+)
cabbage white (1+)	house finch (1+)	spotted towhee (1+)
California patch (1+)	house wren (1+)	western meadowlark (1+)
California towhee (1+)	lesser goldfinch (1+)	
checkered white (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-09
Biologist(s)	Paul Lemons
Survey Area	4
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:25:00		63	0	0-1	clear	
End	15:45:00		78	10	3-6, 7-16 gusts	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	checkered white (1+)	
Behr's metalmark (1+)	gray hairstreak (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
brush rabbit (1+)	house finch (1+)	rock wren (1+)
California towhee (1+)	mourning dove (1+)	spotted towhee (1+)
common raven (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-16
Biologist(s)	Paul Lemons
Survey Area	4
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:20:00		73	0	0-1	clear	
	11:00:00		88				
End	15:40:00		82	0	3-6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	checkered white (1+)	pale swallowtail (1+)
Behr's metalmark (1+)	funereal duskywing (1+)	
bramble hairstreak (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	common raven (1+)	lesser goldfinch (1+)
northern harrier (1+)	Costa's hummingbird (1+)	Say's phoebe (1+)
Anna's hummingbird (1+)	horned lark (1+)	western meadowlark (1+)
Cassin's kingbird (1+)	house finch (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-21
Biologist(s)	Tricia Wotipka
Survey Area	4
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:45:00	64	70	70	1-2	patchy	
End	17:00:00	71	80	60	3-6	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	Pacific sara orangetip (1+)	Sulphur sp. (1+)
Behr's metalmark (1+)	painted lady (1+)	
marine blue (1+)	pale swallowtail (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	house finch (1+)	spring white (1+)
California towhee (1+)	house sparrow (1+)	western fence lizard (1+)
checkered white (1+)	lesser goldfinch (1+)	western meadowlark (1+)
common raven (1+)	mourning dove (1+)	white-throated swift (1+)
funereal duskywing (1+)	rufous-crowned sparrow (1+)	
gophersnake (1+)	spotted towhee (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-03
Biologist(s)	Paul Lemons
Survey Area	4
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:15:00		65	0	0-1		
End	15:30:00		84	30	3-7, 8-15 gusts		

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (1+)	checkered white (1+)	pale swallowtail (1+)
anise swallowtail (1+)	funereal duskywing (1+)	southern blue (1+)
Behr's metalmark (1+)	Harford's sulphur (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
black-tailed jackrabbit (1+)	Costa's hummingbird (1+)	northern mockingbird (1+)
California towhee (1+)	coyote (1+)	rock wren (1+)
common raven (1+)	house finch (1+)	western meadowlark (1+)
common side-blotched lizard (1+)	lesser goldfinch (1+)	western scrub-jay (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-05
Biologist(s)	Bonnie Peterson
Survey Area	4
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:15:00	67	73	80	1	overcast	
	10:40:00	73	80	70	7	overcast	
End	15:30:00	85	88	60	5.0	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	Comstock's fritillary (8)	Pacific sara orangetip (9)
anise swallowtail (10)	Edward's blue (1)	pale swallowtail (14)
Behr's metalmark (71)	funereal duskywing (1)	
checkered white (29)	mourning cloak (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	house finch (1+)	rufous-crowned sparrow (1+)
California thrasher (1+)	lesser goldfinch (1)	Say's phoebe (1+)
California towhee (1+)	mourning dove (1+)	spotted towhee (1+)
Cassin's kingbird (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Cryptantha sp	*Dichelostemma capitatum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-26
Biologist(s)	Paul Lemons
Survey Area	5
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:35:00		63	0	1-2	clear	
End	15:20:00		80	50	1-4, 5-12 gusts		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (7)	bramble hairstreak (6)	Pacific sara orangetip (26)
Behr's metalmark (39)	funereal duskywing (26)	pale swallowtail (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	Checkered skipper (2)	house finch (1+)
Cooper's hawk (1+)	common raven (1+)	lesser goldfinch (1+)
Belding's orange-throated whiptail (1+)	common side-blotched lizard (1+)	northern mockingbird (1+)
brush rabbit (1+)	coyote (1+)	Sulfur sp (1)
bushtit (1+)	horned lark (1+)	turkey vulture (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-02
Biologist(s)	Bonnie Peterson
Survey Area	5
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:46:00	69	71	20	1.3	patchy	Hazy with a very thin cloud layer.
	12:26:00	81	87	20	4.8	patchy	Hazy
End	15:45:00	77	75	30	0.5	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (3)	California patch (2)	painted lady (2)
Behr's metalmark (29)	marine blue (4)	Sulphur sp (3)
Blue sp (1)	mourning cloak (1)	western tiger swallowtail (3)
bramble hairstreak (1)	Pacific sara orangetip (7)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	common raven (1+)	Say's phoebe (1+)
Bewick's wren (1+)	greater roadrunner (1+)	song sparrow (1+)
California towhee (1+)	house finch (1+)	tree swallow (1+)
Cassin's kingbird (1+)	mourning dove (1+)	wrentit (1+)
cliff swallow (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Allium sp	*Cryptantha sp*	*Dichelostemma capitatum*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-21
Biologist(s)	Paul Lemons
Survey Area	5
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00		70	80	1-3 mph	overcast	
End	16:00:00		83	10	3-6, 7-10 gusts	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	funereal duskywing (1+)	pale swallowtail (1+)
Behr's metalmark (1+)	gray hairstreak (1+)	southern blue (1+)
checkered white (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	cliff swallow (1+)	lesser goldfinch (1+)
Anna's hummingbird (1+)	common raven (1+)	mourning dove (1+)
Belding's orange-throated whiptail (1+)	Costa's hummingbird (1+)	white-crowned sparrow (1+)
California towhee (1+)	coyote (1+)	white-throated swift (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-02
Biologist(s)	Tricia Wotipka
Survey Area	5
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	68	72	0	0-1	clear	
End	15:30:00	84	92	0	4-8	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	marine blue (1+)	Sulphur sp. (1+)
Behr's metalmark (1+)	pale swallowtail (1+)	west coast lady (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	common raven (1+)	red-tailed hawk (1+)
black phoebe (1+)	funereal duskywing (1+)	rufous-crowned sparrow (1+)
brush rabbit (1+)	house finch (1+)	spring white (1+)
California dogface (1+)	monarch (1+)	tree swallow (1+)
California patch (1+)	mourning dove (1+)	western fence lizard (1+)
Cassin's kingbird (1+)	northern rough-winged swallow (1+)	western scrub-jay (1+)

INCIDENTAL PLANT LIST		
Acmispon glaber var. glaber	*Dichelostemma capitatum*	*Erodium cicutarium*
Cryptantha angustifolia	*Eriogonum fasciculatum var. fasciculatum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-04
Biologist(s)	Paul Lemons
Survey Area	5
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:10:00		64	0	0-2		
End	14:40:00		87	0	3-8, 10-15 gusts		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	funereal duskywing (1+)	painted lady (1+)
Behr's metalmark (1+)	gray hairstreak (1+)	pale swallowtail (1+)
checkered white (1+)	Pacific sara orangetip (1+)	southern blue (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	gophersnake (1+)	Sulfur sp. (1+)
bushtit (1+)	house finch (1+)	western fence lizard (1+)
California quail (1+)	lesser goldfinch (1+)	white-throated swift (1+)
common raven (1+)	mourning dove (1+)	wrentit (1+)
coyote (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-29
Biologist(s)	Jeffrey Priest
Survey Area	6
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	67	63	10	0-1	clear	
End	16:00:00	76	82	10	7-12	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1+)	funereal duskywing (1+)	pale swallowtail (1+)
anise swallowtail (1+)	gray hairstreak (1+)	red admiral (1+)
Behr's metalmark (1+)	marine blue (1+)	small checkered-skipper (1+)
cabbage white (1+)	Pacific sara orangetip (1+)	southern blue (1+)
California patch (1+)	painted lady (1+)	west coast lady (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	cliff swallow (1+)	mourning dove (1+)
Anna's hummingbird (1+)	common raven (1+)	mule deer (1+)
Bewick's wren (1+)	common side-blotched lizard (1+)	northern mockingbird (1+)
Botta's pocket gopher (1+)	Costa's hummingbird (1+)	red-tailed hawk (1+)
brush rabbit (1+)	coyote (1+)	spotted towhee (1+)
bushtit (1+)	greater roadrunner (1+)	western fence lizard (1+)
cactus wren (1+)	house finch (1+)	western meadowlark (1+)
California quail (1+)	house wren (1+)	white-crowned sparrow (1+)
California towhee (1+)	lesser goldfinch (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-08
Biologist(s)	Jeffrey Priest
Survey Area	6
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	55	62	0	0-3		
End	15:45:00	67	72	0	4-8		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	Pacific sara orangetip (1+)	small checkered-skipper (1+)
checkered white (1+)	painted lady (1+)	southern blue (1+)
funereal duskywing (1+)	red admiral (1+)	Virginia lady (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	California towhee (1+)	northern mockingbird (1+)
Anna's hummingbird (1+)	common raven (1+)	red-tailed hawk (1+)
Bewick's wren (1+)	Costa's hummingbird (1+)	rock pigeon (rock dove) (1+)
black phoebe (1+)	coyote (1+)	spotted towhee (1+)
Botta's pocket gopher (1+)	house finch (1+)	western meadowlark (1+)
brush rabbit (1+)	lesser goldfinch (1+)	white-crowned sparrow (1+)
bushtit (1+)	mourning dove (1+)	wrentit (1+)
cactus wren (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-15
Biologist(s)	Erik LaCoste
Survey Area	6
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	67	67	0	0-1	clear	
End	16:45:00	77	82	0	4-7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (2)	gray hairstreak (1)	southern blue (2)
Behr's metalmark (66)	orange sulphur (8)	Virginia lady (2)
common buckeye (2)	Pacific sara orangetip (10)	west coast lady (2)
funereal duskywing (8)	pale swallowtail (1)	white checkered-skipper (9)
Gabb's checkerspot (2)	red admiral (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Lasthenia californica*	*Silene gallica*
Brassica nigra	*Linanthus dianthiflorus*	*Sisyrinchium bellum*
Calystegia macrostegia	*Mimulus aurantiacus*	*Sonchus asper*
Centaurea melitensis	*Mirabilis laevis*	*Sonchus oleraceus*
Dichelostemma capitatum	*Plagiobothrys sp*	*Viola pedunculata*
Eriogonum fasciculatum	*Pseudognaphalium biolettii*	***Viguiera laciniata***
Erodium botrys	*Sanicula bipinnata*	
Eschscholzia californica	*Sidalcea malviflora*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-21
Biologist(s)	Jeffrey Priest
Survey Area	6
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:45:00	64	70	70	0-2		
End	17:00:00	73	82	10	4-7		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	checkered white (1+)	pale swallowtail (1+)
Behr's metalmark (1+)	funereal duskywing (1+)	small checkered-skipper (1+)
California dogface (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	common raven (1+)	mule deer (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	northern mockingbird (1+)
Bewick's wren (1+)	gophersnake (1+)	red-tailed hawk (1+)
Botta's pocket gopher (1+)	greater roadrunner (1+)	spotted towhee (1+)
brush rabbit (1+)	hooded oriole (1+)	western scrub-jay (1+)
bushtit (1+)	house finch (1+)	white-crowned sparrow (1+)
California thrasher (1+)	house sparrow (1+)	white-throated swift (1+)
California towhee (1+)	lesser goldfinch (1+)	wrentit (1+)
cliff swallow (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
Castilleja exserta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-05
Biologist(s)	Jeffrey Priest
Survey Area	6
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	64	72	70	0-3		
End	16:15:00	84	94	90	5-10		

BUTTERFLY LIST *SPECIES (COUNT)*		
(Striated) queen butterfly (1+)	checkered white (1+)	Pacific sara orangetip (1+)
anise swallowtail (1+)	funereal duskywing (1+)	pale swallowtail (1+)
Behr's metalmark (1+)	Gabb's checkerspot (1+)	
California dogface (1+)	gray hairstreak (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	California quail (1+)	mourning dove (1+)
Anna's hummingbird (1+)	California towhee (1+)	northern mockingbird (1+)
Belding's orange-throated whiptail (1+)	Cassin's kingbird (1+)	red-tailed hawk (1+)
Bewick's wren (1+)	common raven (1+)	spotted towhee (1+)
brush rabbit (1+)	common side-blotched lizard (1+)	western fence lizard (1+)
bushtit (1+)	greater roadrunner (1+)	white-crowned sparrow (1+)
cactus wren (1+)	lesser goldfinch (1+)	white-throated swift (1+)

INCIDENTAL PLANT LIST		
Castilleja exserta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-25
Biologist(s)	Paul Lemons
Survey Area	7
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:20:00		63	0	0-1	clear	
End	15:30:00		79	0	2-5, 6-10 gusts	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (21)	gray hairstreak (2)	painted lady (5)
checkered white (3)	Pacific sara orangetip (15)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	common raven (1+)	rock pigeon (rock dove) (1+)
brush rabbit (1+)	house finch (1+)	wrentit (1+)
California quail (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
Rhamnus crocea		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-03
Biologist(s)	Bonnie Peterson
Survey Area	7
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:00:00	68	68	30	1.3	patchy	
	12:00:00	88	89	90	1.5	overcast	
End	14:40:00	77	77	100	1.0	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Edward's blue (4)	marine blue (1)	Pacific sara orangetip (9)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (5)	bushtit (1+)	northern mockingbird (1+)
Anna's hummingbird (1+)	California towhee (1+)	red-tailed hawk (1+)
Bewick's wren (1+)	house finch (1+)	Say's phoebe (1+)
black-tailed jackrabbit (3)	mourning dove (1+)	song sparrow (1+)

INCIDENTAL PLANT LIST		
Allium sp	*Dichelostemma capitatum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-09
Biologist(s)	Jeffrey Priest
Survey Area	7
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	62	64	0	0-1		
End	15:00:00	76	83	40	2-7		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	gray hairstreak (1+)	Virginia lady (1+)
Behr's metalmark (1+)	marine blue (1+)	
funereal duskywing (1+)	pale swallowtail (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	California towhee (1+)	mourning dove (1+)
Anna's hummingbird (1+)	Cassin's kingbird (1+)	mule deer (1+)
Bewick's wren (1+)	common raven (1+)	red-tailed hawk (1+)
black-tailed jackrabbit (1+)	Costa's hummingbird (1+)	white-crowned sparrow (1+)
Botta's pocket gopher (1+)	coyote (1+)	wrentit (1+)
brush rabbit (1+)	house finch (1+)	
bushtit (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-18
Biologist(s)	Paul Lemons
Survey Area	7
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:20:00		70	80	0-2	overcast	
	13:00:00		86	0	3-5, 6-12 gusts	clear	
End	16:20:00		82	0	3-7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	checkered white (1+)	
blue-gray gnatcatcher (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	common raven (1+)	lesser goldfinch (1+)
Bewick's wren (1+)	Costa's hummingbird (1+)	mourning dove (1+)
black phoebe (1+)	coyote (1+)	red-tailed hawk (1+)
Cassin's kingbird (1+)	house finch (1+)	spotted towhee (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-23
Biologist(s)	Jeffrey Priest
Survey Area	7
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	62	66	0	0-1		
End	15:30:00	73	84	0	4-10		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	gray hairstreak (1+)	southern blue (1+)
checkered white (1+)	Pacific sara orangetip (1+)	western tiger swallowtail (1+)
funereal duskywing (1+)	pale swallowtail (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	Cassin's kingbird (1+)	northern flicker (1+)
Anna's hummingbird (1+)	cliff swallow (1+)	northern mockingbird (1+)
Belding's orange-throated whiptail (1+)	common raven (1+)	red-tailed hawk (1+)
black-tailed jackrabbit (1+)	common side-blotched lizard (1+)	spotted towhee (1+)
Botta's pocket gopher (1+)	coyote (1+)	turkey vulture (1+)
brush rabbit (1+)	house finch (1+)	western meadowlark (1+)
bushtit (1+)	lesser goldfinch (1+)	white-throated swift (1+)
California quail (1+)	mourning dove (1+)	wrentit (1+)
California towhee (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-31
Biologist(s)	Jeffrey Priest
Survey Area	7
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	56	60	0	0-1		
End	15:30:00	70	82	0	3-7		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	funereal duskywing (1+)	
checkered white (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Allen's hummingbird (1+)	Costa's hummingbird (1+)	red-tailed hawk (1+)
Southern California rufous-crowned sparrow (1+)	coyote (1+)	turkey vulture (1+)
Anna's hummingbird (1+)	greater roadrunner (1+)	western meadowlark (1+)
brush rabbit (1+)	house sparrow (1+)	white-crowned sparrow (1+)
bushtit (1+)	lesser goldfinch (1+)	white-throated swift (1+)
California towhee (1+)	mourning dove (1+)	
cliff swallow (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-06
Biologist(s)	Garrett Huffman
Survey Area	7
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	61	60	30	2-5	patchy	
End	16:30:00	76	78	40	4-10	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	dainty sulphur (1)	Pacific sara orangetip (50)
Behr's metalmark (18)	funereal duskywing (3)	painted lady (1)
checkered white (1)	marine blue (2)	queen (1)
common buckeye (13)	orange sulphur (3)	white checkered-skipper (7)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	cliff swallow (1+)	red-tailed hawk (1+)
grasshopper sparrow (1+)	common raven (1+)	rufous-crowned sparrow (1+)
Nuttall's woodpecker (1+)	common yellowthroat (1+)	song sparrow (1+)
Anna's hummingbird (1+)	coyote (1+)	spotted towhee (1+)
Bewick's wren (1+)	house finch (1+)	western meadowlark (1+)
brush rabbit (1+)	house wren (1+)	western scrub-jay (1+)
bushtit (1+)	lesser goldfinch (1+)	white-crowned sparrow (1+)
California thrasher (1+)	mourning dove (1+)	wrentit (1+)
California towhee (1+)	northern mockingbird (1+)	yellow-rumped warbler (1+)
Cassin's kingbird (1+)	phainopepla (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Erodium sp*	
Dichelostemma capitatum	*Eschscholzia californica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-26
Biologist(s)	Jeffrey Priest
Survey Area	8
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	66	60	0	0-1	clear	
End	15:00:00	78	80	30	2-6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	common california ringlet (1+)	painted lady (1+)
Behr's metalmark (1+)	funereal duskywing (1+)	small checkered-skipper (1+)
checkered white (1+)	Pacific sara orangetip (1+)	southern blue (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	common raven (1+)	mule deer (1+)
American crow (1+)	common side-blotched lizard (1+)	northern mockingbird (1+)
Anna's hummingbird (1+)	Costa's hummingbird (1+)	red-shouldered hawk (1+)
Bewick's wren (1+)	coyote (1+)	red-tailed hawk (1+)
Botta's pocket gopher (1+)	European starling (1+)	rock pigeon (rock dove) (1+)
brush rabbit (1+)	house finch (1+)	spotted towhee (1+)
bushtit (1+)	house wren (1+)	turkey vulture (1+)
California ground squirrel (1+)	lesser goldfinch (1+)	wrentit (1+)
Cassin's kingbird (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-03
Biologist(s)	Erin Bergman, Marshall Paymard
Survey Area	8
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	71.6	68.2	20	1.8	clear	Nice day.
End	15:31:00	73.2	71.1	30	1.9	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (54)	gray hairstreak (2)	southern blue (4)
checkered white (2)	monarch (1)	west coast lady (6)
funereal duskywing (6)	Pacific sara orangetip (3)	western tiger swallowtail (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	red-tailed hawk (1+)	western kingbird (1+)
Bewick's wren (1+)	Say's phoebe (1+)	
mourning dove (1+)	spotted towhee (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Erodium botrys*	*Mirabilis laevis*
Antirrhinum nuttallianum	*Erodium cicutarium*	*Plantago erecta*
Brassica nigra	*Erodium moschatum*	*Pseudognaphalium californicum*
Calyptridium monandrum	*Gazania linearis*	*Sambucus nigra*
Calystegia macrostegia ssp. intermedia	*Hedypnois cretica*	*Sanicula bipinnatifida*
Chenopodium murale	*Hypochaeris glabra*	*Silene gallica*
Chorizanthe fimbriata	*Lactuca serriola*	*Sisyrinchium bellum*
Cryptantha intermedia	*Lepidium nitidum*	*Sonchus oleraceus*
Cynara cardunculus	*Lysimachia arvensis*	*Viola pedunculata*
Dichelostemma capitatum	*Malosma laurina*	***Harpagonella palmeri***
Dudleya pulverulenta	*Marrubium vulgare*	
Eriogonum fasciculatum	*Mimulus aurantiacus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-10
Biologist(s)	Bonnie Peterson
Survey Area	8
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	66	66	20	0	patchy	
	11:45:00	84	89	10	3.2	patchy	
End	14:45:00	75	89	60	3.0	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (2)	funereal duskywing (3)	painted lady (2)
Behr's metalmark (28)	Harford's sulphur (4)	southern blue (1)
checkered white (1)	Pacific sara orangetip (4)	western tiger swallowtail (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	house finch (1+)	rufous-crowned sparrow (1+)
California thrasher (1+)	lesser goldfinch (1+)	Say's phoebe (1+)
California towhee (1+)	mourning dove (1+)	spotted towhee (1+)
common raven (1+)	red-tailed hawk (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Allium sp.	*Cryptantha sp.*	*Dichelostemma capitatum*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-16
Biologist(s)	Jeffrey Priest
Survey Area	8
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	66	68	0	0-1		
End	15:30:00	82	86	0	2-7		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	funereal duskywing (1+)	pale swallowtail (1+)
Behr's metalmark (1+)	marine blue (1+)	
checkered white (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	common raven (1+)	mule deer (1+)
American crow (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	Costa's hummingbird (1+)	rock pigeon (rock dove) (1+)
black phoebe (1+)	coyote (1+)	spotted towhee (1+)
Botta's pocket gopher (1+)	European starling (1+)	turkey vulture (1+)
brush rabbit (1+)	house finch (1+)	western fence lizard (1+)
bushtit (1+)	house sparrow (1+)	western meadowlark (1+)
California ground squirrel (1+)	house wren (1+)	white-crowned sparrow (1+)
California towhee (1+)	lesser goldfinch (1+)	wrentit (1+)
Cassin's kingbird (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-25
Biologist(s)	Erin Bergman
Survey Area	8
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:32:00	63.8		0	3.2	clear	
Temp check	11:04:00	74.7		0	1	clear	
Temp check	12:56:00	81.3		0	0.2	clear	
End	16:38:00	72.1		0	2.8	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (38)	marine blue (6)	western pygmy-blue (8)
checkered white (26)	monarch (2)	western tiger swallowtail (1)
funereal duskywing (12)	Pacific sara orangetip (49)	
Harford's sulphur (7)	pale swallowtail (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American kestrel (1+)	Cassin's kingbird (1+)	northern mockingbird (1+)
Anna's hummingbird (1+)	common raven (1+)	turkey vulture (1+)
black phoebe (1+)	house finch (1+)	wrentit (1+)
Brewer's blackbird (1+)	house sparrow (1+)	yellow-rumped warbler (1+)
California towhee (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber var. glaber	*Galium angustifolium*	*Mirabilis laevis var. crassifolia*
Acmispon strigosus	*Gazania linearis*	*Pseudognaphalium californicum*
Artemisia californica	*Hedypnois rhagadioloides*	*Rhus integrifolia*
Brassica nigra	*Hirschfeldia incana*	*Sambucus nigra ssp. caerulea*
Calystegia macrostegia ssp. intermedia	*Hypochaeris glabra*	*Sanicula bipinnatifida*
Crassula connata	*Lactuca serriola*	*Silene gallica*
Cynara cardunculus	*Lepidium nitidum*	*Sisyrinchium bellum*

INCIDENTAL PLANT LIST		
Dichelostemma capitatum	*Logfia gallica*	*Sonchus asper ssp. asper*
Eriogonum fasciculatum var. fasciculatum	*Lysimachia arvensis*	*Sonchus oleraceus*
Erodium botrys	*Malosma laurina*	*Spergularia bocconi*
Erodium cicutarium	*Marrubium vulgare*	*Viola pedunculata*
Foeniculum vulgare	*Melilotus indicus*	*Washingtonia robusta*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-04
Biologist(s)	Bonnie Peterson
Survey Area	8
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:10:00	66	71	0	1.2	clear	
End	14:30:00	81	86	0	4.5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (27)	Harford's sulphur (3)	
checkered white (3)	Pacific sara orangetip (36)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	California towhee (1+)	northern mockingbird (1+)
northern harrier (1+)	greater roadrunner (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	house finch (1+)	spotted towhee (1+)
bushtit (1+)	lesser goldfinch (1+)	
California thrasher (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
Castilleja exserta	*Cryptantha sp*	*Dichelostemma capitatum*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-25
Biologist(s)	Bonnie Peterson
Survey Area	9
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:52:00	61		0	0		
	10:15:00	71	71	0	0		
	12:45:00	84	84	0	0		
End	15:30:00	81	81	0	2.7		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr metalmark (4)	Sara orangetip (1+)	Tiger swallowtail (1)
Blue sp. (1+)	southern blue (12)	
Painted lady (1)	Sulphur sp (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (3)	common raven (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	house finch (1+)	spotted towhee (1+)
Bewick's wren (1+)	lesser goldfinch (1+)	western meadowlark (1+)
Black-tailed jackrabbit (2)	mourning dove (1+)	white-crowned sparrow (1+)
California towhee (1+)	mule deer (1)	wrentit (1+)

INCIDENTAL PLANT LIST		
Dichelostemma capitatum		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-26
Biologist(s)	Bonnie Peterson
Survey Area	9
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:40:00	61	60	20	1		
	10:15:00	71	73	30	2.4		
End	12:40:00	89	90	20	2.4		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behrs metalmark (3)	Sara orangetip (15)	Sulphur sp. (1+)
Painted lady (1)	Southern blue (8)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	lesser goldfinch (1+)	western meadowlark (1+)
Bewicks wren (1+)	Mule deer (1)	Wrentit (1+)
black-tailed jackrabbit (1)	red-tailed hawk (1+)	
California towhee (1+)	Spotted towhee (1+)	

INCIDENTAL PLANT LIST		
Dichelostemma capitatum	*Plantego erecta*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-04
Biologist(s)	Tricia Wotipka
Survey Area	9
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:35:00	65	70	50	0-1	patchy	
End	16:35:00	68	74	0	2-3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	Pacific sara orangetip (1+)	west coast lady (1+)
Harford's sulphur (1+)	southern blue (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	common raven (1+)	small checkered-skipper (1+)
Bewick's wren (1+)	coyote (1+)	spotted towhee (1+)
bushtit (1+)	funereal duskywing (1+)	western meadowlark (1+)
California towhee (1+)	house finch (1+)	
Cassin's kingbird (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
Cryptantha angustifolia	*Dichelostemma capitatum*	*Lasthenia glabrata*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-21
Biologist(s)	Bonnie Peterson
Survey Area	9
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:00:00	66	68	30	1.2	patchy	
	14:35:00	76	82	60	4.2	patchy	
End	17:30:00	73	78	40	5.6	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (17)	Pacific sara orangetip (73)	white checkered-skipper (2)
checkered white (1)	painted lady (1)	
Harford's sulphur (11)	southern blue (8)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	greater roadrunner (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	house finch (1+)	spotted towhee (1+)
black phoebe (1+)	lesser goldfinch (1+)	white-crowned sparrow (1+)
California thrasher (1+)	mourning dove (1+)	wrentit (1+)
California towhee (1+)	northern mockingbird (1+)	
common raven (1+)	northern rough-winged swallow (1+)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-25
Biologist(s)	Bonnie Peterson
Survey Area	9
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	63	65	0	0	clear	
End	15:45:00	78	85	10	5	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	Harford's sulphur (4)	southern blue (10)
Behr's metalmark (23)	Pacific sara orangetip (80)	white checkered-skipper (4)
funereal duskywing (5)	painted lady (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
bushtit (1+)	house finch (1+)	spotted towhee (1+)
California thrasher (1+)	house wren (1+)	wrentit (1+)
California towhee (1+)	mourning dove (1+)	
common raven (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Castilleja exserta	*Dichelostemma capitatum*	
Cryptantha sp.	*Plantago erecta*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-01
Biologist(s)	Alicia Hill
Survey Area	9
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00		65	40	0-1		
End	16:35:00		83	0	1-2		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	Harford's sulphur (2)	Unid blue (3)
Behr's metalmark (14)	marine blue (1)	Unid sulphur (1)
checkered white (7)	Pacific sara orangetip (77)	white checkered-skipper (7)
funereal duskywing (2)	pale swallowtail (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
black-chinned sparrow (1+)	California thrasher (1+)	red-shouldered hawk (1+)
coastal California gnatcatcher (1+)	California towhee (1+)	rufous-crowned sparrow (1+)
Anna's hummingbird (1+)	common raven (1+)	spotted towhee (1+)
Bewick's wren (1+)	mourning dove (1+)	wrentit (4)

INCIDENTAL PLANT LIST		
Acmispon glaber	*Cryptantha sp.*	*Plantago erecta*
Castilleja densiflora	*Dichelostemma capitatum*	*Sisyrinchium bellum*
Castilleja exserta	*Eriogonum fasciculatum*	*Viola pedunculata*
Claytonia perfoliata	*Eschscholzia californica*	***Bloomeria clevelandii***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-01
Biologist(s)	Paul Lemons
Survey Area	10
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:10:00		63	10	0-1	clear	
End	16:15:00		87	30	3-6, 7-10 gusts		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (2)	California dogface (2)	painted lady (4)
Behr's metalmark (37)	funereal duskywing (14)	
bramble hairstreak (6)	Pacific sara orangetip (23)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	California towhee (1+)	red-tailed hawk (1+)
bushtit (1+)	Cassin's kingbird (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-08
Biologist(s)	Tricia Wotipka
Survey Area	10
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:35:00	50	62	0	1-2	clear	
End	16:15:00	64	75	0	6-8	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (1+)	Pacific sara orangetip (1+)	southern blue (1+)
anise swallowtail (1+)	painted lady (1+)	west coast lady (1+)
Behr's metalmark (1+)	pale swallowtail (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	common raven (1+)	red-tailed hawk (1+)
black phoebe (1+)	funereal duskywing (1+)	small checkered-skipper (1+)
bushtit (1+)	gray hairstreak (1+)	spotted towhee (1+)
cabbage white (1+)	Green hairstreak (1+)	white-throated swift (1+)
California dogface (1+)	house finch (1+)	wrentit (1+)
California towhee (1+)	mourning dove (1+)	
Cassin's kingbird (1+)	northern flicker (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-15
Biologist(s)	Darin Busby
Survey Area	10
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:40:00	60	60	10	1-2	clear	
Weather check	12:00:00	77	80	0	1-3	clear	
End	16:20:00	79	81	0	2-6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (7)	orange sulphur (16)	southern blue (5)
Behr's metalmark (41)	Pacific sara orangetip (9)	spring white (15)
California patch (1)	Pacuvius duskywing (3)	Virginia lady (6)
funereal duskywing (22)	pale swallowtail (7)	western tiger swallowtail (1)
gray hairstreak (4)	red admiral (2)	white checkered-skipper (7)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (2)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Eriogonum fasciculatum*	*Mirabilis laevis*
Bahiopsis laciniata	*Lasthenia californica*	*Phacelia cicutaria*
Cryptantha sp.	*Layia platyglossa*	*Plantago erecta*
Dichelostemma capitatum	*Lupinus hirsutissimus*	*Sisyrinchium bellum*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-22
Biologist(s)	Paul Lemons
Survey Area	10
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:10:00		70	30	4-8 mph	patchy	
End	16:00:00		72	10	2-5, 6-10 gusts		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	cabbage white (1+)	
Behr's metalmark (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
brush rabbit (1+)	common raven (1+)	mourning dove (1+)
California quail (1+)	Costa's hummingbird (1+)	red-tailed hawk (1+)
California towhee (1+)	coyote (1+)	spotted towhee (1+)
Cassin's kingbird (1+)	lesser goldfinch (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-26
Biologist(s)	Paul Lemons
Survey Area	10
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:40:00		64	10	0-3 mph		
End	12:45:00		78	0	1-3, 4-8 gusts	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	Behr's metalmark (1+)	Pacific sara orangetip (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
northern harrier (1+)	California towhee (1+)	red-tailed hawk (1+)
American kestrel (1+)	common raven (1+)	Sulfur sp. (1+)
Bewick's wren (1+)	lesser goldfinch (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-31
Biologist(s)	Bonnie Peterson
Survey Area	10
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:40:00	64	65	0	3	clear	
End	17:40:00	68	72	10	3	clear	Measured wind during the day. At 2:40 it got up to 12 mph.

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (20)	marine blue (1)	southern blue (3)
checkered white (9)	Pacific sara orangetip (19)	white checkered-skipper (1)
Harford's sulphur (7)	pale swallowtail (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	common raven (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	Costa's hummingbird (1+)	spotted towhee (1+)
bushtit (1+)	house finch (1+)	white-throated swift (1+)
California thrasher (1+)	house wren (1+)	wrentit (1+)
California towhee (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
Castilleja exserta	*Dichelostemma capitatum*	*Plantago erecta*
Cryptantha sp	*Lasthenia coronaria*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-04
Biologist(s)	Erin Bergman
Survey Area	10
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Temp check	07:52:00	57.1		10	2.6	clear	
Start	08:24:00	60.2		0	1.4	clear	
Temp check	10:30:00	73.8		0	1.1	clear	
End	16:01:00	82.6		0	0.3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (1)	gray hairstreak (1)	Sulphur spp. (2)
anise swallowtail (7)	marine blue (3)	west coast lady (1)
Behr's metalmark (59)	mourning cloak (1)	western pygmy-blue (2)
California patch (3)	Pacific sara orangetip (11)	western tiger swallowtail (2)
checkered white (26)	pale swallowtail (6)	white checkered-skipper (3)
Comstock's fritillary (5)	Propertius duskywing (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (2)	Cassin's kingbird (1+)	wrentit (1+)
California quail (1+)	common raven (1+)	
California towhee (1+)	red-winged blackbird (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber var. glaber	*Gazania linearis*	*Marrubium vulgare*
Acmispon strigosus	*Glebionis coronaria*	*Melilotus indicus*
Artemisia californica	*Hedypnois rhagadioloides*	*Mimulus aurantiacus*
Bahiopsis laciniata	*Hesperoyucca whipplei*	*Phacelia cicutaria var. hispida*
Brassica nigra	*Hirschfeldia incana*	*Pseudognaphalium californicum*
Calystegia macrostegia ssp. tenuifolia	*Hypochaeris glabra*	*Salvia apiana*
Castilleja affinis ssp. affinis	*Lactuca serriola*	*Sanicula bipinnatifida*

INCIDENTAL PLANT LIST		
Centaurea melitensis	*Lasthenia gracilis*	*Sidalcea sparsifolia*
Crassula connata	*Layia platyglossa*	*Silene gallica*
Dudleya pulverulenta	*Lepidium nitidum*	*Sisyrinchium bellum*
Eriogonum fasciculatum var. fasciculatum	*Logfia gallica*	*Sonchus oleraceus*
Eriophyllum confertiflorum	*Malacothamnus densiflorus*	*Viola pedunculata*
Erodium botrys	*Malacothamnus fasciculatus*	***Bloomeria clevelandii***
Erodium cicutarium	*Malosma laurina*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-24
Biologist(s)	Paul Lemons
Survey Area	11
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:45:00		65	0	0	clear	
End	16:30:00		77	0	2-5, 6-12 gusts	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (7)	funereal duskywing (4)	Southern blue (1+)
blue-gray gnatcatcher (1+)	Pacific sara orangetip (2)	western pygmy-blue (5)
California dogface (2)	painted lady (4)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	house finch (1+)	rock wren (1+)
Anna's hummingbird (1+)	lesser goldfinch (1+)	spotted towhee (1+)
bushtit (1+)	mourning dove (1+)	Sulfur sp (1)
common raven (1+)	red-tailed hawk (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-04
Biologist(s)	Jeffrey Priest
Survey Area	11
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:35:00	65	70	50	0-1	patchy	
End	14:00:00	70	75	40	3-7	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1+)	funereal duskywing (1+)	red admiral (1+)
Behr's metalmark (1+)	Harford's sulphur (1+)	southern blue (1+)
California dogface (1+)	Pacific sara orangetip (1+)	western pygmy-blue (1+)
checkered white (1+)	pale swallowtail (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	Cassin's kingbird (1+)	mule deer (1+)
American crow (1+)	cliff swallow (1+)	Perplexing green hairstreak butterfly (1+)
American kestrel (1+)	common raven (1+)	red-shouldered hawk (1+)
Anna's hummingbird (1+)	coyote (1+)	rufous-crowned sparrow (1+)
bushtit (1+)	house finch (1+)	Say's phoebe (1+)
cactus wren (1+)	lesser goldfinch (1+)	spotted towhee (1+)
California towhee (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-05
Biologist(s)	Jeffrey Priest
Survey Area	11
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:00:00	65	68	80	1-4	patchy	
End	13:30:00	72	79	90	2-5		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	funereal duskywing (1+)	painted lady (1+)
Behr's metalmark (1+)	Harford's sulphur (1+)	western pygmy-blue (1+)
checkered white (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	common raven (1+)	mule deer (1+)
Anna's hummingbird (1+)	Costa's hummingbird (1+)	red-tailed hawk (1+)
brush rabbit (1+)	greater roadrunner (1+)	spotted towhee (1+)
bushtit (1+)	house finch (1+)	western scrub-jay (1+)
California quail (1+)	lesser goldfinch (1+)	wrentit (1+)
California towhee (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-09
Biologist(s)	Bonnie Peterson
Survey Area	11
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
End	09:45:00	67	68	0	1	clear	
	12:45:00	81	84	10	1.4	patchy	
End	15:50:00	78	77	40	3.2	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (11)	Pacific sara orangetip (11)	western tiger swallowtail (2)
checkered white (1)	pale swallowtail (1)	white checkered-skipper (13)
Harford's sulphur (28)	southern blue (26)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	California towhee (1+)	spotted towhee (1+)
American kestrel (1+)	common raven (1+)	Vanessa sp. (1+)
Anna's hummingbird (1+)	house finch (1+)	white-crowned sparrow (1+)
black-tailed jackrabbit (1+)	mourning dove (1+)	wrentit (1+)
bushtit (1+)	northern mockingbird (1+)	
California thrasher (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Cryptantha sp.	*Dichelostemma capitatum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-16
Biologist(s)	Bonnie Peterson
Survey Area	11
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:40:00	73	73	0	0	clear	
End	15:20:00	86	91	0	4.7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (6)	Harford's sulphur (15)	southern blue (14)
checkered white (2)	Pacific sara orangetip (54)	western tiger swallowtail (1)
funereal duskywing (2)	small checkered-skipper (16)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	common raven (1+)	red-tailed hawk (1+)
American kestrel (1+)	house finch (1+)	spotted towhee (1)
California thrasher (1+)	lesser goldfinch (1+)	white-crowned sparrow (1+)
California towhee (1+)	mourning dove (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Cryptantha sp.	*Dichelostemma capitatum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-25
Biologist(s)	Paul Lemons
Survey Area	11
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00		67	0	0-1 mph	clear	
End	15:45:00		81	10	1-4, 5-10 gusts		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	funereal duskywing (1+)	Pacific sara orangetip (1+)
cabbage white (1+)	Harford's sulphur (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	common raven (1+)	nutmeg manniken (1+)
Anna's hummingbird (1+)	house finch (1+)	Say's phoebe (1+)
California towhee (1+)	lesser goldfinch (1+)	spotted towhee (1+)
Cassin's kingbird (1+)	mourning dove (1+)	wrentit (1+)
Checkered skipper (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-01
Biologist(s)	Erika Eidson
Survey Area	11
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:00:00	62	64	40	0-3	patchy	
End	16:08:00	75	79	0	1-4	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (28)	marine blue (4)	white checkered-skipper (15)
checkered white (11)	Pacific sara orangetip (34)	
funereal duskywing (1)	painted lady (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Sulfur sp. (6)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Mirabilis laevis*	*Sisyrinchium bellum*
Dichelostemma capitatum	*Pseudognaphalium biolettii*	***Bloomeria clevelandii***
Eriogonum fasciculatum	*Pseudognaphalium californicum*	
Erodium botrys	*Silene gallica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-04
Biologist(s)	Erika Eidson
Survey Area	11
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:59:00	69	72	0	1-3	clear	
End	12:47:00	86	91	0	1-4	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (2)	funereal duskywing (4)	Pacific sara orangetip (19)
Behr's metalmark (26)	gray hairstreak (1)	painted lady (5)
checkered white (16)	marine blue (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Sulfur (6)		

INCIDENTAL PLANT LIST		
Brassica nigra	*Eriogonum fasciculatum*	*Pseudognaphalium biolettii*
Centaurea melitensis	*Erodium botrys*	***Bloomeria clevelandii***
Dichelostemma capitatum	*Mirabilis laevis*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-26
Biologist(s)	Darin Busby
Survey Area	12
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	60	60	0	0	clear	
End	16:30:00	77	77	40	1-5	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (2)	Harford's sulphur (4)	Sulphur sp. (15)
Behr's metalmark (17)	Pacific sara orangetip (13)	west coast lady (8)
checkered white (6)	pale swallowtail (2)	western pygmy-blue (3)
Edward's blue (2)	southern blue (30)	white checkered-skipper (3)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Moth sp. (11)		

INCIDENTAL PLANT LIST		
Plantago erecta	*Plantago patagonica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-02
Biologist(s)	Jeffrey Priest
Survey Area	12
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:15:00	64	64	30	0-1	patchy	Hazy clouds
End	16:15:00	72	82	50	1-5	patchy	Hazy clouds

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	marine blue (1+)	Senna sulphur butterfly (1+)
Behr's metalmark (1+)	Pacific sara orangetip (1+)	small checkered-skipper (1+)
funereal duskywing (1+)	painted lady (1+)	southern blue (1+)
Harford's sulphur (1+)	pale swallowtail (1+)	Virginia lady (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American coot (1+)	common raven (1+)	northern mockingbird (1+)
American crow (1+)	Costa's hummingbird (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	coyote (1+)	rufous-crowned sparrow (1+)
black phoebe (1+)	greater roadrunner (1+)	spotted towhee (1+)
brown-headed cowbird (1+)	killdeer (1+)	western fence lizard (1+)
brush rabbit (1+)	lesser goldfinch (1+)	western meadowlark (1+)
bushtit (1+)	mallard (1+)	wrentit (1+)
California towhee (1+)	mourning dove (1+)	
cliff swallow (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-11
Biologist(s)	Erik LaCoste
Survey Area	12
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	13:45:00	70	75	10	4-7	clear	
End	15:15:00	66	70	100	7-12	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (2)	gray hairstreak (2)	southern blue (8)
Behr's metalmark (20)	orange sulphur (1)	white checkered-skipper (21)
fiery skipper (1)	Pacific sara orangetip (3)	
funereal duskywing (7)	pale swallowtail (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Brassica nigra	*Lasthenia californica*	*Silene gallica*
Calamagrostis breweri	*Lepidium nitidum*	*Sisyrinchium bellum*
Dichelostemma capitatum	*Mimulus aurantiacus*	*Sonchus asper*
Eriogonum fasciculatum	*Mimulus guttatus*	*Sonchus oleraceus*
Erodium botrys	*Raphanus sativus*	*Viola pedunculata*
Eschscholzia californica	*Sanicula bipinnata*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-13
Biologist(s)	Erik LaCoste
Survey Area	12
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:00:00	68	73	50	0-1	patchy	
End	16:15:00	69	75	50	4-7	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-18
Biologist(s)	Erik LaCoste
Survey Area	12
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	69	70	90	0-1	overcast	
End	17:25:00	74	78	0	4-7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (38)	orange sulphur (2)	western pygmy-blue (1)
fiery skipper (1)	Pacific sara orangetip (11)	western tiger swallowtail (1)
funereal duskywing (5)	pale swallowtail (1)	white checkered-skipper (17)
Gabb's checkerspot (1)	southern blue (6)	White sp. (1+)
gray hairstreak (1)	Virginia lady (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Hypochaeris glabra*	*Pseudognaphalium californicum*
Asphodelus fistulosus	*Lasthenia californica*	*Raphanus sativus*
Brassica nigra	*Linanthus dianthiflorus*	*Sanicula arguta*
Calochortus weedii	*Matricaria discoidea*	*Sanicula bipinnata*
Centaurea melitensis	*Medicago polymorpha*	*Sidalcea malviflora*
Conium maculatum	*Melilotus indicus*	*Silene gallica*
Dichelostemma capitatum	*Mimulus aurantiacus*	*Sisyrinchium bellum*
Eriogonum fasciculatum	*Mimulus guttatus*	*Sonchus asper*
Erodium botrys	*Mirabilis laevis*	*Sonchus oleraceus*
Gilia angelensis	*Plantago erecta*	*Viola pedunculata*
Hirschfeldia incana	*Plantago patagonica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-24
Biologist(s)	Erin Bergman, Janice Wondolleck
Survey Area	12
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Temp check	01:38:00	76.3	78.9	0	1.1	clear	Nice day
Start	08:34:00	67.2	68.1	0	1.1	clear	
Temp check	09:13:00	70.1	72.4	0	1.8	clear	
End	16:07:00	70.1	74.2	0	2.4	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (12)	funereal duskywing (1)	southern blue (2)
Blue sp. (1)	marine blue (3)	western pygmy-blue (7)
checkered white (5)	Pacific sara orangetip (19)	white checkered-skipper (4)
common buckeye (3)	pale swallowtail (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
double-crested cormorant (1+)	Cassin's kingbird (1+)	red-winged blackbird (1+)
American coot (1+)	common raven (1+)	ruddy duck (1+)
American crow (1+)	house finch (1+)	snowy egret (1+)
Anna's hummingbird (1+)	mallard (1+)	white-crowned sparrow (1+)
bushtit (1+)	mourning dove (1+)	
California towhee (1+)	northern shoveler (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber var. glaber	*Hirschfeldia incana*	*Psilocarphus brevissimus*
Ambrosia psilostachya	*Hypochaeris glabra*	*Raphanus sativus*
Atriplex semibaccata	*Lactuca serriola*	*Rhus integrifolia*
Baccharis salicifolia	*Lasthenia gracilis*	*Rumex crispus*
Baccharis sarothroides	*Lepidium nitidum*	*Salix laevigata*
Brassica nigra	*Lysimachia arvensis*	*Salix lasiolepis*

INCIDENTAL PLANT LIST		
Calystegia macrostegia ssp. intermedia	*Lythrum hyssopifolia*	*Salsola tragus*
Capsella bursa-pastoris	*Malacothamnus fasciculatus*	*Schinus molle*
Centaurea melitensis	*Malosma laurina*	*Schinus terebinthifolius*
Crassula connata	*Malva parviflora*	*Senecio vulgaris*
Dichelostemma capitatum	*Matricaria discoidea*	*Silene gallica*
Encelia californica	*Medicago polymorpha*	*Sonchus asper*
Erigeron bonariensis	*Melilotus indicus*	*Spergularia bocconi*
Eriogonum fasciculatum var. fasciculatum	*Mirabilis laevis var. crassifolia*	*Tamarix chinensis*
Erodium botrys	*Phoenix canariensis*	*Washingtonia robusta*
Erodium cicutarium	*Plantago erecta*	***Bloomeria clevelandii***
Hedypnois rhagadioloides	*Pseudognaphalium californicum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-05
Biologist(s)	Erin Bergman, Janice Wondolleck
Survey Area	12
Survey Pass	6

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Temp check	08:15:00	58.9		70	0.5	patchy	
Start	08:54:00	60		30	1.2	clear	
Temp check	11:11:00	82		40	0.5	clear	
Temp check	13:41:00	91		50	2.3	patchy	
End	17:02:00	79		40	1.5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (1)	Harford's sulphur (1)	sleepy orange (1)
Behr's metalmark (7)	marine blue (1)	west coast lady (1)
California patch (1)	Pacific sara orangetip (8)	
checkered white (2)	pale swallowtail (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
double-crested cormorant (1+)	common raven (1+)	red-winged blackbird (1+)
American coot (1+)	Eleodes sp. (stink beetle) (1+)	ruddy duck (1+)
American crow (1+)	Forster's tern (1+)	snowy egret (1+)
Anna's hummingbird (1+)	house finch (1+)	song sparrow (1+)
belted kingfisher (1+)	killdeer (1+)	western fence lizard (1+)
Bombus spp. (1+)	mallard (1+)	white-crowned sparrow (1+)
bushtit (1+)	mourning dove (1+)	wood duck (1+)
California towhee (1+)	northern mockingbird (1+)	
Cassin's kingbird (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Hedypnois rhagadioloides*	*Raphanus sativus*
Asphodelus fistulosus	*Heliotropium curassavicum*	*Rhamnus crocea*
Atriplex semibaccata	*Helminthotheca echioides*	*Rhus integrifolia*

INCIDENTAL PLANT LIST		
Baccharis salicifolia	*Heterotheca grandiflora*	*Rumex crispus*
Baccharis sarothroides	*Hirschfeldia incana*	*Salix exigua*
Bloomeria crocea var. crocea	*Hypochaeris glabra*	*Salix gooddingii*
Brassica nigra	*Lactuca serriola*	*Salix lasiandra*
Calystegia macrostegia ssp. tenuifolia	*Lepidium didymum*	*Salsola tragus*
Capsella bursa-pastoris	*Logfia gallica*	*Schinus molle*
Centaurea melitensis	*Lonicera subspicata var. denudata*	*Schinus terebinthifolius*
Chenopodium album	*Lysimachia arvensis*	*Silene gallica*
Chenopodium murale	*Lythrum hyssopifolia*	*Sisymbrium altissimum*
Crassula connata	*Malacothamnus fasciculatus var. fasciculatus*	*Sisymbrium irio*
Cynara cardunculus	*Malva parviflora*	*Sonchus asper ssp. asper*
Deinandra fasciculata	*Matricaria discoidea*	*Sonchus oleraceus*
Dichelostemma capitatum ssp. capitatum	*Medicago polymorpha*	*Spergularia bocconi*
Encelia californica	*Melilotus indicus*	*Stylocline gnaphaloides*
Epilobium canum	*Mimulus aurantiacus*	*Tamarix chinensis*
Erigeron bonariensis	*Nicotiana glauca*	*Tribulus terrestris*
Erigeron canadensis	*Phoenix canariensis*	*Urtica urens*
Eriogonum fasciculatum var. fasciculatum	*Portulaca oleracea*	*Veronica anagallis-aquatica*
Erodium botrys	*Pseudognaphalium californicum*	*Viola pedunculata*
Erodium cicutarium	*Pseudognaphalium luteoalbum*	*Washingtonia robusta*
Galium angustifolium	*Psilocarphus tenellus*	***Harpagonella palmeri***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-24
Biologist(s)	Jeffrey Priest
Survey Area	13
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:15:00	66	60	0	0-1	clear	
End	15:30:00	80	80	0	3-5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	funereal duskywing (9)	west coast lady (7)
Behr's metalmark (19)	Pacific sara orangetip (21)	western tiger swallowtail (2)
cabbage white (4)	painted lady (2)	
checkered white (6)	southern blue (23)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	cliff swallow (1+)	mule deer (1+)
American coot (1+)	common raven (1+)	Neotoma sp. (midden) (1+)
American crow (1+)	common side-blotched lizard (1+)	northern mockingbird (1+)
Anna's hummingbird (1+)	Costa's hummingbird (1+)	red-tailed hawk (1+)
Bewick's wren (1+)	coyote (1+)	rufous-crowned sparrow (1+)
black phoebe (1+)	European starling (1+)	song sparrow (1+)
bobcat (1+)	great egret (1+)	western fence lizard (1+)
Botta's pocket gopher (1+)	greater roadrunner (1+)	western meadowlark (1+)
brush rabbit (1+)	house finch (1+)	white-crowned sparrow (1+)
bushtit (1+)	lesser goldfinch (1+)	wrentit (1+)
Cactus wren (1+)	mallard (1+)	
California towhee (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-04
Biologist(s)	Brock Ortega
Survey Area	13
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	14:00:00	76		10	5	clear	
End	16:50:00	70		40	3	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (2)	checkered white (2)	painted lady (1)
anise swallowtail (1)	common buckeye (1)	
Behr's metalmark (20)	Pacific sara orangetip (12)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-05
Biologist(s)	Brock Ortega
Survey Area	13
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:10:00	70		40	3-5	overcast	
End	16:20:00	70		50	3-5, gusts to 10	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	common california ringlet (1)	southern blue (2)
anise swallowtail (2)	Pacific sara orangetip (8)	white checkered-skipper (1)
Behr's metalmark (12)	painted lady (3)	
common buckeye (1)	queen (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-11
Biologist(s)	Erik LaCoste, Crysta Dickson
Survey Area	13
Survey Pass	3

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	09:30:00	69	71	100	1-3	overcast	No rain.
End	11:45:00	71	75	100	8-12	overcast	No rain.

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	orange sulphur (5)	Virginia lady (6)
Behr's metalmark (21)	pale swallowtail (1)	white checkered-skipper (19)
funereal duskywing (14)	southern blue (9)	White sp. (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Sulfur sp (1)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Lasthenia californica*	*Sidalcea malviflora*
Brassica nigra	*Mimulus aurantiacus*	*Silene gallica*
Castilleja exserta	*Mirabilis laevis*	*Sonchus oleraceus*
Dichelostemma capitatum	*Plantago erecta*	*Viola pedunculata*
Erodium botrys	*Pseudognaphalium biolettii*	
Hypochaeris glabra	*Raphanus sativus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-19
Biologist(s)	Jeffrey Priest
Survey Area	13
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:20:00	65	70	90	0-1		
End	16:30:00	78	82	30	2-5		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	gray hairstreak (1+)	small checkered-skipper (1+)
Behr's metalmark (1+)	Harford's sulphur (1+)	southern blue (1+)
funereal duskywing (1+)	Pacific sara orangetip (1+)	white checkered-skipper (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Southern California rufous-crowned sparrow (1+)	Cassin's kingbird (1+)	mule deer (1+)
American coot (1+)	cliff swallow (1+)	northern mockingbird (1+)
American crow (1+)	common raven (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	turkey vulture (1+)
Bewick's wren (1+)	coyote (1+)	western fence lizard (1+)
Botta's pocket gopher (1+)	greater roadrunner (1+)	western meadowlark (1+)
bushtit (1+)	lesser goldfinch (1+)	western scrub-jay (1+)
California towhee (1+)	mallard (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-01
Biologist(s)	Garrett Huffman
Survey Area	13
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	61	60	50	2-3	clear	
End	16:30:00	74	76	0	3-8	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (53)	gray hairstreak (1)	painted lady (1)
checkered white (9)	marine blue (1)	white checkered-skipper (18)
cloudless sulphur (1)	orange sulphur (3)	
common buckeye (2)	Pacific sara orangetip (23)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Brewer's sparrow (1+)	bushtit (1+)	red-shouldered hawk (1+)
coastal California gnatcatcher (1+)	cactus wren (1+)	red-tailed hawk (1+)
Cooper's hawk (1+)	California towhee (1+)	red-winged blackbird (1+)
double-crested cormorant (1+)	cliff swallow (1+)	ruddy duck (1+)
grasshopper sparrow (1+)	common raven (1+)	rufous-crowned sparrow (1+)
American coot (1+)	common yellowthroat (1+)	snowy egret (1+)
American kestrel (1+)	coyote (1+)	song sparrow (1+)
Anna's hummingbird (1+)	greater roadrunner (1+)	western meadowlark (1+)
Belding's orange-throated whiptail (1+)	house wren (1+)	white-crowned sparrow (1+)
belted kingfisher (1+)	lesser goldfinch (1+)	wrentit (1+)
black phoebe (1+)	mourning dove (1+)	
brush rabbit (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Cryptantha sp.*	*Lasthenia gracilis*
Bahiopsis laciniata	*Dichelostemma capitatum*	*Linanthus dianthiflorus*
Bloomeria crocea	*Eriogonum fasciculatum*	*Pseudognaphalium californicum*

INCIDENTAL PLANT LIST		
Calystegia longipes	*Erodium sp*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-27
Biologist(s)	Brian Drake
Survey Area	14
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	60.5		0	SW at 2.6 avg. 4.7 max.	clear	
	12:00:00	77.8		0	S at 2.7 avg. 4.8 max.	clear	
End	17:00:00	72.3		0	SW at 3.1 avg. 5.3 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (4)	painted lady (2)	white checkered-skipper (6)
funereal duskywing (2)	western tiger swallowtail (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
San Diego black-tailed jackrabbit (1+)	common side-blotched lizard (1+)	western meadowlark (1+)
bushtit (1+)	coyote (1+)	
California towhee (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-03
Biologist(s)	Erik LaCoste
Survey Area	14
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	60	60	10	1-3	clear	
End	16:15:00	70	73	80	4-7	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (8)	marine blue (1)	southern blue (4)
Behr's metalmark (26)	orange sulphur (7)	western tiger swallowtail (1)
common buckeye (1)	Pacific sara orangetip (6)	white checkered-skipper (25)
funereal duskywing (13)	pale swallowtail (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
burrowing owl (1+)	**coastal California gnatcatcher (1+)**	cactus wren (1+)

INCIDENTAL PLANT LIST		
Acmispon glaber	*Lasthenia californica*	*Sidalcea sparsifolia*
Acmispon strigosus	*Lysimachia arvensis*	*Sonchus oleraceus*
Calamagrostis breweri	*Marah macrocarpa*	*Toxicoscordion venenosum*
Castilleja affinis	*Mimulus aurantiacus*	*Viola pedunculata*
Dichelostemma capitatum	*Mirabilis laevis*	***Viguiera laciniata***
Eriogonum fasciculatum	*Nuttallanthus texanus*	
Erodium botrys	*Sanicula bipinnata*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-10
Biologist(s)	Jeffrey Priest
Survey Area	14
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	60	60	10	0-1	clear	
End	16:00:00	76	88	90	2-5	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	funereal duskywing (1+)	painted lady (1+)
blue-gray gnatcatcher (1+)	Harford's sulphur (1+)	small checkered-skipper (1+)
checkered white (1+)	Pacific sara orangetip (1+)	southern blue (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	cliff swallow (1+)	Raptor Nest-active-RTHA (1+)
American crow (1+)	common raven (1+)	red-tailed hawk (1+)
American kestrel (1+)	common side-blotched lizard (1+)	song sparrow (1+)
Anna's hummingbird (1+)	Costa's hummingbird (1+)	spotted towhee (1+)
Bewick's wren (1+)	coyote (1+)	turkey vulture (1+)
black phoebe (1+)	killdeer (1+)	western meadowlark (1+)
brush rabbit (1+)	lesser goldfinch (1+)	western scrub-jay (1+)
California quail (1+)	mourning dove (1+)	white-crowned sparrow (1+)
California thrasher (1+)	mule deer (1+)	wrentit (1+)
California towhee (1+)	Neoroma sp. (midden) (1+)	
Cassin's kingbird (1+)	northern flicker (1+)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-24
Biologist(s)	Antonette Gutierrez
Survey Area	14
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	74	70	0	0-1	clear	
End	14:30:00	82	84	0	2-3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	Harford's sulphur (4)	painted lady (3)
Behr's metalmark (45)	mournful duskywing (2)	red admiral (1)
checkered white (6)	northern white-skipper (15)	Unid blue (1+)
funereal duskywing (6)	Pacific sara orangetip (26)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	brush rabbit (1+)	mourning dove (1+)
grasshopper sparrow (1+)	California towhee (1+)	northern mockingbird (1+)
American crow (1+)	Costa's hummingbird (1+)	red-tailed hawk (1+)
American kestrel (1+)	coyote (1+)	spotted towhee (1+)
Anna's hummingbird (1+)	house finch (1+)	western fence lizard (1+)

INCIDENTAL PLANT LIST		
Amsinckia intermedia	*Erodium cicutarium*	*Plagiobothryus sp*
Antirrhinum nuttallianum	*Eschscholzia californica*	*Plantago erecta*
Castilleja exserta	*Gutierrezia californica*	*Sanicula bipinnatifida*
Chorizanthe staticoides	*Hirschfeldia incana*	*Sidalcea malviflora*
Cruptantha sp	*Lactuca serriola*	***Viguiera laciniata***
Dichelostemma capitatum	*Lepidoum sp*	
Eriogonum fasciculatum	*Oxalis californica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-31
Biologist(s)	Erin Bergman
Survey Area	14
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:44:00	63.2		0	2.2	clear	
Weather check	11:45:00	69.9		0	1.0	clear	
End	16:59:00	68.5		0	1.7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1)	Harford's sulphur (2)	Propertius duskywing (1)
Blue spp. (3)	marine blue (2)	Sulphur spp. (3)
brown elfin (1)	mourning cloak (1)	western pygmy-blue (2)
cabbage white (1)	Pacific sara orangetip (15)	white checkered-skipper (38)
checkered white (18)	pale swallowtail (3)	White spp. (3)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	California quail (1+)	northern mockingbird (1+)
Anna's hummingbird (1+)	California towhee (1+)	wrentit (1+)
Bewick's wren (1+)	house finch (1+)	
bushtit (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber var. glaber	*Erodium moschatum*	*Plantago erecta*
Artemisia californica	*Galium angustifolium*	*Pseudognaphalium californicum*
Bahiopsis laciniata	*Gazania linearis*	*Rhamnus crocea*
Brassica nigra	*Gilia angelensis*	*Salvia apiana*
Calystegia macrostegia ssp. tenuifolia	*Hedypnois rhagadioloides*	*Salvia mellifera*
Castilleja affinis	*Hypochaeris glabra*	*Sambucus nigra ssp. caerulea*
Centaurea melitensis	*Lasthenia gracilis*	*Sanicula bipinnatifida*
Chenopodium album	*Lathyrus vestitus*	*Sidalcea sparsifolia*
Chenopodium murale	*Lepidium nitidum*	*Silene gallica*

INCIDENTAL PLANT LIST		
Claytonia perfoliata	*Logfia gallica*	*Sisyrinchium bellum*
Crassula connata	*Lupinus bicolor*	*Solanum parishii*
Dichelostemma capitatum	*Malacothamnus fasciculatus*	*Sonchus asper ssp. asper*
Dudleya pulverulenta	*Malosma laurina*	*Sonchus oleraceus*
Eriogonum fasciculatum var. fasciculatum	*Mimulus aurantiacus*	*Stellaria media*
Eriophyllum confertiflorum	*Mirabilis laevis var. crassifolia*	*Viola pedunculata*
Erodium botrys	*Plagiobothrys arizonicus*	***Bloomeria clevelandii***
Erodium cicutarium	*Plagiobothrys collinus*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-02
Biologist(s)	Antonette Gutierrez
Survey Area	14
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	74	76	0	0	clear	
End	15:30:00	79	84	0	1-2 gust to 5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	funereal duskywing (5)	northern white-skipper (16)
Behr's metalmark (32)	Harford's sulphur (6)	Pacific sara orangetip (18)
checkered white (5)	marine blue (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (3)	California towhee (1+)	mule deer (1+)
grasshopper sparrow (1+)	Cassin's kingbird (1+)	northern mockingbird (1+)
American crow (1+)	common poorwill (1+)	red-tailed hawk (1+)
Belding's orange-throated whiptail (1+)	coyote (1+)	western fence lizard (1+)
California quail (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
Allium sp	*Dichelostemma capitatum*	*Lepidium sp*
Amsinckia intermedia	*Eriogonum fasciculatum*	*Oxalis californica*
Antirrhinum nuttallianum	*Eriophyllum confertiflorum*	*Plagiobothrys sp*
Calystegia sp	*Erodium cicutarium*	*Plantago erecta*
Castilleja affinis	*Eschscholzia californica*	*Salvia clevelandii*
Castilleja exserta	*Gutierrezia californica*	*Sanicula bipinnata*
Centaurea melitensis	*Hirschfeldia incana*	*Sidalcea malviflora*
Chorizanthe staticoides	*Lactuca serriola*	***Bloomeria clevelandii***
Collinsia concolor	*Lasthenia coronaria*	***Viguiera laciniata***
Cryptatha sp.	*Layia platyglossa*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-06
Biologist(s)	Erin Bergman
Survey Area	14
Survey Pass	7

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Temp check	07:41:00	54.3		50	2.4	patchy	
Start	08:26:00	62.6		30	1.8	clear	
Temp check	10:22:00	74.3		60	0.9	patchy	
Temp check	13:52:00	76.3		70	1.8	patchy	
Temp check	14:27:00	74.6		100	1.1	overcast	Clouds coming in but still warm out
Temp check	15:51:00	75.1		80	1.2	patchy	
End	16:37:00	70.2		90	2.3	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	Harford's sulphur (1)	Propertius duskywing (1)
Behr's metalmark (36)	marine blue (5)	sleepy orange (2)
checkered white (16)	Pacific sara orangetip (27)	white checkered-skipper (23)
gray hairstreak (1)	pale swallowtail (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1)	common raven (1+)	song sparrow (1)
Anna's hummingbird (1+)	house finch (1+)	turkey vulture (1+)
Bewick's wren (1+)	mourning dove (1+)	white-crowned sparrow (1+)
bushtit (1+)	northern mockingbird (1+)	wrentit (1+)
California towhee (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber var. glaber	*Eriophyllum confertiflorum*	*Plagiobothrys arizonicus*
Antirrhinum nuttallianum	*Erodium botrys*	*Plagiobothrys collinus*
Artemisia californica	*Erodium cicutarium*	*Pseudognaphalium californicum*
Bahiopsis laciniata	*Erodium moschatum*	*Rhamnus crocea*

INCIDENTAL PLANT LIST		
Brassica nigra	*Galium angustifolium*	*Salvia apiana*
Calochortus splendens	*Gazania linearis*	*Salvia mellifera*
Calystegia macrostegia ssp. tenuifolia	*Gilia angelensis*	*Sambucus nigra ssp. caerulea*
Castilleja affinis ssp. affinis	*Hedypnois rhagadioloides*	*Sanicula bipinnatifida*
Centaurea melitensis	*Hypochaeris glabra*	*Sidalcea sparsifolia*
Chenopodium album	*Lactuca serriola*	*Silene gallica*
Chenopodium murale	*Lasthenia gracilis*	*Sisyrinchium bellum*
Claytonia perfoliata	*Lathyrus vestitus*	*Solanum parishii*
Crassula connata	*Lepidium nitidum*	*Sonchus asper ssp. asper*
Deinandra fasciculata	*Logfia gallica*	*Sonchus oleraceus*
Dichelostemma capitatum	*Lupinus bicolor*	*Stellaria media*
Dudleya pulverulenta	*Malacothamnus fasciculatus var. fasciculatus*	*Viola pedunculata*
Eriogonum fasciculatum var. fasciculatum	*Mimulus aurantiacus*	***Bloomeria clevelandii***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-25
Biologist(s)	Jeffrey Priest
Survey Area	15
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	66	61	0	0-1	clear	
End	16:20:00	80	83	0	2-5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	funereal duskywing (1+)	pale swallowtail (1+)
cabbage white (1+)	Harford's sulphur (1+)	Senna sulphur (1+)
California dogface (1+)	Pacific sara orangetip (1+)	small checkered-skipper (1+)
checkered white (1+)	painted lady (1+)	southern blue (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
San Diego black-tailed jackrabbit (1+)	common raven (1+)	phainopepla (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
Bewick's wren (1+)	coyote (1+)	rock pigeon (rock dove) (1+)
black phoebe (1+)	greater roadrunner (1+)	spotted towhee (1+)
Botta's pocket gopher (1+)	house finch (1+)	western meadowlark (1+)
California quail (1+)	lesser goldfinch (1+)	western scrub-jay (1+)
California thrasher (1+)	mourning dove (1+)	white-crowned sparrow (1+)
California towhee (1+)	mule deer (1+)	white-throated swift (1+)
Cassin's kingbird (1+)	northern flicker (1+)	
cliff swallow (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-12
Biologist(s)	Jeffrey Priest
Survey Area	15
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:10:00	67	70	50	0-2		First half make up survey for bad weather last week.
End	14:15:00	70	77	50	4-7		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	Harford's sulphur (1+)	small checkered-skipper (1+)
Behr's metalmark (1+)	Pacific sara orangetip (1+)	Virginia lady (1+)
funereal duskywing (1+)	painted lady (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	cliff swallow (1+)	Neotoma sp. (midden) (1+)
Anna's hummingbird (1+)	common raven (1+)	northern mockingbird (1+)
Bewick's wren (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
bushtit (1+)	Costa's hummingbird (1+)	spotted towhee (1+)
California quail (1+)	coyote (1+)	western fence lizard (1+)
California towhee (1+)	mourning dove (1+)	wrentit (1+)
Cassin's kingbird (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-13
Biologist(s)	Jeffrey Priest
Survey Area	15
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:07:00	66	70	90	0-2		
End	14:47:00	76	80	50	5-10 (ridgeline)		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	Pacific sara orangetip (1+)	small checkered-skipper (1+)
checkered white (1+)	painted lady (1+)	southern blue (1+)
funereal duskywing (1+)	pale swallowtail (1+)	western tiger swallowtail (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	Costa's hummingbird (1+)	northern flicker (1+)
brush rabbit (1+)	coyote (1+)	northern mockingbird (1+)
bushtit (1+)	house finch (1+)	red-tailed hawk (1+)
California ground squirrel (1+)	lesser goldfinch (1+)	western fence lizard (1+)
California towhee (1+)	mourning dove (1+)	western meadowlark (1+)
common raven (1+)	mule deer (1+)	white-throated swift (1+)
common side-blotched lizard (1+)	Neotina sp. (midden) (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-15
Biologist(s)	Erika Eidson
Survey Area	15
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:15:00		65	0	0-2	clear	
End	16:55:00	77	83	0	1-4	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (2)	funereal duskywing (33)	western tiger swallowtail (2)
Behr's metalmark (82)	Pacific sara orangetip (31)	white checkered-skipper (1)
checkered white (3)	painted lady (12)	
common buckeye (3)	Southern blue (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Sulfur (9)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Eriogonum fasciculatum*	*Silene gallica*
Castilleja exserta	*Erodium botrys*	***Viguiera laciniata***
Cryptantha spp.	*Hypochaeris glabra*	
Dichelostemma capitatum	*Plantago erecta*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-26
Biologist(s)	Jeffrey Priest
Survey Area	15
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	64	67	30	0-1		
End	16:35:00	76	87	0	3-7		

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1+)	checkered white (1+)	Pacific sara orangetip (1+)
anise swallowtail (1+)	funereal duskywing (1+)	pale swallowtail (1+)
Behr's metalmark (1+)	gray hairstreak (1+)	
California dogface (1+)	Harford's sulphur (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	common raven (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	rock pigeon (rock dove) (1+)
Bewick's wren (1+)	Costa's hummingbird (1+)	Say's phoebe (1+)
black phoebe (1+)	coyote (1+)	spotted towhee (1+)
brush rabbit (1+)	house finch (1+)	turkey vulture (1+)
bushtit (1+)	house wren (1+)	western fence lizard (1+)
cactus wren (1+)	lesser goldfinch (1+)	western scrub-jay (1+)
California quail (1+)	mourning dove (1+)	white-crowned sparrow (1+)
California towhee (1+)	mule deer (1+)	white-throated swift (1+)
Cassin's kingbird (1+)	northern mockingbird (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-31
Biologist(s)	Erik LaCoste
Survey Area	15
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:10:00	63	62	0	1-3	clear	
End	16:45:00	70	73	0	7-10	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	funereal duskywing (2)	orange sulphur (4)
Behr's metalmark (56)	Gabb's checkerspot (2)	Pacific sara orangetip (38)
checkered white (25)	marine blue (4)	Virginia lady (3)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Eriophyllum confertiflorum*	*Plagiobothrys sp.*
Agoseris heterophylla	*Erodium botrys*	*Plantago erecta*
Allium praecox	*Glebionis coronaria*	*Pseudognaphalium californicum*
Amsinckia menziesii	*Hirschfeldia incana*	*Salix melanopsis*
Antirrhinum nuttallianum	*Hypochaeris glabra*	*Sidalcea malviflora*
Bloomeria crocea	*Lasthenia californica*	*Silene gallica*
Brassica nigra	*Lessingia glandulifera*	*Sisyrinchium bellum*
Calochortus splendens	*Linanthus dianthiflorus*	*Solanum americanum*
Calystegia macrostegia	*Lysimachia arvensis*	*Sonchus oleraceus*
Castilleja affinis	*Malacothamnus fasciculatus*	*Viola pedunculata*
Centaurea melitensis	*Mimulus aurantiacus*	***Bloomeria clevelandii***
Dichelostemma capitatum	*Mirabilis laevis*	***Phacelia parishii***
Eriogonum fasciculatum	*Phacelia distans*	***Viguiera laciniata***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-04
Biologist(s)	Jeffrey Priest
Survey Area	15
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	68	70	10	0-2		
End	16:40:00	77	82	10	8-12; gusts 12-18		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	gray hairstreak (1+)	southern blue (1+)
California dogface (1+)	Harford's sulphur (1+)	western tiger swallowtail (1+)
checkered white (1+)	Pacific sara orangetip (1+)	
Gabb's checkerspot (1+)	painted lady (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	California towhee (1+)	red-tailed hawk (1+)
American kestrel (1+)	common raven (1+)	rufous-crowned sparrow (1+)
Anna's hummingbird (1+)	coyote (1+)	Sourhern Pacific rattlesnake (1+)
Belding's orange-throated whiptail (1+)	house finch (1+)	spotted towhee (1+)
brush rabbit (1+)	lesser goldfinch (1+)	turkey vulture (1+)
bushtit (1+)	mourning dove (1+)	wrentit (1+)
cactus wren (1+)	phainopepla (1+)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-25
Biologist(s)	Tricia Wotipka
Survey Area	16
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:15:00	60	56	0	0-1	clear	
End	15:45:00	81	84	0	1-2	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	Pacific sara orangetip (1+)	southern blue (1+)
Behr's metalmark (1+)	painted lady (1+)	
Green hairstreak (1+)	pale swallowtail (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	common raven (1+)	spring white (1+)
Anna's hummingbird (1+)	funereal duskywing (1+)	western meadowlark (1+)
California dogface (1+)	mourning dove (1+)	white-crowned sparrow (1+)
California towhee (1+)	small checkered-skipper (1+)	wrentit (1+)
checkered white (1+)	song sparrow (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-03
Biologist(s)	Jeffrey Priest
Survey Area	16
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:20:00	64	63	30	0-1	patchy	
End	16:05:00	70	72	90	2-7	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	funereal duskywing (1+)	painted lady (1+)
Behr's metalmark (1+)	gray hairstreak (1+)	pale swallowtail (1+)
checkered white (1+)	Pacific sara orangetip (1+)	southern blue (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
northern harrier (1+)	common raven (1+)	northern flicker (1+)
American crow (1+)	common side-blotched lizard (1+)	northern mockingbird (1+)
Anna's hummingbird (1+)	Costa's hummingbird (1+)	spotted towhee (1+)
black phoebe (1+)	coyote (1+)	western meadowlark (1+)
brush rabbit (1+)	house finch (1+)	western scrub-jay (1+)
bushtit (1+)	lesser goldfinch (1+)	wrentit (1+)
cactus wren (1+)	mourning dove (1+)	
California towhee (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-12
Biologist(s)	Alicia Hill
Survey Area	16
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:30:00		70	100	1-2		
	14:00:00		78	20	1-4		
End	16:15:00		66	10	4-7		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (3)	funereal duskywing (7)	painted lady (5)
Behr's metalmark (38)	gray hairstreak (2)	red admiral (1)
California patch (1)	Lady sp. (15)	white checkered-skipper (3)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	Cassin's kingbird (1+)	western meadowlark (1+)
Anna's hummingbird (1+)	common raven (1+)	white-crowned sparrow (1+)
cactus wren (1+)	Duskywing sp. (1)	
California towhee (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Dichelostemma capitatum*	*Plagiobothrys sp.*
Castilleja densiflora	*Eriogonum fasciculatum*	*Plantago erecta*
Cryptantha sp.	*Lasthenia glabrata*	*Silene gallica*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-12
Biologist(s)	Travis Cooper
Survey Area	16
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	14:00:00	71		10	2-5	clear	
End	16:00:00	64		10	2-5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (3)	gray hairstreak (3)	red admiral (1)
anise swallowtail (1)	great purple hairstreak (3)	
Behr's metalmark (4)	painted lady (4)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
common raven (1+)	western meadowlark (1+)	white-throated swift (1+)
greater roadrunner (1+)	white-crowned sparrow (1+)	

INCIDENTAL PLANT LIST		
Eriogonum fasciculatum	*Lasthenia glabrata*	*Mirabilis laevis*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-19
Biologist(s)	Garrett Huffman
Survey Area	16
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	62	60	40	0-3	patchy	
End	16:30:00	78	80	20	2-4	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (75)	gray hairstreak (1)	Pacific sara orangetip (51)
checkered white (26)	great purple hairstreak (1)	painted lady (3)
common buckeye (1)	marine blue (1)	western tiger swallowtail (2)
funereal duskywing (8)	orange sulphur (1)	white checkered-skipper (17)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	California thrasher (1+)	mourning dove (1+)
Cooper's hawk (1+)	California towhee (1+)	northern flicker (1+)
grasshopper sparrow (1+)	cliff swallow (1+)	northern mockingbird (1+)
Allen's/rufous hummingbird (1+)	common poorwill (1+)	red-winged blackbird (1+)
Anna's hummingbird (1+)	common raven (1+)	rufous-crowned sparrow (1+)
Belding's orange-throated whiptail (1+)	common side-blotched lizard (1+)	Southern pacific rattlesnake (1+)
Bewick's wren (1+)	Costa's hummingbird (1+)	spotted towhee (1+)
black-tailed jackrabbit (1+)	European starling (1+)	western meadowlark (1+)
brush rabbit (1+)	greater roadrunner (1+)	white-crowned sparrow (1+)
bushtit (1+)	house finch (1+)	white-throated swift (1+)
cactus wren (1+)	house wren (1+)	wrentit (1+)
California quail (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Dichelostemma capitatum*	*Lasthenia sp*
Bahiopsis laciniata	*Eriogonum fasciculatum*	*Mimulus aurantiacus*
Cryptantha sp.	*Erodium sp*	*Salvia columbariae*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-23
Biologist(s)	Erin Bergman, Janice Wondolleck
Survey Area	16
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:06:00	61.3		0	1.3	clear	
End	17:47:00	74.2	76.3	0	1.9	clear	Nice day

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (88)	Harford's sulphur (2)	Propertius duskywing (1)
Blue spp. (1)	Lady spp. (1+)	southern blue (4)
checkered white (41)	Pacific sara orangetip (30)	white checkered-skipper (8)
funereal duskywing (8)	pale swallowtail (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American coot (1+)	California towhee (1+)	snowy egret (1+)
Anna's hummingbird (1+)	common raven (1+)	western meadowlark (1+)
Bewick's wren (1+)	greater roadrunner (1+)	wrentit (1+)
black-tailed jackrabbit (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber var. glaber	*Erodium botrys*	*Mimulus aurantiacus*
Acmispon strigosus	*Erodium cicutarium*	*Mirabilis laevis var. crassifolia*
Artemisia californica	*Galium angustifolium*	*Pectocarya penicillata*
Bahiopsis laciniata	*Gazania linearis*	*Plantago erecta*
Calystegia macrostegia ssp. intermedia	*Gutierrezia sarothrae*	*Pseudognaphalium californicum*
Castilleja affinis ssp. affinis	*Hedypnois rhagadioloides*	*Pterostegia drymarioides*
Castilleja exserta	*Hypochaeris glabra*	*Salvia apiana*
Centaurea melitensis	*Lasthenia gracilis*	*Silene gallica*
Crassula connata	*Lepidium nitidum*	*Sisyrinchium bellum*
Croton setiger	*Logfia gallica*	*Sonchus oleraceus*
Dichelostemma capitatum	*Lupinus bicolor*	***Ferocactus viridescens***

INCIDENTAL PLANT LIST		
Dudleya pulverulenta	*Lupinus hirsutissimus*	***Harpagonella palmeri***
Eriogonum fasciculatum var. fasciculatum	*Malosma laurina*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-05
Biologist(s)	Erik LaCoste
Survey Area	16
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	69	71	60	0-1	patchy	
End	16:30:00	84	89	80	4-7	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (2)	Gabb's checkerspot (3)	Pacific sara orangetip (26)
Behr's metalmark (56)	gray hairstreak (1)	pale swallowtail (1)
checkered white (33)	marine blue (4)	red admiral (1)
common buckeye (1)	mourning cloak (1)	white checkered-skipper (10)
Comstock's fritillary (4)	northern white-skipper (1)	
funereal duskywing (3)	orange sulphur (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Erodium botrys*	*Plantago erecta*
Bloomeria crocea	*Gutierrezia californica*	*Pseudognaphalium californicum*
Brassica nigra	*Hazardia squarrosa*	*Sidalcea malviflora*
Calochortus splendens	*Lasthenia californica*	*Silene gallica*
Calystegia macrostegia	*Lysimachia arvensis*	*Sisyrinchium bellum*
Castilleja affinis	*Mimulus aurantiacus*	*Sonchus oleraceus*
Centaurea melitensis	*Mimulus breviflorus*	*Uropappus lindleyi*
Dichelostemma capitatum	*Mirabilis laevis*	*Viola pedunculata*
Eriogonum fasciculatum	*Plagiobothrys sp*	***Viguiera laciniata***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-23
Biologist(s)	Darin Busby
Survey Area	17
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	68	68	20	0-1	patchy	Light haze
Mid day check	12:30:00	82	84	20	1-3	patchy	Light haze
End	16:30:00	75	73	10	3-5	patchy	Light haze

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (4)	funereal duskywing (14)	southern blue (7)
Behr's metalmark (14)	gray hairstreak (5)	Sulphur sp. (11)
checkered white (3)	Pacific sara orangetip (10)	west coast lady (6)
common buckeye (3)	pale swallowtail (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Moth sp. (11)		

INCIDENTAL PLANT LIST		
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Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-02
Biologist(s)	Darin Busby
Survey Area	17
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:59:00	61	61	10	0-1	patchy	
End	16:10:00	74	74	10	3-6	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (4)	Pacific sara orangetip (9)	west coast lady (7)
Behr's metalmark (18)	pale swallowtail (2)	western pygmy-blue (1)
common buckeye (9)	southern blue (4)	western tiger swallowtail (1)
funereal duskywing (13)	spring white (6)	white checkered-skipper (15)
gray hairstreak (3)	Sulphur sp. (7)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
grasshopper sparrow (3)	**northern harrier (2)**	Moth sp. (16)

INCIDENTAL PLANT LIST		
Acmispon glaber	*Linanthus dianthiflorus*	*Sidalcea sparsifolia*
Dichelostemma capitatum	*Mimulus aurantiacus*	*Sisyrinchium bellum*
Eriogonum fasciculatum	*Plantago erecta*	*Toxicoscordion fremontii*
Erodium sp.	*Plantago patagonica*	*Viola sp.*
Eschscholzia californica	*Sanicula bipinnata*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-09
Biologist(s)	Brock Ortega
Survey Area	17
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	14:10:00	75		20	5	patchy	
End	16:50:00	73		20	5	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	common buckeye (3)	western tiger swallowtail (2)
Behr's metalmark (9)	Pacific sara orangetip (13)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-10
Biologist(s)	Brock Ortega
Survey Area	17
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	62		10	0	patchy	
End	16:00:00	73		30	3	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	common buckeye (7)	southern blue (4)
Behr's metalmark (12)	Pacific sara orangetip (18)	white checkered-skipper (2)
checkered white (4)	painted lady (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-23
Biologist(s)	Erik LaCoste
Survey Area	17
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	56	60	0	0-1	clear	
End	16:15:00	77	83	10	4-7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (32)	funereal duskywing (2)	Pacific sara orangetip (12)
checkered white (5)	northern white-skipper (1)	sachem (3)
common buckeye (6)	orange sulphur (1)	white checkered-skipper (9)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Erodium botrys*	*Raphanus sativus*
Agoseris grandiflora	*Eschscholzia californica*	*Rumex crispus*
Agoseris retrorsa	*Hirschfeldia incana*	*Sidalcea malviflora*
Allium praecox	*Hypochaeris glabra*	*Silene gallica*
Baccharis salicifolia	*Linanthus dianthiflorus*	*Sisyrinchium bellum*
Brassica nigra	*Lupinus succulentus*	*Solanum parishii*
Calochortus macrocarpus	*Lysimachia arvensis*	*Sonchus asper*
Centaurea melitensis	*Mimulus aurantiacus*	*Sonchus oleraceus*
Dichelostemma capitatum	*Mimulus guttatus*	*Viola pedunculata*
Eriogonum fasciculatum	*Pseudognaphalium californicum*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-30
Biologist(s)	Jeffrey Priest
Survey Area	17
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:15:00	58	60	20	0-2		
End	14:30:00	60	70	70	1-5		Survey cut short due to weather.

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	common buckeye (1+)	Pacific sara orangetip (1+)
California dogface (1+)	marine blue (1+)	pale swallowtail (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	cliff swallow (1+)	mourning dove (1+)
Anna's hummingbird (1+)	common raven (1+)	mule deer (1+)
Botta's pocket gopher (1+)	Costa's hummingbird (1+)	northern flicker (1+)
brush rabbit (1+)	coyote (1+)	red-tailed hawk (1+)
bushtit (1+)	European starling (1+)	western fence lizard (1+)
California quail (1+)	greater roadrunner (1+)	western meadowlark (1+)
California towhee (1+)	house finch (1+)	white-throated swift (1+)
Cassin's kingbird (1+)	house wren (1+)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-02
Biologist(s)	Jeffrey Priest
Survey Area	17
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:45:00	60	65	0	0-2		
End	11:45:00	78	88	0	1-5		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	common buckeye (1+)	painted lady (1+)
Behr's metalmark (1+)	Gabb's checkerspot (1+)	southern blue (1+)
California dogface (1+)	monarch (1+)	
checkered white (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
northern harrier (1+)	Cassin's kingbird (1+)	Neotoma sp. (midden) (1+)
osprey (1+)	cliff swallow (1+)	northern mockingbird (1+)
American crow (1+)	common raven (1+)	song sparrow (1+)
Anna's hummingbird (1+)	Costa's hummingbird (1+)	western fence lizard (1+)
black phoebe (1+)	coyote (1+)	western meadowlark (1+)
Botta's pocket gopher (1+)	European starling (1+)	western scrub-jay (1+)
brown-headed cowbird (1+)	house wren (1+)	white-crowned sparrow (1+)
brush rabbit (1+)	lesser goldfinch (1+)	wrentit (1+)
bushtit (1+)	mourning dove (1+)	
California ground squirrel (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-24
Biologist(s)	Brian Drake
Survey Area	18
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	64.8		10	SE at 1.9 avg. 2.6 max.	clear	
	12:00:00	82.4		0	calm	clear	
End	17:00:00	81.1		0	SW at 1.9 avg. 2.7 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (2)	Harford's sulphur (2)	pale swallowtail (1)
checkered white (1)	Pacific sara orangetip (34)	southern blue (4)
funereal duskywing (3)	painted lady (2)	white checkered-skipper (2)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (2)	California towhee (1+)	northern mockingbird (1+)
San Diego black-tailed jackrabbit (1+)	common raven (1+)	red-tailed hawk (1+)
American crow (1+)	greater roadrunner (1+)	spotted towhee (1+)
bushtit (1+)	kangaroo rat (1+)	western fence lizard (1+)
California ground squirrel (1+)	mourning dove (1+)	western meadowlark (1+)
California quail (1+)	mule deer (1+)	
California thrasher (1+)	northern flicker (1+)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-03
Biologist(s)	Brian Drake
Survey Area	18
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	64.1		20	calm	clear	
	12:00:00	77.2		80	W at 2.2 avg. 3.4 max.	clear	
End	16:00:00	73.3		90	SW at 2.9 avg. 3.9 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (2)	funereal duskywing (3)	painted lady (1)
California sister (3)	Gabb's checkerspot (1)	
checkered white (1)	Pacific sara orangetip (17)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
northern harrier (1+)	California towhee (1+)	red-tailed hawk (1+)
San Diego black-tailed jackrabbit (1+)	common side-blotched lizard (1+)	spotted towhee (1+)
American crow (1+)	coyote (1+)	western fence lizard (1+)
Anna's hummingbird (1+)	kangaroo rat (1+)	western meadowlark (1+)
bushtit (1+)	mourning dove (1+)	western scrub-jay (1+)
California quail (1+)	mule deer (1+)	
California thrasher (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-11
Biologist(s)	Tricia Wotipka
Survey Area	18
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:25:00	66	72	70	2-6	patchy	
End	13:25:00	69	74	20	5-10	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	west coast lady (1+)	
Pacific sara orangetip (1+)	western pygmy-blue (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
California dogface (1+)	common raven (1+)	spotted towhee (1+)
California quail (1+)	funereal duskywing (1+)	western fence lizard (1+)
California towhee (1+)	mourning dove (1+)	western meadowlark (1+)
checkered white (1+)	northern mockingbird (1+)	wrentit (1+)
common buckeye (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Castilleja exserta	*Dichelostemma capitatum*	
Cryptantha angustifolia	*Plantago erecta*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-15
Biologist(s)	Brian Drake
Survey Area	18
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	60.6		10	calm	clear	
	12:00:00	78.0		10	SW at 1.7 avg. 4.2 max.	clear	
End	17:00:00	75.3		10	SW at 3.6 avg. 4.0 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	funereal duskywing (1)	western tiger swallowtail (1)
Behr's metalmark (2)	Pacific sara orangetip (3)	
checkered white (4)	painted lady (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	common raven (1+)	red-tailed hawk (1+)
red diamondback rattlesnake (1+)	common side-blotched lizard (1+)	spotted towhee (1+)
San Diego black-tailed jackrabbit (1+)	kangaroo rat (1+)	western fence lizard (1+)
Anna's hummingbird (1+)	lesser goldfinch (1+)	western meadowlark (1+)
bushtit (1+)	mourning dove (1+)	western rattlesnake (1+)
California quail (1+)	mule deer (1+)	white-crowned sparrow (1+)
California thrasher (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-22
Biologist(s)	Tricia Wotipka
Survey Area	18
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:00:00	64	71	60	7-10	patchy	
End	14:25:00	68	72	20	4-8	patchy	This was a makeup survey due to bad weather.

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	Pacific sara orangetip (1+)	pale swallowtail (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Bewick's wren (1+)	funereal duskywing (1+)	western meadowlark (1+)
bushtit (1+)	mourning dove (1+)	western scrub-jay (1+)
California ground squirrel (1+)	northern mockingbird (1+)	white-throated swift (1+)
California towhee (1+)	red-tailed hawk (1+)	wrentit (1+)
checkered white (1+)	spotted towhee (1+)	
common raven (1+)	spring white (1+)	

INCIDENTAL PLANT LIST		
Castilleja exserta	*Dichelostemma capitatum*	*Plantago erecta*
Cryptantha angustifolia	*Erodium cicutarium*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-24
Biologist(s)	Erik LaCoste
Survey Area	18
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:20:00	60	65	0	0-1	clear	
End	15:40:00	84	87	0	4-7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	funereal duskywing (9)	Pacific sara orangetip (55)
Behr's metalmark (28)	Gabb's checkerspot (2)	southern blue (2)
California sister (1)	marine blue (1)	Virginia lady (1)
checkered white (11)	northern white-skipper (1)	white checkered-skipper (13)
common buckeye (2)	orange sulphur (7)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Hypochaeris glabra*	*Ribes speciosum*
Agoseris retrorsa	*Lasthenia californica*	*Salvia columbariae*
Allium praecox	*Linanthus dianthiflorus*	*Salvia mellifera*
Antirrhinum nuttallianum	*Lupinus truncatus*	*Sanicula arguta*
Brassica nigra	*Lysimachia arvensis*	*Sidalcea malviflora*
Calystegia macrostegia	*Mimulus aurantiacus*	*Silene gallica*
Camissoniopsis bistorta	*Mirabilis laevis*	*Sisyrinchium bellum*
Centaurea melitensis	*Muilla maritima*	*Solanum parishii*
Cryptantha sp.	*Nuttallanthus texanus*	*Sonchus asper*
Dichelostemma capitatum	*Oxalis sp.*	*Toxicoscordion fremontii*
Eriogonum fasciculatum	*Phacelia distans*	*Uropappus lindleyi*
Erodium botrys	*Plantago erecta*	*Viola pedunculata*
Eschscholzia californica	*Plantago patagonica*	***Bloomeria clevelandii***

INCIDENTAL PLANT LIST		
Gutierrezia californica	*Platystemon californicus*	***Phacelia parishii***
Hirschfeldia incana	*Pseudognaphalium californicum*	***Viguiera laciniata***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-25
Biologist(s)	Brian Drake
Survey Area	19
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	61.3		0	calm	clear	
	12:00:00	78.3		0	W at 3.1 avg. 4.6 max.	clear	
End	17:00:00	74.2		0	NW at 4.1 avg. 5.3 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (3)	Harford's sulphur (3)	painted lady (2)
funereal duskywing (4)	Pacific sara orangetip (17)	southern blue (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
San Diego black-tailed jackrabbit (1+)	common raven (1+)	mourning dove (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	mule deer (1+)
bushtit (1+)	granite spiny lizard (1+)	red-tailed hawk (1+)
California ground squirrel (1+)	greater roadrunner (1+)	spotted towhee (1+)
California quail (1+)	house finch (1+)	western kingbird (1+)
California thrasher (1+)	kangaroo rat (1+)	western meadowlark (1+)
California towhee (1+)	lesser nighthawk (1+)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-04
Biologist(s)	Brian Drake
Survey Area	19
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:15:00		70.2	90	calm	overcast	
	12:00:00	74.7		20	W at 1.1 avg. 2.9 max.	clear	
End	16:30:00	64.2		80	SW at 5.3 avg. 7.1 max.	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1)	funereal duskywing (10)	pale swallowtail (2)
California patch (1)	Harford's sulphur (1)	west coast lady (1)
checkered white (3)	Pacific sara orangetip (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
northern harrier (1+)	California thrasher (1+)	coyote (1+)
Anna's hummingbird (1+)	California towhee (1+)	kangaroo rat (1+)
bushtit (1+)	common raven (1+)	red-tailed hawk (1+)
California quail (1+)	common side-blotched lizard (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
Castilleja exserta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-11
Biologist(s)	Jeffrey Priest
Survey Area	19
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:25:00	66	72	70	2-6	patchy	
End	13:25:00	69	74	20	5-10 gusts to 15		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	funereal duskywing (1+)	pale swallowtail (1+)
checkered white (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	California towhee (1+)	northern flicker (1+)
Bewick's wren (1+)	common raven (1+)	red-tailed hawk (1+)
Botta's pocket gopher (1+)	Costa's hummingbird (1+)	spotted towhee (1+)
brush rabbit (1+)	lesser goldfinch (1+)	turkey vulture (1+)
bushtit (1+)	mourning dove (1+)	western meadowlark (1+)
California thrasher (1+)	mule deer (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-17
Biologist(s)	Jeffrey Priest
Survey Area	19
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	62	60	0	0-1		
End	12:00:00	82	96	0	0-5		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	Gabb's checkerspot (1+)	San Diegan tiger whiptail (1+)
checkered white (1+)	Harford's sulphur (1+)	Tiger moth (1+)
funereal duskywing (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	California towhee (1+)	northern flicker (1+)
Anna's hummingbird (1+)	common raven (1+)	northern mockingbird (1+)
Bewick's wren (1+)	coyote (1+)	red-tailed hawk (1+)
black-tailed jackrabbit (1+)	house finch (1+)	spotted towhee (1+)
black phoebe (1+)	house wren (1+)	western fence lizard (1+)
brush rabbit (1+)	K-rat sp. sign: dust bath/tail-drags (1+)	western meadowlark (1+)
bushtit (1+)	lesser goldfinch (1+)	white-crowned sparrow (1+)
California quail (1+)	mourning dove (1+)	wrentit (1+)
California thrasher (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
Castilleja exserta	*Plantago erecta*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-19
Biologist(s)	Brian Drake
Survey Area	19
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	71.6		100	calm	overcast	
	12:00:00	78.8		10	calm	clear	
End	17:00:00	71.9		30	W at 4.4 avg. 6.2 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	Pacific sara orangetip (7)	white checkered-skipper (1)
checkered white (1)	pale swallowtail (4)	
funereal duskywing (2)	red admiral (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	coyote (1+)	northern mockingbird (1+)
California quail (1+)	greater roadrunner (1+)	red-tailed hawk (1+)
California towhee (1+)	mourning dove (1+)	rosy boa (1+)
common raven (1+)	mule deer (1+)	spotted towhee (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-25
Biologist(s)	Jeffrey Priest
Survey Area	19
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:40:00	64	64	0	0-1		
End	15:00:00	82	90	20	2-6		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	California white butterfly (1+)	Pacific sara orangetip (1+)
Behr's metalmark (1+)	checkered white (1+)	pale swallowtail (1+)
blue-gray gnatcatcher (1+)	funereal duskywing (1+)	San Diegan tiger whiptail (1+)
California dogface (1+)	Gabb's checkerspot (1+)	western tiger swallowtail (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	California towhee (1+)	northern flicker (1+)
Belding's orange-throated whiptail (1+)	common raven (1+)	northern mockingbird (1+)
Bewick's wren (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
Botta's pocket gopher (1+)	Costa's hummingbird (1+)	rock wren (1+)
bushtit (1+)	coyote (1+)	spotted towhee (1+)
California ground squirrel (1+)	lesser goldfinch (1+)	western scrub-jay (1+)
California quail (1+)	mourning dove (1+)	white-crowned sparrow (1+)
California thrasher (1+)	mule deer (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Castilleja exserta	*Plantago erecta*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-01
Biologist(s)	Jeffrey Priest
Survey Area	19
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	66	70	80	0-3		
End	15:50:00	77	85	0	3-6, gusts 7-9		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	checkered white (1+)	Pacific sara orangetip (1+)
California dogface (1+)	funereal duskywing (1+)	painted lady (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Southern California rufous-crowned sparrow (1+)	California quail (1+)	mourning dove (1+)
American crow (1+)	California towhee (1+)	mule deer (1+)
Anna's hummingbird (1+)	Cassin's kingbird (1+)	northern flicker (1+)
Belding's orange-throated whiptail (1+)	common raven (1+)	northern mockingbird (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
brush rabbit (1+)	Costa's hummingbird (1+)	western meadowlark (1+)
bushtit (1+)	lesser goldfinch (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Castilleja exserta	*Plantago erecta*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-06
Biologist(s)	Jeffrey Priest
Survey Area	19
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:10:00	64	66	40	0-1		
End	14:30:00	84	92	100	0-3	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1+)	checkered white (1+)	Pacific sara orangetip (1+)
anise swallowtail (1+)	common buckeye (1+)	painted lady (1+)
Behr's metalmark (1+)	funereal duskywing (1+)	
California dogface (1+)	Gabb's checkerspot (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	Costa's hummingbird (1+)	northern flicker (1+)
Anna's hummingbird (1+)	coyote (1+)	northern mockingbird (1+)
brush rabbit (1+)	greater roadrunner (1+)	phainopepla (1+)
bushtit (1+)	house finch (1+)	red-tailed hawk (1+)
California quail (1+)	house wren (1+)	spotted towhee (1+)
California towhee (1+)	lesser goldfinch (1+)	western scrub-jay (1+)
common raven (1+)	mourning dove (1+)	white-crowned sparrow (1+)
common side-blotched lizard (1+)	mule deer (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Castilleja exserta	*Plantago erecta*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-26
Biologist(s)	Brian Drake
Survey Area	20
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	68.4		10	calm	clear	
End	16:45:00	72.5		60	SW at 1.6 avg. 2.7 max.	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (9)	funereal duskywing (2)	painted lady (2)
checkered white (1)	Pacific sara orangetip (16)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
San Diego black-tailed jackrabbit (1+)	California towhee (1+)	spotted towhee (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	turkey vulture (1+)
bushtit (1+)	coyote (1+)	western fence lizard (1+)
California quail (1+)	mourning dove (1+)	
California thrasher (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-05
Biologist(s)	Brian Drake
Survey Area	20
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:15:00	71.8		80	calm	patchy	
End	15:30:00	70.3		90	W at 5.3 avg. 8.2 max.	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	funereal duskywing (6)	west coast lady (1)
Behr's metalmark (5)	Pacific sara orangetip (5)	
checkered white (1)	San Diegan tiger whiptail (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	California towhee (1+)	mule deer (1+)
bushtit (1+)	common raven (1+)	red-tailed hawk (1+)
California quail (1+)	common side-blotched lizard (1+)	
California thrasher (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-14
Biologist(s)	Jeffrey Priest
Survey Area	20
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:00:00	67	72	90	0-5	overcast	
End	13:30:00	65	70	100	5-10	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	funereal duskywing (1+)	
checkered white (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	California quail (1+)	phainopepla (1+)
American crow (1+)	California towhee (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	common raven (1+)	spotted towhee (1+)
brush rabbit (1+)	house finch (1+)	western meadowlark (1+)
bushtit (1+)	mule deer (1+)	white-throated swift (1+)
California ground squirrel (1+)	northern flicker (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Plantago erecta	***Plantago erecta***	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-17
Biologist(s)	Jeffrey Priest
Survey Area	20
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	12:00:00	82	96	0	0-5		
End	16:30:00	76	83	0	2-6		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	Gabb's checkerspot (1+)	pale swallowtail (1+)
Behr's metalmark (1+)	Harford's sulphur (1+)	red admiral (1+)
checkered white (1+)	Pacific sara orangetip (1+)	southern blue (1+)
funereal duskywing (1+)	painted lady (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	California towhee (1+)	northern flicker (1+)
Cooper's hawk (1+)	California white butterfly (1+)	phainopepla (1+)
northern harrier (1+)	cliff swallow (1+)	red-tailed hawk (1+)
American crow (1+)	common raven (1+)	rufous-crowned sparrow (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	spotted towhee (1+)
Belding's orange-throated whiptail (1+)	Costa's hummingbird (1+)	western fence lizard (1+)
Bewick's wren (1+)	coyote (1+)	western scrub-jay (1+)
black-tailed jackrabbit (1+)	greater roadrunner (1+)	white-crowned sparrow (1+)
Botta's pocket gopher (1+)	house finch (1+)	white-throated swift (1+)
brush rabbit (1+)	lesser goldfinch (1+)	wrentit (1+)
bushtit (1+)	mourning dove (1+)	
California quail (1+)	Neotima sp.(midden) (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-20
Biologist(s)	Brian Drake
Survey Area	20
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:15:00		74.5	100	calm	overcast	
	12:00:00	73.1		40	W at 1.6 avg. 3.6 max.	patchy	
End	17:00:00	72.7		30	SW at 2.2 avg. 3.9 max.	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (2)	Gabb's checkerspot (2)	white checkered-skipper (1)
checkered white (3)	Pacific sara orangetip (9)	
funereal duskywing (2)	San Diegan tiger whiptail (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	California towhee (1+)	western fence lizard (1+)
bushtit (1+)	common raven (1+)	western meadowlark (1+)
California quail (1+)	common side-blotched lizard (1+)	white-crowned sparrow (1+)
California thrasher (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-24
Biologist(s)	Vipul Joshi
Survey Area	20
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	62		0	0-1	clear	
	11:21:00	82		0	0-8		
End	16:00:00	77		0	0-10		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (30)	Harford's sulphur (1+)	west coast lady (3)
checkered white (1+)	Pacific sara orangetip (60)	
Gabb's checkerspot (2)	spring white (6)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Quercus engelmannii		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-31
Biologist(s)	Alicia Hill
Survey Area	20
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:15:00		63	0	1-2		
End	17:20:00		73	10	2-5		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (33)	funereal duskywing (7)	Unid Lady (2)
checkered white (23)	Pacific sara orangetip (92)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
black-chinned sparrow (1+)	California thrasher (1+)	rufous-crowned sparrow (1+)
Anna's hummingbird (1+)	California towhee (1+)	spotted towhee (1+)
ash-throated flycatcher (1+)	common raven (1+)	white-crowned sparrow (1+)
Belding's orange-throated whiptail (2)	Costa's hummingbird (1+)	wrentit (1+)
Bell's sparrow (1+)	lesser goldfinch (1+)	
California quail (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Chaenactis sp.*	*Lupinus bicolor*
Calochortus splendens	*Cryptantha sp.*	*Pectocarya linearis*
Calystegia macrostegia	*Dichelostemma capitatum*	*Phacelia cicutaria*
Castilleja densiflora	*Ericameria sp.*	*Plantago erecta*
Castilleja exserta	*Eriogonum fasciculatum*	*Salvia columbariae*
Caulanthus heterophyllus	*Lasthenia gracilis*	***Bloomeria clevelandii***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-01
Biologist(s)	Brian Drake
Survey Area	21
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	66.7		40	SW at 1.7 avg. 2.1 max.	clear	
	12:00:00	79.1		30	SW at 3.9 avg. 5.5 max.	clear	
End	17:00:00	78.1		20	SW at 3.3 avg. 4.2 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (14)	funereal duskywing (7)	pale swallowtail (1)
California patch (2)	Pacific sara orangetip (9)	southern blue (2)
checkered white (7)	painted lady (7)	west coast lady (2)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	common raven (1+)	red-tailed hawk (1+)
bushtit (1+)	common side-blotched lizard (1+)	striped racer (1+)
California quail (1+)	granite spiny lizard (1+)	western kingbird (1+)
California thrasher (1+)	kangaroo rat (1+)	western meadowlark (1+)
California towhee (1+)	mourning dove (1+)	western scrub-jay (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-08
Biologist(s)	Brian Drake
Survey Area	21
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:15:00		61.3	0	calm	clear	
	12:00:00	70.4		0	NW at 1.7 avg. 4.2 max.	clear	
End	17:00:00		71.4	0	W at 3.3 avg. 4.0 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (2)	funereal duskywing (1)	painted lady (7)
California sister (1)	Pacific sara orangetip (1)	red admiral (4)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	common raven (1+)	red-tailed hawk (1+)
bushtit (1+)	desert cottontail (1+)	spotted towhee (1+)
California thrasher (1+)	mourning dove (1+)	turkey vulture (1+)
California towhee (1+)	northern flicker (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-15
Biologist(s)	Jeffrey Priest
Survey Area	21
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	60	60	0	0-5		
End	16:15:00	77	82	0	3-8		

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1+)	checkered white (1+)	painted lady (1+)
Behr's metalmark (1+)	funereal duskywing (1+)	pale swallowtail (1+)
blue-gray gnatcatcher (1+)	Pacific sara orangetip (1+)	San Diegan tiger whiptail (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	common side-blotched lizard (1+)	northern mockingbird (1+)
Anna's hummingbird (1+)	Costa's hummingbird (1+)	red-tailed hawk (1+)
Bewick's wren (1+)	coyote (1+)	rufous-crowned sparrow (1+)
bushtit (1+)	European starling (1+)	turkey vulture (1+)
California quail (1+)	greater roadrunner (1+)	western fence lizard (1+)
California thrasher (1+)	house finch (1+)	western meadowlark (1+)
California towhee (1+)	lesser goldfinch (1+)	western scrub-jay (1+)
California white butterfly (1+)	mourning dove (1+)	wrentit (1+)
Cassin's kingbird (1+)	mule deer (1+)	
common raven (1+)	northern flicker (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-21
Biologist(s)	Brian Drake
Survey Area	21
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:15:00		70.2	90	NW at 2.4 avg. 3.2 max.	overcast	
	12:00:00	71.7		30	SW at 2.2 avg. 4.6 max.	patchy	
End	17:00:00	70.9		20	SW at 1.7 avg. 3.4 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (11)	Pacific sara orangetip (2)	
checkered white (4)	pale swallowtail (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	California towhee (1+)	mourning dove (1+)
American crow (1+)	common raven (1+)	northern flicker (1+)
Anna's hummingbird (1+)	coyote (1+)	red-tailed hawk (1+)
Botta's pocket gopher (1+)	desert cottontail (1+)	spotted towhee (1+)
California ground squirrel (1+)	kangaroo rat (1+)	
California quail (1+)	lesser goldfinch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-01
Biologist(s)	Erik LaCoste
Survey Area	21
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:15:00	65	65	50	0-1	patchy	
End	16:45:00	73	75	0	4-7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (35)	gray hairstreak (1)	Virginia lady (10)
checkered white (25)	marine blue (2)	white checkered-skipper (12)
funereal duskywing (2)	Pacific sara orangetip (35)	
Gabb's checkerspot (2)	pale swallowtail (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Dichelostemma capitatum*	*Phacelia distans*
Adenostoma fasciculatum	*Eriogonum fasciculatum*	*Plagiobothrys sp.*
Antirrhinum filipes	*Erodium botrys*	*Plantago erecta*
Antirrhinum nuttallianum	*Eschscholzia californica*	*Pseudognaphalium biolettii*
Brassica nigra	*Eulobus californicus*	*Salvia columbariae*
Calochortus splendens	*Gilia angelensis*	*Salvia mellifera*
Calystegia macrostegia	*Hypochaeris glabra*	*Silene gallica*
Camissoniopsis bistorta	*Lasthenia californica*	*Sonchus asper*
Camissoniopsis hirtella	*Linanthus dianthiflorus*	*Uropappus lindleyi*
Castilleja exserta	*Mimulus aurantiacus*	***Phacelia parishii***
Chaenactis artemisiifolia	*Mirabilis laevis*	***Viguiera laciniata***
Chaenactis glabriuscula	*Penstemon spectabilis*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-04
Biologist(s)	Alicia Hill
Survey Area	21
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00		71	0	0-1		
End	16:00:00		86	10	4-10		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (42)	Gabb's checkerspot (1)	Unid blue (4)
blue-gray gnatcatcher (1+)	monarch (1)	Unid lady (3)
checkered white (40)	Pacific sara orangetip (50)	
funereal duskywing (4)	pale swallowtail (4)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
black-chinned sparrow (1+)	common raven (1+)	spotted towhee (1+)
Anna's hummingbird (1+)	hooded oriole (1+)	western kingbird (1+)
bushtit (1+)	house finch (1+)	wrentit (1+)
California towhee (1+)	lesser goldfinch (1+)	
canyon wren (1+)	rufous-crowned sparrow (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Cryptantha sp.*	*Gilia angelensis*
Antirrhinum nuttallianum	*Dichelostemma capitatum*	*Lasthenia gracilis*
Caulanthus heterophyllus	*Eriogonum fasciculatum*	*Pectocarya linearis*
Chaenactis sp.	*Eschscholzia californica*	*Phacelia cicutaria*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-23
Biologist(s)	Brian Drake
Survey Area	22
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	71.7		30	calm	clear	
	12:00:00	83.7		40	calm	clear	
End	17:00:00	78.3		30	SW at 1.9 avg. 2.9 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (4)	funereal duskywing (9)	painted lady (3)
checkered white (1)	Pacific sara orangetip (22)	pale swallowtail (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
San Diego black-tailed jackrabbit (1+)	common raven (1+)	striped racer (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	western meadowlark (1+)
bushtit (1+)	kangaroo rat (1+)	western scrub-jay (1+)
California thrasher (1+)	red-tailed hawk (1+)	
California towhee (1+)	spotted towhee (1+)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-02
Biologist(s)	Brian Drake
Survey Area	22
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	71.2		30	calm	clear	
	12:00:00	83.2		30	SW at 2.8 avg. 6.0 max.	clear	
End	17:00:00	72.2		20	SW at 2.9 avg. 3.7 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (3)	checkered white (6)	pale swallowtail (2)
Behr's metalmark (5)	funereal duskywing (14)	west coast lady (2)
California patch (1)	Pacific sara orangetip (5)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
northern harrier (1+)	California towhee (1+)	kangaroo rat (1+)
San Diego black-tailed jackrabbit (1+)	common raven (1+)	mourning dove (1+)
Botta's pocket gopher (1+)	common side-blotched lizard (1+)	white-crowned sparrow (1+)
bushtit (1+)	coyote (1+)	
California quail (1+)	house finch (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-09
Biologist(s)	Brian Drake
Survey Area	22
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:15:00		73.5	10	calm	clear	
End	17:00:00	70.7		40	NW at 2.7 avg. 3.7 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (2)	Pacific sara orangetip (3)	red admiral (1)
checkered white (4)	painted lady (4)	white checkered-skipper (1)
funereal duskywing (9)	pale swallowtail (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	coyote (1+)	red-shouldered hawk (1+)
California thrasher (1+)	mourning dove (1+)	turkey vulture (1+)
common side-blotched lizard (1+)	mule deer (1+)	western kingbird (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-22
Biologist(s)	Brian Drake
Survey Area	22
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:15:00		70.9	90	SW at 1.2 avg. 3.9 max.	overcast	
	12:00:00	73.2		30	SW at 2.1 avg. 4.3 max.	patchy	
End	17:00:00	72.6		20	SW at 3.0 avg. 4.6 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (9)	Pacific sara orangetip (4)	white checkered-skipper (1)
checkered white (3)	pale swallowtail (4)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	common raven (1+)	mule deer (1+)
bushtit (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
California quail (1+)	coyote (1+)	spotted towhee (1+)
California thrasher (1+)	kangaroo rat (1+)	
California towhee (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-24
Biologist(s)	Jeffrey Priest
Survey Area	22
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:10:00	68	68	0	0-2		
End	16:10:00	80	90	0	5-10, gusts 10-15		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	funereal duskywing (1+)	pale swallowtail (1+)
checkered white (1+)	Pacific sara orangetip (1+)	southern blue (1+)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	common raven (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	common side-blotched lizard (1+)	rock wren (1+)
Bewick's wren (1+)	coyote (1+)	spotted towhee (1+)
brush rabbit (1+)	granite spiny lizard (1+)	turkey vulture (1+)
bushtit (1+)	greater roadrunner (1+)	western meadowlark (1+)
California quail (1+)	lesser goldfinch (1+)	western scrub-jay (1+)
California thrasher (1+)	mourning dove (1+)	wrentit (1+)
California towhee (1+)	mule deer (1+)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-29
Biologist(s)	Jeffrey Priest
Survey Area	22
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:20:00	60	60	40	1-4		Pass 4 make up survey for bad weather day on 3/22/16; part 1.
End	14:30:00	62	72	60	6-12, gusts 15-20 (ridge)		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1+)	Harford's sulphur (1+)	pale swallowtail (1+)
checkered white (1+)	Pacific sara orangetip (1+)	
funereal duskywing (1+)	painted lady (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	California quail (1+)	northern flicker (1+)
Anna's hummingbird (1+)	California thrasher (1+)	northern mockingbird (1+)
Belding's orange-throated whiptail (1+)	common raven (1+)	red-tailed hawk (1+)
bobcat (1+)	Costa's hummingbird (1+)	spotted towhee (1+)
Botta's pocket gopher (1+)	house finch (1+)	turkey vulture (1+)
brush rabbit (1+)	lesser goldfinch (1+)	white-throated swift (1+)
bushtit (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-31
Biologist(s)	Travis Cooper
Survey Area	22
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	63		0	1-3	clear	
End	17:20:00	73		10	2-5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (12)	Lady spp. (22)	pale swallowtail (1)
Behr's metalmark (42)	marine blue (1)	red admiral (11)
checkered white (33)	orange sulphur (2)	west coast lady (6)
funereal duskywing (1)	Pacific sara orangetip (42)	western tiger swallowtail (2)
gray hairstreak (1+)	painted lady (9)	white checkered-skipper (3)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
least Bell's vireo (1+)	California towhee (1+)	red-tailed hawk (1+)
Bell's sparrow (1+)	common raven (1+)	white-throated swift (1+)
Bewick's wren (1+)	Costa's hummingbird (1+)	wrentit (1+)
California quail (1+)	house finch (1+)	
California thrasher (1+)	mourning dove (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Cneoridium dumosum*	*Pentachaeta aurea*
Adenostoma fasciculatum	*Cryptantha spp.*	*Plantago erecta*
Antirrhinum nuttallianum	*Dichelostemma capitatum*	*Salvia columbariae*
Bahiopsis laciniata	*Helianthemum scoparium*	*Salvia mellifera*
Castilleja exserta	*Lasthenia glabrata*	
Chaenactis glabriuscula	*Osmadenia tenella*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-02
Biologist(s)	Jeffrey Priest
Survey Area	22
Survey Pass	4

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	12:15:00	78	88	0	3-7		
End	14:15:00	80	90	0	3-7		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1+)	funereal duskywing (1+)	pale swallowtail (1+)
Behr's metalmark (1+)	marine blue (1+)	
checkered white (1+)	Pacific sara orangetip (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	house finch (1+)	red-tailed hawk (1+)
common raven (1+)	lesser goldfinch (1+)	turkey vulture (1+)
coyote (1+)	mourning dove (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-04
Biologist(s)	Travis Cooper
Survey Area	22, 27
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:45:00	68		0	0-2	clear	
End	16:50:00	84		0	3-7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (3)	gray hairstreak (4)	pale swallowtail (2)
Behr's metalmark (27)	Harford's sulphur (3)	red admiral (2)
Blue spp. (3)	Lady spp. (6)	western tiger swallowtail (3)
checkered white (21)	orange sulphur (4)	
common buckeye (1+)	Pacific sara orangetip (46)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
California quail (1+)	common raven (1+)	rufous-crowned sparrow (1+)
California thrasher (1+)	Costa's hummingbird (1+)	western meadowlark (1+)
California towhee (1+)	Duskywing spp. (4)	wrentit (1+)

INCIDENTAL PLANT LIST		
Adenostoma fasciculatum	*Eriogonum fasciculatum*	*Plantago erecta*
Bahiopsis laciniata	*Eriophyllum confertiflorum*	*Sanicula arguta*
Castilleja densiflora	*Lasthenia glabrata*	***Pentachaeta aurea ssp. aurea***
Castilleja exserta	*Linanthus dianthiflorus*	
Cirsium occidentale	*Mirabilis laevis*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-25
Biologist(s)	Darin Busby, Melissa Busby
Survey Area	23
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	12:30:00	83	83	0	1-3	clear	
End	16:15:00	77	79	0	1-5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (7)	Pacific sara orangetip (36)	west coast lady (7)
cabbage white (2)	spring white (2)	western tiger swallowtail (1)
funereal duskywing (11)	Sulphur sp. (7)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-02
Biologist(s)	Erik LaCoste
Survey Area	23
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	61	61	10	0-1	clear	
End	15:45:00	76	76	10	4-7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (2)	funereal duskywing (13)	painted lady (3)
American lady (4)	gray hairstreak (3)	pale swallowtail (1)
anise swallowtail (1)	monarch (1)	spring white (2)
Behr's metalmark (8)	orange sulphur (1)	Sulphur sp. (1+)
common buckeye (1)	Pacific sara orangetip (9)	west coast lady (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Allium haematochiton	*Erodium botrys*	*Sanicula arguta*
Amsinckia intermedia	*Eschscholzia californica*	*Sanicula bipinnata*
Antirrhinum nuttallianum	*Lupinus succulentus*	*Sisyrinchium bellum*
Brassica nigra	*Lupinus truncatus*	*Solanum parishii*
Calandrinia menziesii	*Mirabilis laevis var. villosa*	*Sonchus asper*
Camissoniopsis bistorta	*Nuttallanthus texanus*	*Sonchus oleraceus*
Clematis pauciflora	*Phacelia distans*	*Toxicoscordion venenosum*
Cryptantha sp.	*Plantago erecta*	*Viola pedunculata*
Dichelostemma capitatum	*Raphanus sativus*	***Phacelia parishii***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-02
Biologist(s)	Erik LaCoste
Survey Area	23
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	61	61	10	0-1	clear	
End	15:45:00	72	76	10	4-7	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (2)	gray hairstreak (3)	pale swallowtail (1)
anise swallowtail (1)	monarch (1)	Virginia lady (4)
Behr's metalmark (8)	orange sulphur (1)	west coast lady (1)
common buckeye (2)	Pacific sara orangetip (9)	
funereal duskywing (13)	painted lady (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Lupinus truncatus*	*Sisyrinchium bellum*
Antirrhinum nuttallianum	*Mirabilis laevis*	*Solanum parishii*
Brassica nigra	*Nuttallanthus texanus*	*Sonchus asper*
Camissoniopsis bistorta	*Phacelia distans*	*Sonchus oleraceus*
Clematis pauciflora	*Plantago erecta*	*Toxicoscordion venenosum*
Dichelostemma capitatum	*Raphanus sativus*	*Viola pedunculata*
Erodium botrys	*Sanicula arguta*	
Eschscholzia californica	*Sanicula bipinnata*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-10
Biologist(s)	Brian Drake
Survey Area	23
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00		69.3	40	calm	clear	
	12:00:00	77.8		30	SW at 2.3 avg. 2.6 max.	clear	
End	16:00:00	75.7		90	W at 1.7 avg. 2.6 max.	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (4)	orange sulphur (3)	pale swallowtail (1)
checkered white (1)	Pacific sara orangetip (4)	white checkered-skipper (13)
funereal duskywing (5)	painted lady (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
northern harrier (1+)	common side-blotched lizard (1+)	red-tailed hawk (1+)
Acorn woodpecker (1+)	coyote (1+)	southern alligator lizard (1+)
American kestrel (1+)	European starling (1+)	spotted towhee (1+)
Anna's hummingbird (1+)	mourning dove (1+)	western fence lizard (1+)
Botta's pocket gopher (1+)	mule deer (1+)	western kingbird (1+)
bushtit (1+)	northern flicker (1+)	western meadowlark (1+)
California towhee (1+)	northern mockingbird (1+)	
common raven (1+)	phainopepla (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-23
Biologist(s)	Garrett Huffman
Survey Area	23
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	62	60	0	0-3	clear	
End	16:30:00	76	78	0	3-6	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (1)	fiery skipper (2)	Pacific sara orangetip (21)
Behr's metalmark (27)	funereal duskywing (6)	painted lady (2)
cabbage white (1)	gray hairstreak (2)	western pygmy-blue (1)
checkered white (3)	marine blue (1)	white checkered-skipper (4)
common buckeye (5)	orange sulphur (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	common raven (1+)	rock wren (1+)
Acorn woodpecker (1+)	common side-blotched lizard (1+)	rufous-crowned sparrow (1+)
American kestrel (1+)	greater roadrunner (1+)	song sparrow (1+)
Anna's hummingbird (1+)	house finch (1+)	tree swallow (1+)
Bewick's wren (1+)	house wren (1+)	white-crowned sparrow (1+)
bushtit (1+)	lesser goldfinch (1+)	wrentit (1+)
California ground squirrel (1+)	mourning dove (1+)	yellow-rumped warbler (1+)
California towhee (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
Cryptantha sp.	*Erodium sp*	
Dichelostemma capitatum	*Eschscholzia californica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-31
Biologist(s)	David King
Survey Area	23
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:47:00	60	72	0	1-2	clear	Warm and sunny
End	13:19:00	75	84	0	3-7	clear	Sunny hot with variable gentle breeze

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (8)	common buckeye (1)	
checkered white (2)	Pacific sara orangetip (4)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
grasshopper sparrow (1+)	common side-blotched lizard (1+)	mule deer (1+)
Belding's orange-throated whiptail (1+)	coyote (1+)	northern mockingbird (1+)
Botta's pocket gopher (1+)	desert cottontail (1+)	red-tailed hawk (1+)
bushtit (1+)	greater roadrunner (1+)	rock wren (1+)
California ground squirrel (1+)	house finch (1+)	western fence lizard (1+)
common raven (1+)	mourning dove (1+)	western meadowlark (1+)

INCIDENTAL PLANT LIST		
Dichelostemma capitatum		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-06
Biologist(s)	Nicole Kimball
Survey Area	23
Survey Pass	7

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:10:00	63	65	30	0-1		Hazy
End	15:35:00	83	86	100	4-6		

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	funereal duskywing (2)	Pacific sara orangetip (48)
Behr's metalmark (35)	Gabb's checkerspot (1)	painted lady (2)
Bernardino square-spotted blue (1)	Harford's sulphur (3)	queen (1)
checkered white (5)	marine blue (1)	western tiger swallowtail (2)
common buckeye (10)	monarch (1)	white checkered-skipper (6)
common sootywing (1)	orange sulphur (1)	White sp. (6)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	cliff swallow (1+)	Say's phoebe (1+)
Acorn woodpecker (1+)	common raven (1+)	spotted towhee (1+)
American kestrel (1+)	Costa's hummingbird (1+)	turkey vulture (1+)
Anna's hummingbird (1+)	European starling (1+)	western meadowlark (1+)
Bewick's wren (1+)	lesser goldfinch (1+)	western scrub-jay (1+)
bushtit (1+)	mourning dove (1+)	white-crowned sparrow (1+)
California quail (1+)	northern mockingbird (1+)	wrentit (1+)
California towhee (1+)	phainopepla (1+)	
Cassin's kingbird (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Cryptantha sp.	*Phacelia parryi*	***Monardella viminea***
Dichelostemma capitatum	*Sisyrinchium bellum*	
Lasthenia gracilis	***Bloomeria clevelandii***	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-25
Biologist(s)	Erika Eidson
Survey Area	24
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:15:00		60	0	0-1	clear	
End	15:55:00		81	0	1-5		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1)	funereal duskywing (2)	pale swallowtail (1)
checkered white (1)	gray hairstreak (1)	Sara orangetip (12)
common buckeye (2)	painted lady (7)	West coast lady (2)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Checkered skipper (2)	Sulfur (3)	

INCIDENTAL PLANT LIST		
Brassica nigra	*Plagibothrys sp.*	*Viola pedunculata*
Dichelostemma capitatum	*Plantago erecta*	***Cryptantha sp.***
Eriogonum fasciculatum	*Rhamnus crocea*	***Monardella viminea***
Erodium botrys	*Silene gallica*	
Eschscholzia californica	*Sonchus asper*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-02
Biologist(s)	Erika Eidson
Survey Area	24
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:35:00		65	10	0-2	clear	
End	16:10:00		75	0	1-3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (5)	gray hairstreak (5)	Western tiger swallowtail (2)
common buckeye (1)	Pacific sara orangetip (11)	white checkered-skipper (7)
funereal duskywing (8)	painted lady (4)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Sulfur sp (5)		

INCIDENTAL PLANT LIST		
Brassica nigra	*Eschscholzia californica*	*Silene gallica*
Cryptantha sp.	*Hypochaeris glabra*	*Sonchus asper*
Dichelostemma capitatum	*Mirabilis laevis*	*Viola pedunculata*
Erodium botrys	*Rhamnus crocea*	***Monardella viminea***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-15
Biologist(s)	Brock Ortega
Survey Area	24
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:20:00	65		10	3	clear	
End	16:30:00	76		20	0	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (2)	common buckeye (5)	painted lady (3)
anise swallowtail (1)	common california ringlet (2)	southern blue (2)
Behr's metalmark (11)	monarch (1)	western tiger swallowtail (1)
checkered white (3)	Pacific sara orangetip (15)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-18
Biologist(s)	Brian Drake
Survey Area	24
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:45:00		70.4	100	calm	clear	
	12:00:00	77.1		0	calm	clear	
End	17:00:00	77.9		0	W at 2.9 avg. 3.8 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (1)	orange sulphur (1)	white checkered-skipper (10)
common buckeye (1)	Pacific sara orangetip (5)	
funereal duskywing (2)	painted lady (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American crow (1+)	California towhee (1+)	red-tailed hawk (1+)
American kestrel (1+)	common raven (1+)	western meadowlark (1+)
Botta's pocket gopher (1+)	kangaroo rat (1+)	white-crowned sparrow (1+)
bushtit (1+)	mourning dove (1+)	
California quail (1+)	northern mockingbird (1+)	

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-24
Biologist(s)	Travis Cooper
Survey Area	24
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	68		0	1-2	clear	
End	16:45:00	72		0	2-5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	common buckeye (5)	Pacific sara orangetip (43)
Behr's metalmark (4)	funereal duskywing (1)	western tiger swallowtail (2)
cabbage white (1)	marine blue (1)	white checkered-skipper (7)
checkered white (8)	monarch (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Bewick's wren (1+)	lesser goldfinch (1+)	song sparrow (1+)
California towhee (1+)	mourning dove (1+)	white-crowned sparrow (1+)
common yellowthroat (1+)	Pacific-slope flycatcher (1+)	yellow-rumped warbler (1+)
house wren (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Castilleja exserta*	*Phacelia cicutaria*
Acmispon strigosus	*Cryptantha spp.*	*Phacelia parryi*
Bahiopsis laciniata	*Dichelostemma capitatum*	*Plantago erecta*
Brassica nigra	*Mirabilis laevis*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-04
Biologist(s)	Nicole Kimball
Survey Area	24
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:45:00	64	65	0	0-1		
End	16:27:00	84	86	10	4-10		

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1)	dainty sulphur (1)	painted lady (1)
Behr's metalmark (32)	funereal duskywing (2)	queen (1)
Blue sp. (2)	Harford's sulphur (3)	Sulphur sp. (4)
checkered white (6)	orange sulphur (1)	white checkered-skipper (9)
common buckeye (11)	Pacific sara orangetip (48)	White sp. (9)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Acorn woodpecker (1+)	common raven (1+)	spotted towhee (1+)
Anna's hummingbird (1+)	coyote (1+)	western meadowlark (1+)
bushtit (1+)	lark sparrow (1+)	western scrub-jay (1+)
California quail (1+)	lesser goldfinch (1+)	white-crowned sparrow (1+)
California towhee (1+)	mourning dove (1+)	wrentit (1+)
Cassin's kingbird (1+)	northern mockingbird (1+)	
cliff swallow (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Eriogonum fasciculatum*	*Plantago erecta*
Dichelostemma capitatum	*Eschscholzia californica*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-25
Biologist(s)	Alicia Hill
Survey Area	25
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
N/a error	07:32:00	00					
Start	08:15:00	60	60	0	0-1	clear	
Start	15:50:00	81		0	1-5		

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (4)	cloudless sulphur (1)	Pacific sara orangetip (68)
American lady (3)	common buckeye (1)	Unid Blue (2)
anise swallowtail (1)	funereal duskywing (15)	Unid sulphur (2)
Behr's metalmark (24)	gray hairstreak (1)	western tiger swallowtail (1)
checkered white (2)	Lady sp (3)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Anna's hummingbird (1+)	common raven (1+)	Unid white (3)
Belding's orange-throated whiptail (1+)	northern mockingbird (1+)	western meadowlark (1+)
California towhee (1+)	red-tailed hawk (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
Acmispon glaber	*Cryptantha sp.*	*Mirabilis laevis*
Acmispon strigosus	*Eriogonum fasciculatum*	*Nuttallanthus texanus*
Amsinckia menziesii	*Erodium botrys*	*Pickeringia montana*
Antirrhinum nuttallianum	*Eschscholzia californica*	*Plantago erecta*
Camissonia strigulosa	*Lathyrus vestitus*	*Rhamnus crocea*
Crassula connata	*Marah macrocarpa*	*Solanum parishii*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-04
Biologist(s)	Erika Eidson
Survey Area	25
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	11:15:00	71	74	10	1-4	clear	
End	16:15:00	70	74	80	1-3	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (16)	funereal duskywing (17)	Pacific sara orangetip (18)
checkered white (5)	gray hairstreak (4)	western tiger swallowtail (2)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Eriogonum fasciculatum*	*Lasthenia gracilis*
Brassica nigra	*Erodium botrys*	*Mirabilis laevis*
Cryptantha spp.	*Eschscholzia californica*	*Pectocarya linearis*
Dichelostemma capitatum	*Hirschfeldia incana*	*Phacelia parryi*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-05
Biologist(s)	Erika Eidson
Survey Area	25
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:05:00		72	90	0-3	overcast	
End	12:45:00	78	88	10	1-3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (4)	funereal duskywing (8)	western tiger swallowtail (2)
Behr's metalmark (9)	gray hairstreak (1)	
common buckeye (1)	Pacific sara orangetip (11)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Amsinckia menziesii	*Dichelostemma capitatum*	*Phacelia parryi*
Brassica nigra	*Erodium botrys*	
Cryptantha sp.	*Hypochaeris glabra*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-16
Biologist(s)	Brian Drake
Survey Area	25
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:00:00	73.4		0	calm	clear	
	12:00:00	83.7		0	SW at 1.0 avg. 1.5 max.	clear	
End	17:00:00	79.1		0	NW at 3.2 avg. 4.8 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
checkered white (2)	Pacific sara orangetip (4)	red admiral (1)
funereal duskywing (4)	painted lady (2)	white checkered-skipper (4)
orange sulphur (4)	pale swallowtail (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	common side-blotched lizard (1+)	mule deer (1+)
American kestrel (1+)	coyote (1+)	northern mockingbird (1+)
Anna's hummingbird (1+)	desert horned lizard (1+)	phainopepla (1+)
Botta's pocket gopher (1+)	granite spiny lizard (1+)	red-tailed hawk (1+)
California towhee (1+)	kangaroo rat (1+)	rock wren (1+)
common raven (1+)	mourning dove (1+)	southern alligator lizard (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-21
Biologist(s)	Garrett Huffman
Survey Area	25
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	62	60	50	2-5	patchy	
End	16:30:00	75	77	20	2-6	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (24)	funereal duskywing (8)	west coast lady (1)
checkered white (7)	gray hairstreak (1)	western pygmy-blue (3)
common buckeye (2)	orange sulphur (5)	white checkered-skipper (2)
dainty sulphur (1)	Pacific sara orangetip (65)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Cooper's hawk (1+)	common side-blotched lizard (1+)	rock wren (1+)
Nuttall's woodpecker (1+)	Costa's hummingbird (1+)	rufous-crowned sparrow (1+)
Anna's hummingbird (1+)	greater roadrunner (1+)	spotted towhee (1+)
bushtit (1+)	house finch (1+)	tree swallow (1+)
California ground squirrel (1+)	house wren (1+)	western meadowlark (1+)
California quail (1+)	lesser goldfinch (1+)	western scrub-jay (1+)
California thrasher (1+)	mourning dove (1+)	white-crowned sparrow (1+)
California towhee (1+)	northern flicker (1+)	white-throated swift (1+)
cliff swallow (1+)	northern mockingbird (1+)	wrentit (1+)
common raven (1+)	red-tailed hawk (1+)	yellow-rumped warbler (1+)

INCIDENTAL PLANT LIST		
Acmispon glaber	*Dichelostemma capitatum*	*Lasthenia*
Bahiopsis laciniata	*Eriogonum fasciculatum*	*Layia platyglossa*
Castilleja exserta	*Erodium sp*	*Linanthus dianthiflorus*
Cryptantha sp.	*Eschscholzia californica*	*Mimulus aurantiacus*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-25
Biologist(s)	Travis Cooper
Survey Area	25
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	68		0	1-2	clear	
End	16:45:00	72		0	2-5	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (6)	funereal duskywing (3)	mournful duskywing (2)
Behr's metalmark (17)	gray hairstreak (4)	orange sulphur (4)
checkered white (18)	Lady spp. (1)	Pacific sara orangetip (73)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
cliff swallow (1+)	coyote (1+)	rock wren (1+)
common raven (1+)	greater roadrunner (1+)	rufous-crowned sparrow (1+)
common side-blotched lizard (1)	mourning dove (1+)	white-throated swift (1+)

INCIDENTAL PLANT LIST		
Acmispon glaber	*Castilleja exserta*	*Layia platyglossa*
Adenostoma fasciculatum	*Chaenactis artemisiifolia*	*Mirabilis laevis*
Antirrhinum nuttallianum	*Cryptantha spp.*	*Phacelia cicutaria*
Bahiopsis laciniata	*Dichelostemma capitatum*	*Phacelia parryi*
Brassica nigra	*Eriogonum fasciculatum*	*Plantago erecta*
Castilleja densiflora	*Lasthenia glabrata*	*Salvia columbariae*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-04
Biologist(s)	Tricia Wotipka
Survey Area	25
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:45:00	74	78	10	1-3	patchy	
End	17:25:00	85	97	10	2-5	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (1+)	Pacific sara orangetip (1+)	
Behr's metalmark (1+)	Sulphur sp. (1+)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
black phoebe (1+)	common raven (1+)	spring white (1+)
brush rabbit (1+)	common side-blotched lizard (1+)	turkey vulture (1+)
bushtit (1+)	house finch (1+)	western fence lizard (1+)
California kingsnake (1+)	house wren (1+)	western meadowlark (1+)
California towhee (1+)	mourning dove (1+)	western scrub-jay (1+)
checkered white (1+)	red-tailed hawk (1+)	wrentit (1+)
common buckeye (1+)	rufous-crowned sparrow (1+)	

INCIDENTAL PLANT LIST		
Castilleja exserta	*Erodium cicutarium*	*Salvia columbariae*
Cryptantha angustifolia	*Eschscholzia californica*	
Dichelostemma capitatum	*Plantago erecta*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-28
Biologist(s)	Alicia Hill
Survey Area	26
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
	08:45:00	68		10	0-1	patchy	
End	16:55:00	71		10	1-2		

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (3)	funereal duskywing (18)	southern blue (2)
anise swallowtail (3)	Lady sp (2)	Unid sulphur (2)
Behr's metalmark (9)	Pacific sara orangetip (88)	white checkered-skipper (2)
bramble hairstreak (2)	pale swallowtail (2)	
checkered white (5)	San Diegan tiger whiptail (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American kestrel (1+)	common raven (1+)	Unid white (6)
Belding's orange-throated whiptail (4)	coyote (1+)	western meadowlark (1+)
Bell's sparrow (1+)	mourning dove (1+)	western scrub-jay (1+)
California quail (1+)	northern mockingbird (1+)	white-crowned sparrow (1+)
California thrasher (1)	red-tailed hawk (1+)	wrentit (1+)
California towhee (1+)	rufous-crowned sparrow (5)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Cryptantha sp.*	*Mirabilis laevis*
Acmispon strigosus	*Dichelostemma capitatum*	*Phacelia parryi*
Bahiopsis laciniata	*Eriogonum fasciculatum*	*Plagiobothrys sp.*
Calandrinia menziesii	*Erodium cicutarium*	*Plantago erecta*
Camissoniopsis pallida	*Eschscholzia californica*	*Primula clevelandii*
Castilleja densiflora	*Lasthenia sp.*	*Rhamnus crocea*
Castilleja exserta	*Linanthus dianthiflorus*	*Silene gallica*
Caulanthus heterophyllus	*Lupinus bicolor*	*Solanum parishii*

INCIDENTAL PLANT LIST		
Clematis lasiantha	*Marah macrocarpa*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-04
Biologist(s)	Erik LaCoste
Survey Area	26
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	69	71	90	0-1	overcast	
End	16:00:00	68	73	70	4-7	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (2)	funereal duskywing (10)	pale swallowtail (3)
American lady (1)	gray hairstreak (1)	Wright's metalmark (1)
Behr's metalmark (22)	orange sulphur (1)	
checkered white (5)	Pacific sara orangetip (23)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Fritillaria biflora*	*Plantago erecta*
Castilleja affinis	*Lasthenia californica*	*Salvia mellifera*
Castilleja exserta	*Lathyrus vestitus*	*Silene gallica*
Clematis pauciflora	*Linanthus dianthiflorus*	*Solanum parishii*
Cryptantha sp.	*Marah macrocarpa*	*Sonchus oleraceus*
Dichelostemma capitatum	*Mimulus aurantiacus*	*Uropappus lindleyi*
Eriogonum fasciculatum	*Mirabilis laevis*	*Viola pedunculata*
Eschscholzia californica	*Nuttallanthus texanus*	***Viguiera laciniata***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-17
Biologist(s)	Brian Drake
Survey Area	26
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	67.7		0	calm	clear	
	12:00:00	77.0		0	S at 2.3 avg. 3.7 max.	clear	
End	17:00:00	76.4		0	SW at 2.1 avg. 2.7 max.	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (5)	Pacific sara orangetip (6)	white checkered-skipper (2)
orange sulphur (1)	pale swallowtail (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
San Diego black-tailed jackrabbit (1+)	common raven (1+)	mule deer (1+)
Botta's pocket gopher (1+)	coyote (1+)	northern mockingbird (1+)
bushtit (1+)	desert cottontail (1+)	spotted towhee (1+)
California quail (1+)	house finch (1+)	western fence lizard (1+)
California towhee (1+)	mourning dove (1+)	western kingbird (1+)

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-22
Biologist(s)	Erika Eidson
Survey Area	26
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:26:00		63	20	0-3	clear	
	09:24:00	65	70	60	1-4	patchy	
End	09:53:00		68	70		overcast	Survey paused
Start	10:14:00		72	40		patchy	Survey restarted
End	16:15:00		78	10	1-5		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (49)	marine blue (1)	southern blue (1)
checkered white (15)	Pacific sara orangetip (55)	western tiger swallowtail (1)
funereal duskywing (10)	painted lady (6)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Brassica nigra	*Eschscholzia californica*	*Plantago erecta*
Castilleja exserta	*Hirschfeldia incana*	***Phacelia parryi***
Cryptantha spp.	*Linanthus dianthiflorus*	***Viguiera laciniata***
Eriogonum fasciculatum	*Mirabilis laevis*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-30
Biologist(s)	Erika Eidson
Survey Area	26
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:18:00		71	30	0-3	patchy	
End	14:55:00		79	50	2-6	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (36)	gray hairstreak (1)	painted lady (8)
checkered white (9)	Harford's sulphur (1)	
funereal duskywing (6)	Pacific sara orangetip (47)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Brassica nigra	*Eschscholzia californica*	*Plantago erecta*
Castilleja exserta	*Linanthus dianthiflorus*	*Salvia columbariae*
Chaenactis artemisiifolia	*Lupinus truncatus*	***Viguiera laciniata***
Crypatantha	*Mirabilis laevis*	
Dichelostemma capitatum	*Phacelia parryi*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-30
Biologist(s)	David King, Erika Eidson
Survey Area	26
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:24:00	63	71	30	1-3	patchy	Clouds on horizon, clear overhead, warm and sunny
End	14:56:00	67	79	50	3-7	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (7)	common buckeye (1)	variable checkerspot (1)
checkered white (1)	Pacific sara orangetip (12)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	California towhee (1+)	house finch (1+)
San Diego black-tailed jackrabbit (1+)	common raven (1+)	mule deer (1+)
Bell's sparrow (1+)	common side-blotched lizard (1+)	rock wren (1+)

INCIDENTAL PLANT LIST		
Castilleja exserta ssp. exserta	*Dichelostemma capitatum*	*Plantago erecta*
Cryptantha sp.	*Layia glandulosa*	*Salvia columbariae*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-04-04
Biologist(s)	Garrett Huffman
Survey Area	26
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:30:00	67	65	0	1-4	clear	
End	16:30:00	76	78	10	3-8	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (1)	fiery skipper (1)	orange sulphur (1)
Behr's metalmark (23)	funereal duskywing (1)	Pacific sara orangetip (96)
checkered white (15)	Gabb's checkerspot (1)	western tiger swallowtail (2)
common buckeye (8)	Mylitta crescent (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Brewer's sparrow (1+)	California towhee (1+)	red-tailed hawk (1+)
coastal California gnatcatcher (1+)	Cassin's kingbird (1+)	rock wren (1+)
Cooper's hawk (1+)	common raven (1+)	rufous-crowned sparrow (1+)
Anna's hummingbird (1+)	Costa's hummingbird (1+)	spotted towhee (1+)
Belding's orange-throated whiptail (1+)	lesser goldfinch (1+)	western meadowlark (1+)
bushtit (1+)	mourning dove (1+)	white-crowned sparrow (1+)
California quail (1+)	northern mockingbird (1+)	wrentit (1+)
California thrasher (1+)	phainopepla (1+)	

INCIDENTAL PLANT LIST		
Acmispon glaber	*Eriogonum fasciculatum*	*Linanthus dianthiflorus*
Bahiopsis laciniata	*Eschscholzia californica*	*Salix melanopsis*
Cryptantha sp.	*Lasthenia gracilis*	*Salvia columbariae*
Dichelostemma capitatum	*Layia platyglossa*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-28
Biologist(s)	Travis Cooper
Survey Area	27
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:45:00	68		10	0-1	patchy	
End	16:55:00	71		10	1-2	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (2)	bramble hairstreak (1)	Pacific sara orangetip (54)
anise swallowtail (4)	common buckeye (1)	pale swallowtail (4)
Behr's metalmark (19)	funereal duskywing (11)	red admiral (2)
blue spp. (4)	gray hairstreak (2)	southern blue (1)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Bell's sparrow (1+)	mule deer (1+)	red-tailed hawk (1+)
Bewick's wren (1+)	northern flicker (1+)	rock wren (1+)
common raven (1+)	northern mockingbird (1+)	rufous-crowned sparrow (1+)
greater roadrunner (1+)	orange-crowned warbler (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Acmispon glaber	*Eriogonum fasciculatum*	*Oxalis californica*
Acmispon strigosus	*Erodium cicutarium*	*Phacelia parryi*
Bahiopsis laciniata	*Eschscholzia californica*	*Plantago erecta*
Calandrinia menziesii	*Lasthenia glabrata*	*Primula clevelandii*
Camissoniopsis pallida	*Lathyrus vestitus*	*Rhamnus crocea*
Castilleja exserta	*Lepidium nitidum*	*Sidalcea sparsifolia*
Caulanthus heterophyllus	*Linanthus dianthiflorus*	*Silene gallica*
Ceanothus tomentosus	*Lupinus bicolor*	*Solanum parishii*
Cryptantha sp.	*Marah macrocarpa*	
Dichelostemma capitatum	*Mirabilis laevis*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-03
Biologist(s)	Garrett Huffman
Survey Area	27
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	68	65	10	0-3	clear	
End	16:00:00	72.5	75.5	60	2-5	overcast	Clouds thin with sun still shining through

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	common buckeye (3)	painted lady (1)
Behr's metalmark (26)	funereal duskywing (14)	southern blue (1)
cabbage white (3)	orange sulphur (1)	west coast lady (1)
checkered white (3)	Pacific sara orangetip (47)	western tiger swallowtail (5)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
black-chinned sparrow (1+)	California towhee (1+)	red-tailed hawk (1+)
Anna's hummingbird (1+)	common raven (1+)	rock wren (1+)
Bewick's wren (1+)	Costa's hummingbird (1+)	rufous-crowned sparrow (1+)
bushtit (1+)	lesser goldfinch (1+)	spotted towhee (1+)
California quail (1+)	Northene flicker (1+)	white-crowned sparrow (1+)
California thrasher (1+)	northern mockingbird (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Acmispon glaber	*Dichelostemma capitatum*	*Linanthus dianthiflorus*
Bahiopsis laciniata	*Eriogonum fasciculatum*	*Salvia columbariae*
Calystegia sp	*Erodium sp*	*Salvia mellifera*
Castilleja exserta	*Eschscholzia californica*	
Cryptantha sp	*Lasthenia sp*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-10
Biologist(s)	Erik LaCoste
Survey Area	27
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:00:00	61	62	10	1-3	clear	
End	15:30:00	73	77	90	4-7	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (1)	California sister (1)	Pacific sara orangetip (15)
Behr's metalmark (40)	desert orangetip (9)	painted lady (2)
bramble hairstreak (1)	funereal duskywing (18)	pale swallowtail (3)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Erodium botrys*	*Oxalis californica*
Castilleja affinis	*Eschscholzia californica*	*Phacelia distans*
Castilleja exserta	*Hypochaeris glabra*	*Plantago erecta*
Centaurea melitensis	*Lasthenia californica*	*Salvia columbariae*
Dichelostemma capitatum	*Linanthus dianthiflorus*	*Solanum parishii*
Eriogonum fasciculatum	*Mirabilis laevis*	***Viguiera laciniata***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-21
Biologist(s)	Erika Eidson
Survey Area	27
Survey Pass	4

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:40:00	60	70	80	0-3	patchy	
End	17:05:00	76	85	60	0-4	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (2)	checkered white (10)	Pacific sara orangetip (81)
Behr's metalmark (44)	funereal duskywing (4)	painted lady (8)
California sister (1)	gray hairstreak (1)	western tiger swallowtail (3)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Acmispon glaber	*Erodium botrys*	*Lasthenia gracilis*
Castilleja exserta	*Erodium cicutarium*	*Linanthus dianthiflorus*
Collinsia heterophylla	*Eschscholzia californica*	*Plantago erecta*
Dichelostemma capitatum	*Eucrypta chrysanthemifolia*	*Silene gallica*
Eriogonum fasciculatum	*Hypochaeris glabra*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-29
Biologist(s)	David King, Erika Eidson
Survey Area	27
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:45:00	63	76	30	1-5	patchy	
End	15:55:00		76	60	3-8	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (51)	marine blue (1)	southern blue (1)
checkered white (5)	Pacific sara orangetip (38)	
funereal duskywing (4)	painted lady (12)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
Castilleja exserta	*Linanthus dianthiflorus*	***Viguiera laciniata***
Dichelostemma capitatum	*Plantago erecta*	
Hypochaeris glabra	*Salvia mellifera*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-29
Biologist(s)	David King, Erika Eidson
Survey Area	27
Survey Pass	5

SURVEY CONDITIONS

Status	Time	Air Temp. (F)	Ground Temp. (F)	Cloud Cover (%)	Wind (mph)	Sky	Notes
Start	10:14:00	60	71	30	1-3	patchy	Split survey area with Erika to optimize weather
End	15:17:00	63	71	40	2-6	patchy	Warm between clouds, cold when sun is covered. Surveyed during warm periods...

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (4)	mournful duskywing (1)	San Diegan tiger whiptail (1+)
common buckeye (1)	Pacific sara orangetip (38)	white checkered-skipper (4)
common california ringlet (1)	pale swallowtail (1)	
funereal duskywing (2)	red admiral (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
coastal California gnatcatcher (1+)	coyote (1+)	spotted towhee (1+)
bobcat (1+)	mourning dove (1+)	turkey vulture (1+)
California towhee (1+)	northern mockingbird (1+)	western meadowlark (1+)
common raven (1+)	red-tailed hawk (1+)	wrentit (1+)

INCIDENTAL PLANT LIST		
Castilleja exserta	*Dichelostemma capitatum*	***Monardella viminea***
Cryptantha sp.	*Plantago erecta*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-02-25
Biologist(s)	Darin Busby, Melissa Busby
Survey Area	28
Survey Pass	1

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	08:45:00	60	62	0	0-1	clear	
End	12:30:00	83	83	0	1-3	clear	

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (15)	funereal duskywing (16)	spring white (5)
brown elfin (2)	mourning cloak (1)	Sulphur sp. (1)
common buckeye (1)	Pacific sara orangetip (90)	west coast lady (9)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Blainville's horned lizard (1)	Moth sp. (10)	

INCIDENTAL PLANT LIST		
Plantago erecta		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-03
Biologist(s)	Erika Eidson
Survey Area	28
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
	08:40:00		63	10	0-3		
End	14:20:00	78	80		1-5	patchy	Hazy

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (2)	Edward's blue (3)	western tiger swallowtail (5)
Behr's metalmark (39)	funereal duskywing (9)	white checkered-skipper (4)
checkered white (1)	Pacific sara orangetip (63)	
common buckeye (2)	painted lady (2)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Belding's orange-throated whiptail (1+)	Sulfur sp. (3)	

INCIDENTAL PLANT LIST		
Brassica nigra	*Dichelostemma capitatum*	*Lasthenia californica*
Castilleja exserta	*Eriogonum fasciculatum*	*Mirabilis laevis*
Ceanothus tomentosus	*Erodium botrys*	*Plantago erecta*
Cryptantha spp	*Eschscholzia californica*	*Rhamnus crocea*

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-04
Biologist(s)	Erika Eidson
Survey Area	28
Survey Pass	2

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
	09:20:00		70	80	1-4	patchy	
End	11:10:00	71	74	10	1-4	clear	Second and last part of partial survey.

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (6)	Pacific sara orangetip (17)	Silvery blue (2)
funereal duskywing (10)	painted lady (1)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
Sulfur sp. (2)		

INCIDENTAL PLANT LIST		
Brassica nigra	*Erodium botrys*	*Silene gallica*
Cryptantha spp.	*Hirschfeldia incana*	***Viguiera laciniata***
Dichelostemma capitatum	*Hypochaeris glabra*	
Eriogonum fasciculatum	*Mirabilis laevis*	

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-11
Biologist(s)	Brock Ortega
Survey Area	28
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:10:00	70		60	3	overcast	
End	13:30:00	75		40	3-7	overcast	

BUTTERFLY LIST *SPECIES (COUNT)*		
Acmon blue (3)	Pacific sara orangetip (46)	western tiger swallowtail (1)
Behr's metalmark (25)	painted lady (7)	white checkered-skipper (1)
common buckeye (11)	southern blue (8)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-12
Biologist(s)	Brock Ortega
Survey Area	28
Survey Pass	3

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	10:30:00	70		40	3-5	overcast	
End	16:00:00	75		30	3-5	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
anise swallowtail (2)	common buckeye (10)	southern blue (1)
Behr's metalmark (10)	common california ringlet (4)	Sulphur (2)
cabbage white (2)	monarch (1)	
checkered white (4)	Pacific sara orangetip (8)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
(none)		

INCIDENTAL PLANT LIST		
(none)		

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-25
Biologist(s)	Alicia Hill
Survey Area	28
Survey Pass	5

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:45:00		67	0	1-3		
End	17:15:00		84	0	1-5		

BUTTERFLY LIST *SPECIES (COUNT)*		
Behr's metalmark (39)	funereal duskywing (2)	Unid blue (1)
checkered white (5)	Harford's sulphur (4)	white checkered-skipper (2)
dainty sulphur (1)	Pacific sara orangetip (225)	

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
black-chinned sparrow (1+)	California towhee (1+)	rock wren (1+)
coastal California gnatcatcher (1+)	common raven (1+)	spotted towhee (1+)
Acorn woodpecker (1+)	Costa's hummingbird (1+)	Unid white (19)
Anna's hummingbird (1+)	house wren (1+)	white-crowned sparrow (1+)
Belding's orange-throated whiptail (4)	mourning dove (1+)	wrentit (1+)
California quail (1+)	northern mockingbird (1+)	
California thrasher (1+)	red-tailed hawk (1+)	

INCIDENTAL PLANT LIST		
Castilleja densiflora	*Dichelostemma capitatum*	*Phacelia cicutaria*
Castilleja exserta	*Eriogonum fasciculatum*	*Plantago erecta*
Chaenactis sp.	*Lasthenia glabrata*	*Salvia columbariae*
Cryptantha sp.	*Linanthus dianthiflorus*	***Monardella viminea***

Quino Checkerspot Butterfly Survey Data Form

GENERAL SURVEY INFORMATION	
Project Name	Fanita Ranch
Survey Date	2016-03-30
Biologist(s)	Travis Cooper
Survey Area	28
Survey Pass	6

SURVEY CONDITIONS							
Status	**Time**	**Air Temp. (F)**	**Ground Temp. (F)**	**Cloud Cover (%)**	**Wind (mph)**	**Sky**	**Notes**
Start	09:30:00	63		30	1-5	patchy	
End	16:45:00	72		10	1-5	patchy	

BUTTERFLY LIST *SPECIES (COUNT)*		
American lady (4)	checkered white (25)	pale swallowtail (1)
Behr's metalmark (18)	funereal duskywing (3)	Propertius duskywing (1)
blue-gray gnatcatcher (1+)	Pacific sara orangetip (106)	white checkered-skipper (21)

INCIDENTAL WILDLIFE LIST *SPECIES (COUNT)*		
American kestrel (1+)	common raven (1+)	savannah sparrow (1+)
bushtit (1+)	lesser goldfinch (1+)	spotted towhee (1+)
California quail (1+)	mourning dove (1+)	tree swallow (1+)
California thrasher (1+)	northern mockingbird (1+)	western meadowlark (1+)
California towhee (1+)	rufous-crowned sparrow (1+)	white-crowned sparrow (1+)

INCIDENTAL PLANT LIST		
Acmispon glaber	*Dichelostemma capitatum*	*Nuttallanthus texanus*
Castilleja densiflora	*Eriogonum fasciculatum*	*Pentachaeta aurea*
Castilleja exserta	*Eriophyllum confertiflorum*	*Phacelia cicutaria*
Caulanthus heterophyllus	*Hedypnois rhagadioloides*	*Plantago erecta*
Chaenactis artemisiifolia	*Lasthenia glabrata*	*Salvia columbariae*
Chaenactis glabriuscula	*Layia platyglossa*	*Sonchus asper*
Cirsium occidentale	*Linanthus dianthiflorus*	

APPENDIX C

Proposed 2016 Quino Checkerspot Survey Protocol

APPENDIX C
Proposed 2016 Quino Checkerspot Survey Protocol

The intent of this proposed Quino Checkerspot Butterfly (QCB) protocol is to combine elements of past U.S. Fish and Wildlife Service (FWS) protocols to use for the 2016 season (at a minimum). In order to do this, the 2002, early 2014, and late 2014 protocols were used. To that end, reporting and required survey areas remain the same as the December 2014 protocol. The protocol is as follows:

1 SITE ASSESSMENTS AND HOST PLANT MAPPING

- Site assessments involve conducting a general field survey of the site and mapping excluded areas and QCB survey areas, as defined below, on a U.S. Geological Survey 7.5' (1:24,000) topographic quadrangle map enlarged 200%.
- The site assessment shall be conducted before the first QCB survey and prior to host plant mapping.
- Excluded Areas not recommended for QCB surveys:
    - Orchards, developed areas, or areas largely dominated by non-native vegetation;
    - Small in-fill parcels (plots smaller than an acre completely surrounded by urban development);
    - Active/in-use agricultural fields without natural or remnant inclusions of native vegetation or that are completely without any fallowed or unplowed areas;
    - Closed-canopy woody vegetation including forests, riparian areas, shrub-lands, and chaparral. "Closed-canopy woody vegetation" describes shrubs or trees growing closely together in which the upper portions of the vegetation converge (are touching) to the point that the open space between two or more plants is not significantly different than the open space within a single plant. Closed canopy shrub-land and chaparral are defined as vegetation so thick that it is inaccessible to humans except by destruction of woody vegetation (branches);
- QCB Survey Areas are all areas that are not excluded, regardless of the presence or absence of QCB host plants or nectar sources.
- Upon completion of the site assessment, QCB Survey Areas will be surveyed for known host and nectar plants such as dwarf plantain *(Plantago erecta*), wooly plantain *(Plantago patagonica*), white snapdragon *(Antirrhinum coulterianum*), rigid bird's beak (*Cordylanthus rigidus*) and/or Chinese houses *(Collinsia concolor*). All locations of host plants will be mapped with a GPS unit (or equivalent) and populations will be estimated to categorize density of host plant patches. For example, density categories could be: low density (1–100 plants), medium density (100–1,000 plants), and high density (1,000–10,000+ plants).

2 QUINO SURVEYS

- An appropriate reference population) will be surveyed on a weekly basis, starting the second week of January, by a permitted biologist. For 2016, Marron Valley will be used as the reference population, and it will be used to define the flight season for Management Unit 3 (Janal) that is identified in the Management Strategic Plan for Western San Diego County (http://sdmmp.com/reports_and_products/Management_Strategic_Plan.aspx). Different parts of the QCB range may require different reference sites, and any reference sites chosen for other parts of the range will be approved by the Service. Reference population(s) will be monitored by only entities agreed up and approved by the Service. The purpose of this is to not overly sample the habitat and potentially negatively affect the population.
    - The monitoring biologist will assess the condition of host plants within the reference population, and note any signs of egg, larva (caterpillar), pupa (chrysalis), and adult butterflies.
    - The monitoring biologist will note weather conditions at the reference site and, to the extent feasible, monitoring days will be based on the weather conditions outlined in Section 3.0.
    - The biologist will work with the Service to make a reasonable effort to notify biologists potentially planning to conduct focused surveys in 2016, of the weekly survey results. This may occur by any means, including posting the results on a dedicated website or other similar media.
- QCB surveys shall not be conducted concurrently with any other focused survey (e.g., a coastal California gnatcatcher or QCB host plant survey). However, additional host or nectar plants observed during the survey effort should be mapped and quantified per Section 1.0.
- The entire QCB Survey Area identified in Section 1.0 shall be surveyed for QCB each week.
- Surveys shall be conducted weekly and spaced no closer than 4 calendar days apart (see Section 3 WEATHER-RELATED CONDITIONS).
- Surveys shall be conducted for a minimum of 5 weeks and will be initiated within one week of observed QCB flight at the reference site(s). It will be the surveyor's responsibility to stay informed of the reference site comparable to their specific project site. If no Quino are observed in the first 5 weeks, surveys will continue until the flight season is over or demonstrably on the decline in the reference site as determined in coordination with the surveyor and the Service.
- Surveys should be conducted at a rate of approximately 5-10 acres (2-4 hectares) per person- hour. Survey rate can depend on topography and other physical factors at the

survey site. A full description of the QCB Survey Area should be provided in the survey report, noting any deviations from this specified survey rate.

- Survey routes shall be roughly parallel to each other and spaced approximately 30 feet (10 meters) apart.
- Survey routes shall cover within 15 feet (5 meters) of site boundaries and/or the perimeter of excluded areas.

3 WEATHER-RELATED CONDITIONS

- Surveys will not be conducted when the following weather conditions exist:
  - Fog, drizzle, or rain;
  - Sustained or gusting winds that average greater than 15 miles (24 kilometers) per hour measured over a 30 second period at a height of 4-6 feet (1.2-1.8 meters) above ground level;
  - Temperature in the shade at ground level is less than 60° F (15.5° C) on a clear, sunny day with less than 50% cloud cover, or less than 70° F (21° C) on days with 50% or more cloud cover;
- Weather conditions are to be measured on site, using appropriate instrumentation, and are not to be estimated or obtained from internet websites where measurements are recorded off site;
- A weekly survey should only be missed because of week-long adverse weather. If a weekly survey is missed due to weather conditions, two surveys should be conducted on non- consecutive days the following week.

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APPENDIX D

2005 Focused Coastal California Gnatcatcher Survey Report

September 20, 2005

ATTN: Daniel Marquez
Recovery Permit Coordinator
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, California 92009

Subject: 2005 Focused California Gnatcatcher Survey for the Fanita Ranch Project, City of Santee, California

Dear Recovery Permit Coordinator:

A coastal California gnatcatcher (*Polioptila californica californica;* gnatcatcher) presence/absence survey was conducted for the Fanita Ranch study area in the City of Santee, California.

The California gnatcatcher is a federally-listed threatened species and a California Department of Fish and Game species of special concern. It is closely associated with coastal sage scrub (CSS) habitat, particularly that dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*). It typically occurs below 950 feet elevation and on slopes less than 40%. The species is threatened primarily by loss, degradation, and fragmentation of coastal sage scrub habitat and is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism.

PROJECT LOCATION AND PHYSICAL CHARACTERISTICS

Fanita Ranch, including the alignment of Fanita Parkway south to Carlton Oaks Boulevard, and the Street extension, is situated in the northwestern portion of the City of Santee in western San Diego County, California (*Figure 1*). The site is bordered by the Sycamore Canyon County Park and other open space to the north and east, by residential development to the south and east, and by vacant land on Miramar Naval Air Station to the west. The property lies approximately 3 miles northeast of State Route 52, and occupies portions of four U.S. Geological Survey 7.5 minute quadrangles: San Vicente Reservoir, El Cajon, La Mesa, and Poway (*Figure 2*).

The soils, topography, and vegetation of the site are heterogeneous. Elevations range from about 500 to 1,204 feet above mean sea level. The project area currently is open space supporting disturbed and undisturbed native plant communities. The site supports a complex system of dirt roads and trails, many of which receive illegal use from off-road vehicle traffic. Some of the dirt roads provide necessary access to power transmission towers. Recent fires have diminished the

habitat value of much of the native shrublands onsite, at least temporarily converting coastal sage scrub to non-native grassland.

According to Bowman (1973), soils onsite mostly are loams, including Redding series (ReE, RfF), Cieneba series (CmE2), Las Posas series (LrE), Las Flores series (LeC), Visalia series (VbB), and Wyman series (WmC) (*Figure 3*). Two clay-loam complexes, Diablo-Olivenhain series (DoE) and Linne series (LsE), are present in the southeastern portion of the site. Redding soils support vernal pools to the west on Naval Air Station Miramar (Wier and Bauder 1991), and Los Posas soils support sensitive plant species at some locations in western San Diego County.

A single series of clay soils, Bosanko clay (BsC), is present in the north-central and eastern north-central portions of the property. Onsite, this soil type mostly supports annual grassland. Significant rock outcrops also are present onsite, particularly in the northern and northeastern portions of the property.

Vegetation Communities

Based on species composition and general physiognomy, twenty-one vegetation types and land covers occurred within the project study area prior to the October 2003 fire. These areas were mapped in 1997/1998 and rechecked in the summer of 2003, prior to the fire. Acreages of vegetation communities and land covers within the project area (prior to the 2003 fire) are presented in *Table 1*. Onsite, vegetation communities suitable for the California gnatcatcher includes all communities supporting coastal sage scrub (including disturbed forms) and broom baccharis scrub. These two habitat types are described following Table 1. (Please note that these discussions relate to the 1997/8 habitat survey).

TABLE 1
1997 ACREAGES BY HABITAT TYPE

Vegetation Community	Acreage
Coastal sage scrub	546 acres
Coastal sage scrub/Valley needlegrass grassland	10 acres
Disturbed coastal sage scrub	478 acres
Disturbed coastal sage scrub/Annual grassland	229 acres
Disturbed coastal sage scrub/Broom baccharis scrub	7 acres
Disturbed coastal sage scrub/Valley needlegrass grassland	42 acres

TABLE 1
1997 ACREAGES BY HABITAT TYPE

Vegetation Community	Acreage
Broom baccharis scrub	9 acres
Southern mixed chaparral	619 acres
Coast live oak woodland	9 acres
Southern willow scrub	2 acres
Coast and valley freshwater marsh	1 acre
Southern coast live oak riparian forest	11 acres
Sycamore alluvial woodland	15 acres
vernal pool	<1 acre
Valley needlegrass grassland	174 acres
Annual grassland	219 acres
Ruderal	75 acres
Revegetation	35 acres
Ornamental plantings	4 acres
Disturbed habitat	104 acres
Developed	3 acres
TOTAL	**2,592 acres**

Coastal Sage Scrub

Coastal sage scrub is a native plant community composed of a variety of soft, low; aromatic shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia spp.*), with scattered evergreen shrubs, including lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and toyon (*Heteromeles arbutifolia*). It typically develops on south-facing slopes and other xeric situations.

Onsite, coastal sage scrub is variable. Much of it is dominated by California sagebrush and flat-top buckwheat, with laurel sumac, redberry (*Rhamnus crocea*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), San Diego County viguiera (*Viguiera laciniata*), toyon, and bush

monkeyflower (*Mimulus aurantiacus*) as lesser components. In the southern portion of the site, a few patches are dominated by white sage; in the north, red berry (*Rhamnus crocea*) is the dominant shrub in some areas. This community supports a diverse understory of native herbs and forbs, including virgate tarplant (*Holocarpha virgata*), deerweed (*Lotus scoparius*), blue dicks (*Dichelostemma capitata*), Cleveland's shooting-star (*Dodecatheon clevelandii*), blue-eyed grass (*Sisyrinchium bellum*), canchalagua (*Centaurium venustum*), and several species of grasses, both native and introduced. The primary introduced grass is slender wild oat (*Avena barbata*).

Large portions of the site that historically supported coastal sage scrub have been disturbed severely and repeatedly by fire and other activities. These areas include a much higher percent cover of non-native grasses and a lower density of native shrubs. Where native shrub density was greater than 20 percent, the habitat was mapped as coastal sage scrub; where native shrub density was 11-20 percent, the habitat was mapped as disturbed coastal sage scrub. Where native shrub density was 5-10 percent, the habitat was mapped as disturbed coastal sage scrub/annual grassland.

Broom Baccharis Scrub

Broom baccharis scrub is not recognized as a native plant community by Holland (1986). Nonetheless, it is a distinct vegetational association in southern California, dominated by broom baccharis (*Baccharis sarothroides*), usually with a few scattered individuals of other native shrub species. It frequently is a successional community that occurs in more mesic sites and along drainages where coastal sage scrub or chaparral has been eliminated by perturbation.

Onsite this habitat is characterized by nearly uniform stands of broom baccharis with a few other native shrubs in low density, including California sagebrush, flat-top buckwheat, Mexican elderberry (*Sambucus mexicanus*), and a variety of non-native herbs and grasses.

Methods

Surveys were conducted under the authorization of permit TE051248-1 (Paul M. Lemons; PML) according to the schedule provided in Table 1. The survey followed the most current protocol established by the U.S. Fish and Wildlife Service, Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Protocol (July 28, 1997).

Suitable habitat within the project area was surveyed four times for the gnatcatcher and included remaining unburned or partially burned coastal sage scrub and broom baccharis scrub onsite. 2005 surveys primarily focused on coastal sage scrub and broom baccharis scrub areas of native shrub density greater than 20 percent (Figure 3). A topographic and photographic map of the site (scale 1"=150') overlain with vegetation polygons was used for the survey. Weather conditions

during surveys are provided in Table 2. Binoculars (7x50) were used to aid in detecting and identifying bird species. Taped gnatcatcher vocalizations were played frequently in order to elicit a response from the species, if present. The tape was played approximately every 50-100 feet within suitable habitat. When a gnatcatcher was detected, playing of the tape ceased in order to avoid unnecessary harassment and the gnatcatcher location was recorded on the site map.

TABLE 2
2005 FANITA RANCH COASTAL CALIFORNIA GNATCATCHER SURVEYS

Date	Time	Staff	Conditions	Acres Surveyed/ Acres Per Hour
8/2/05	0615-1300	PML	Overcast➔0% cloud cover (cc); wind 0-3 miles per hour (mph); 70-96 degrees Fahrenheit (˚F)	approximately
8/10/05	0600-1300	PML	95% cc; wind 0-2 mph; 70-92 ˚F	approximately
8/17/05	0600-1230	PML	Overcast➔0% cc, wind 0-1 mph; 68-96 ˚F	approximately
8/31/05	0600-1200	PML	0% cc; wind 0-4 mph; 70-102 ˚F	approximately

Results

The majority of suitable gnatcatcher habitat onsite was destroyed during the October 2003 fires. Historical habitat areas suitable for California gnatcatcher are now predominantly non-native grasses and areas of much lower density native shrubs. Nonetheless, four pairs of California gnatcatchers and one individual gnatcatcher on one occasion (likely a juvenile) were detected on the Fanita Ranch site over the course of the surveys. None of the four pairs nor the individual detected were displaying nesting behavior and all males had shed their breeding season plumage. *Figure 3* illustrates areas currently supporting suitable gnatcatcher habitat and the locations of pairs detected during focused surveys. All four pairs and the individual were observed foraging within coastal sage scrub onsite. Fifty-four species of wildlife were detected during the surveys. A full list of wildlife detected is provided in APPENDIX A. In accordance with my permit conditions, the gnatcatcher locations have also been mapped on a 7.5 minute USGS base map (*Figure 2*).

I certify that the information in this survey report and attached exhibits fully and accurately represents my work. Please feel free to contact me at (760) 479-4238 with questions or if you require additional information.

Very truly yours,

DUDEK & ASSOCIATES, INC.

Paul M. Lemons
Wildlife Biologist
Permit Number #TE 051248-1

cc: Nick Aurthur, Barratt American Inc.
Mick Pattinson, Barratt American Inc.
Douglas Williford, City of Santee
Brock A. Ortega, Dudek & Associates, Inc.

REFERENCES FOR LATIN AND COMMON NAMES

American Ornithologists' Union. 1983. The Check-list of North American Birds, 6th edition. Allen Press, Lawrence, Kansas.

American Ornithologists' Union. 1989. Thirty-seventh Supplement to the American Ornithologists' Union Check-List of North American Birds. The Auk 106:532-538.

Bowman, R. H. 1973. Soil Survey, San Diego Area, California, Part 1. United States Department of the Agriculture. 104 pp. + appendices.

Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. Nongame-Heritage Program, California Department of Fish and Game.

Stebbins, R. C. 1985. A field guide to western reptiles and amphibians. Houghton Mifflin Co., Boston, Mass.

APPENDIX A

Faunal Compendium

Appendix A
Faunal Compendium

WILDLIFE SPECIES -VERTEBRATES

REPTILES

IGUANIDAE - IGUANID LIZARDS

Phrynosoma coronatum - coast horned lizard
Sceloporus graciosus - sagebrush lizard
Sceloporus occidentalis - western fence lizard

VIPERIDAE - VIPERS

Crotalus ruber - red-diamond rattlesnake

BIRDS

CATHARTIDAE - NEW WORLD VULTURES

Cathartes aura - turkey vulture

ACCIPITRIDAE - HAWKS

Accipiter cooperii – Cooper's hawk
Buteo jamaicensis - red-tailed hawk
Elanus caeruleus - white-tailed kite

FALCONIDAE - FALCONS

Falco sparverius - American kestrel

PHASIANIDAE - PHEASANTS & QUAILS

Callipepla californica - California quail

COLUMBIDAE - PIGEONS & DOVES

Columba livia - rock dove
Zenaida macroura - mourning dove

CAPRIMULGIDAE - GOATSUCKERS

Phalaenoptilus nuttallii - common poorwill

TROCHILIDAE - HUMMINGBIRDS

Calypte anna – Anna's hummingbird

TYRANNIDAE - TYRANT FLYCATCHERS

Sayornis nigricans - black phoebe
Tyrannus verticalis - western kingbird

HIRUNDINIDAE - SWALLOWS

Hirundo pyrrhonota - cliff swallow

CORVIDAE - JAYS & CROWS

Aphelocoma coerulescens - scrub jay Corvus corax - common raven

AEGITHALIDAE - BUSHTITS

Psaltriparus minimus - bushtit

TROGLODYTIDAE - WRENS

Thryomanes bewickii - Bewick's wren
Troglodytes aedon - house wren

MUSCICAPIDAE - KINGLETS, GNATCATCHERS, THRUSHES & BABBLERS

Chamaea fasciata - wrentit
Polioptila californica - California gnatcatcher

MIMIDAE - THRASHERS

Mimus polyglottos - northern mockingbird
Toxostoma redivivum - California thrasher

LANIIDAE - SHRIKES

Lanius ludovicianus - loggerhead shrike

STURNIDAE – STARLINGS

* *Sturnus vulgaris* - European starling

EMBERIZIDAE - WOOD WARBLERS, TANAGERS, BUNTINGS & BLACKBIRDS

DENDROICA CORONATA - YELLOW-RUMPED WARBLER

Geothlypis trichas - common yellowthroat
Icterus cucullatus - hooded oriole
Melospiza melodia - song sparrow
Pipilo crissalis - California towhee
Pipilo erythrophthalmus - spotted towhee
Sturnella neglecta - western meadowlark

FRINGILLIDAE - FINCHES

Carpodacus mexicanus - house finch
Carduelis psaltria - lesser goldfinch

PASSERIDAE - OLD WORLD SPARROWS

* *Passer domesticus* - house sparrow

MAMMALS

LEPORIDAE - HARES & RABBITS

Lepus californicus - black-tailed jackrabbit
Sylvilagus bachmani - brush rabbit
Sylvilagus audubonii - desert cottontail

SCIURIDAE - SQUIRRELS

Spermophilus beecheyi - California ground squirrel

GEOMYIDAE - POCKET GOPHERS

Thomomys bottae – Botta's pocket gopher

CANIDAE - WOLVES & FOXES

Canis latrans - coyote

CERVIDAE - DEERS

Odocoileus hemionus - mule deer

WILDLIFE SPECIES - INVERTEBRATES

BUTTERFLIES AND MOTHS

PAPILIONIDAE - SWALLOWTAILS

Papilio rutulus - tiger swallowtail
Papilio zelicaon - anise swallowtail

PIERIDAE - WHITES AND SULFURS

Pontia protodice - common white

RIODINIDAE - METALMARKS

Apodemia mormo virgulti – Behr's metalmark

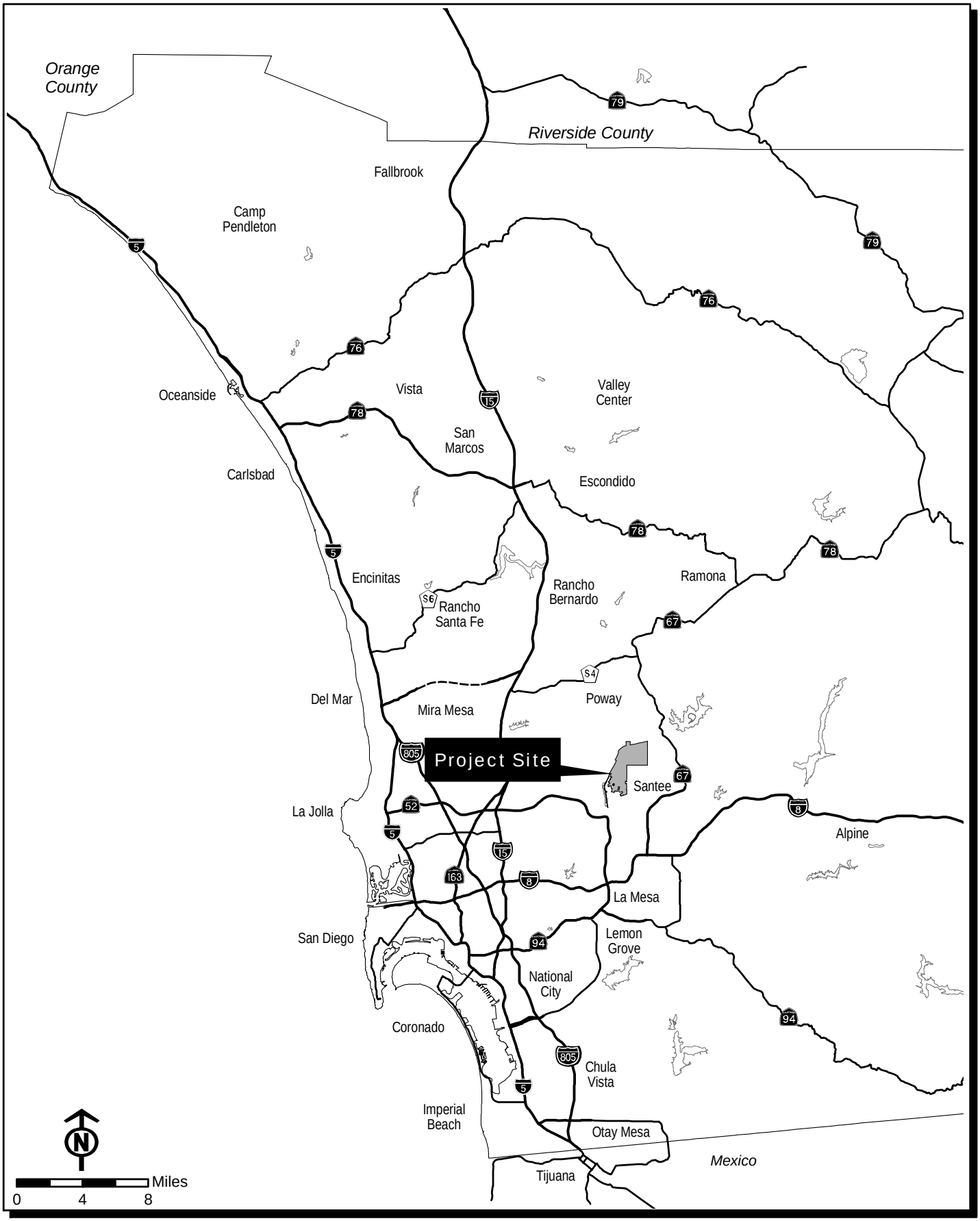
LYCAENIDAE - BLUES, HAIRSTREAKS, & COPPERS

Glaucopsyche lygdamus - southern blue
Plebejus acmon - acmon blue

NYMPHALIDAE - BRUSH-FOOTED BUTTERFLIES

Vanessa cardui - painted lady*Nymphalis antiopa* - mourning cloak
Junonia coenia – buckeye

* signifies introduced (non-native) species



Fanita - 2005 Focused California Gnatcatcher Survey

Regional Map

FIGURE
1

✪ 2005 California Gnatcatcher Observation

Project Site

BASE MAP SOURCE: USGS 7.5 Minute Series, Poway, San Vicente Reservoir, La Mesa and El Cajon Quadrangles

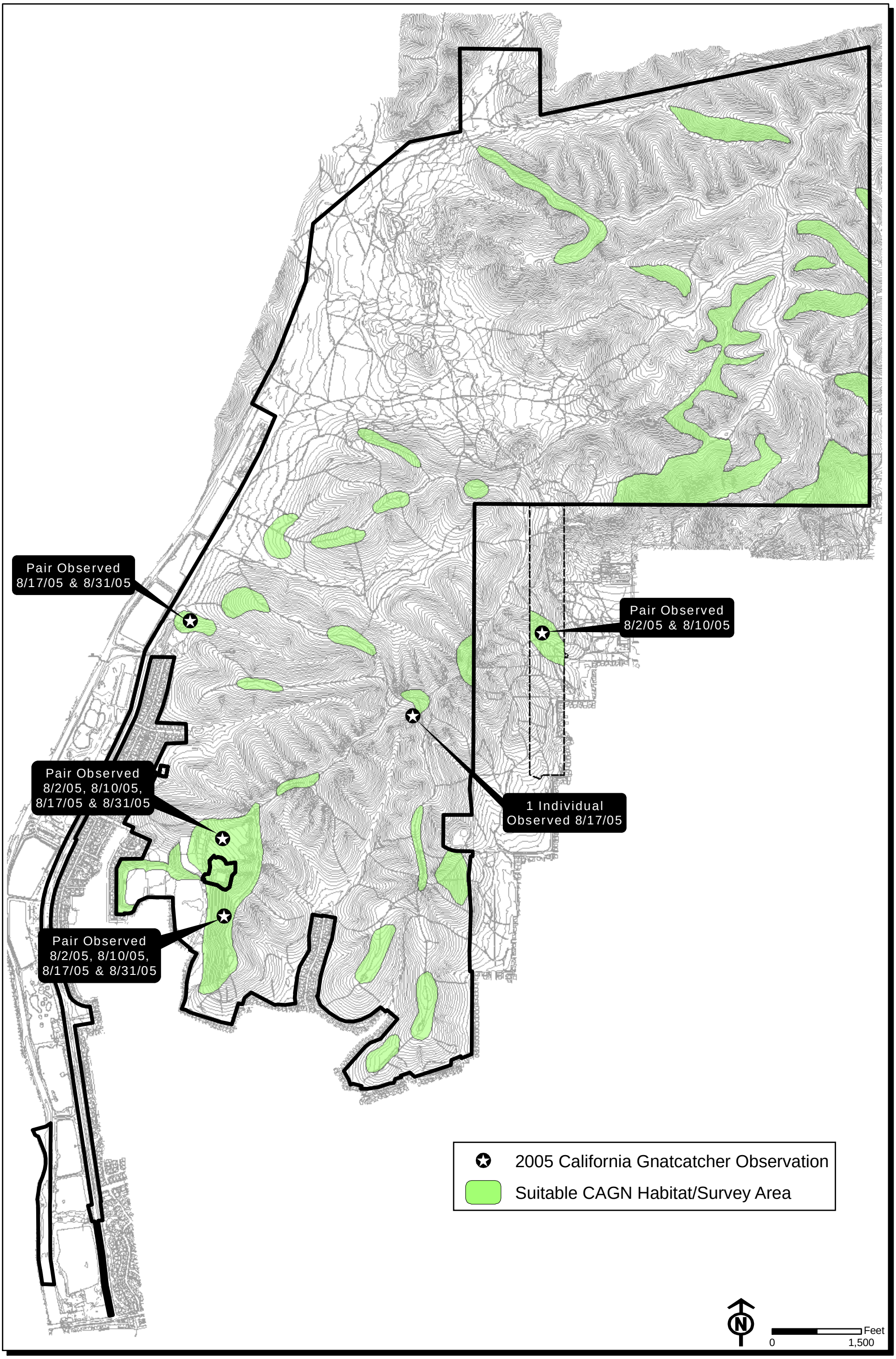
N

0 Feet 2,000

Fanita - 2005 Focused California Gnatcatcher Survey

Vicinity Map

FIGURE 2



Fanita - 2005 Focused California Gnatcatcher Survey

Suitable CAGN Habitat/Survey Areas and Gnatcatcher Observations

FIGURE
3

APPENDIX E

2016 Focused Coastal California Gnatcatcher Survey Report

DUDEK

MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 T 800.450.1818 F 760.632.0164

November 3, 2016 7490

U.S. Fish and Wildlife Service
Attention: Recovery Permit Coordinator
2177 Salk Avenue #250
Carlsbad, California 92008

Subject: 2016 Focused California Gnatcatcher Survey Report for the Proposed Fanita Ranch Project, City of Santee, County of San Diego, California

Dear Recovery Permit Coordinator:

This letter report documents the spring 2016 results of a focused survey conducted by Dudek for the federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*; CAGN). This survey was conducted in support of the Fanita Ranch project (Fanita), located in the City of Santee, California. The Fanita Planned Development proposes two villages and an open space "preserve," which extends through Fanita, separating the villages and linking natural areas adjoining Fanita to one another. The project site contains approximately 1,357 acres of potentially CAGN-suitable habitat that were surveyed in 2016.

CAGN is a federally listed threatened species and a California Department of Fish and Wildlife (CDFW) Species of Special Concern. It is closely associated with coastal sage scrub habitat and is therefore threatened primarily by loss, degradation, and fragmentation of this habitat. CAGN typically occurs below 820 feet above mean sea level within 22 miles of the coast and 1,640 feet above mean sea level for inland regions (Atwood and Bolsinger 1992). Studies have suggested that CAGNs avoid nesting on very steep slopes (greater than 40%) (Bontrager 1991). CAGN is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

This report is intended to satisfy reporting requirements for the following CAGN-permitted biologists:

- Brock Ortega TE813545-6
- Paul Lemons TE051248-5
- Erin Bergman TE813545-5
- Jeff Priest TE840619-3
- Kam Muri TE051250

- Bonnie Peterson TE038701-02
- Alicia Hill TE06145B-0
- Travis Cooper TE170389-5
- Seth Reimers TE 80703A-0
- Nicole Kimball TE-053598
- Ian Maunsell TE-42833A-2

PROJECT LOCATION AND EXISTING CONDITIONS

Fanita, including the alignment of Fanita Parkway south to Carlton Oaks Boulevard, the Cuyamaca Street extension, and the disjunct ownership along the western boundary of Santee Lakes, is situated in the northwestern portion of the City of Santee in western San Diego County, California (Figure 1). The site is bordered by the Sycamore Canyon County Park and other protected open space to the north and east, by residential development to the south and east, and by vacant land on Marine Corps Air Station Miramar to the west. The property lies approximately 3 miles northeast of State Route 52. The site occupies portions of Township 15 South, Range 1 West, projected Sections 2, 3, 4, 8, 9, 10, 16, 17, 20, and 21 on the San Vicente Reservoir, El Cajon, La Mesa, and Poway West U.S. Geological Survey 7.5-minute quadrangle maps (Figure 2).

Elevations range from about 320 feet above mean sea level in the southern end of Fanita Parkway to approximately 1,204 feet above mean sea level in the northeastern corner of the site. The project site contains a series of northeast- to southwest-trending hills and valleys that form a transition between the relatively low, flat Sycamore Canyon on the western end of the site and the foothills of the Peninsular Range to the east. Numerous large rock outcrops are also present on site, particularly in the northern and northeastern portions of the property.

Soils on site consist of Redding series; Wyman loam; sandy loams soils of the Cieneba series, Las Posas series, Las Flores loamy fine sand, and Visalia gravelly sandy loam; clay-loam soil series including Linne clay loam and Salinas clay loam; Diablo-Olivenhain complex; and Bosanko clay (USDA 2016).

The project site has been subject to a number of fires over its known history. These fires typically have been large scale, burning at least half of the project site and, over time, causing vegetation-type coverage fluctuations and resulting in distributional changes of suitable habitat for various sensitive species. For example, suitable habitats for CAGN (coastal sage scrub) and

grasshopper sparrow (*Ammodramus savannarum*) (grasslands) have been observed to change so that they have been detected in overlapping areas in different vegetation mapping efforts. From experience, burned areas initially recover to annual grasslands, supporting grasshopper sparrow, and then over time recover to a coastal sage scrub condition supporting CAGN.

VEGETATION COMMUNITIES

Based on species composition and general physiognomy, 16 vegetation communities, 12 sub-communities or intergraded communities, and 2 land-cover types were identified on the Fanita property and off-site mapping areas. Their acreages are presented in Table 1. Approximately 1,357 acres of CAGN-suitable habitat were mapped on the project site in accordance with Holland (1986) and Oberbauer et al. (2008), as described in Table 1.

Table 1
Vegetation Communities and Land Cover Types on the Fanita Ranch Project Site

Vegetation Community/Land Cover	Acres
Broom Baccharis Scrub	8.9
Coastal Sage Scrub	764.3
Coastal Sage Scrub/Disturbed Valley Needlegrass Grassland	35.3
Coastal Sage Scrub/Southern Mixed Chaparral	13.5
Coastal Sage Scrub/Valley Needlegrass Grassland	9.4
Disturbed Coastal Sage Scrub	365.8
Disturbed Coastal Sage Scrub/Annual Non-Native Grassland	106.0
Disturbed Coastal Sage Scrub/Broom Baccharis Scrub	6.9
Disturbed Coastal Sage Scrub/Valley Needlegrass Grassland	46.7
Coastal Sage Scrub Subtotal	*1,356.7*
Annual Non-Native Grassland/Ornamental	19.6
Annual Non-Native Grassland	204.7
Cismontane Alkali Marsh	0.9
Coast Live Oak Riparian Forest	16.2
Coast Live Oak Woodland	5.7
Developed Land	12.6
Disturbed Freshwater Marsh	0.1
Disturbed Habitat	110.4
Disturbed Wetlands	0.3
Freshwater Marsh	0.6
Mulefat Scrub	0.6
Open Water	7.2
Ornamental Planting	5.0
Revegetated Area	35.4

Table 1
Vegetation Communities and Land Cover Types on the Fanita Ranch Project Site

Vegetation Community/Land Cover	Acres
Ruderal	21.9
Ruderal/Disturbed Habitat	22.5
Southern Mixed Chaparral	616.9
Southern Willow Scrub	1.9
Sycamore Alluvial Woodland	15.5
Valley Needlegrass Grassland	175.4
Grand Total*	**2,629.9**

Note:
* Numbers do not sum precisely due to rounding.

Broom Baccharis Scrub

Broom baccharis scrub is not recognized as a native plant community by Holland (1986). It is a distinctive vegetation association in Southern California, dominated by broom baccharis (*Baccharis sarothroides*) and usually containing scattered individuals of other native shrub species. It frequently is an early successional community that occurs in more mesic sites or along drainages where coastal sage scrub or chaparral has been eliminated by perturbation.

On Fanita Ranch, this vegetation consists of nearly uniform stands of broom baccharis with a sparse cover of other native shrubs, including California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), Mexican elderberry (*Sambucus mexicanus*), and non-native herbs and grasses. Approximately 8.9 acres of broom baccharis scrub are present on Fanita Ranch.

Broom baccharis scrub is typically considered a subcategory of coastal sage scrub by wildlife agencies because its general plant architecture and density are similar enough to the latter to support many of the "target" coastal sage scrub animal species, including the coastal CAGN.

Coastal Sage Scrub Communities

The majority of the project area, approximately 1,347.8 acres, contains coastal sage scrub vegetation types. Large portions of the site that probably historically supported coastal sage scrub have been disturbed severely or repeatedly by fire or other activities, such as ranching and off-road vehicles. The history of human and natural disturbances, combined with varied environmental conditions such as slope and aspect, has resulted in sub-communities that are variants of the presumed original Diegan coastal sage scrub vegetation.

Diegan coastal sage scrub (coastal sage scrub) is a native plant community composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species, such as California sagebrush, California buckwheat, and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and toyon (*Heteromeles arbutifolia*). It typically develops on south-facing slopes and other xeric locations (Holland 1986).

Coastal sage scrub vegetation on site is dominated by California sagebrush and California buckwheat, with laurel sumac, spiny redberry (*Rhamnus crocea*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), San Diego County viguiera (*Viguiera laciniata*, a special-status plant), toyon, and bush monkeyflower (*Mimulus aurantiacus*) as lesser components. In the southern portion of the site, some patches are dominated by white sage; in the north, redberry is the dominant shrub in some areas. This community supports a diverse understory of native herbs and forbs, including virgate tarplant (*Holocarpha virgata*), deerweed (*Lotus scoparius*), blue dicks (*Dichelostemma capitatum*), Cleveland's shooting-star (*Dodecatheon clevelandii*), blue-eyed grass (*Sisyrinchium bellum*), canchalagua (*Centaurium venustum*), and several species of grasses, both native and introduced. The primary introduced grass is slender wild oat (*Avena barbata*).

Disturbed coastal sage scrub communities contain relatively more non-native grasses and fewer native shrubs. Areas with native coastal sage scrub shrub cover greater than 20% are mapped as coastal sage scrub; areas with native shrub cover of 11% to 20% are mapped as disturbed coastal sage scrub; areas with native shrub cover of 5% to 10% are mapped as disturbed coastal sage scrub/annual grassland. In addition, transitional areas containing a mix of coastal sage scrub types and baccharis scrub, valley needlegrass grasslands, or southern mixed chaparral have been identified and mapped.

Coastal sage scrub is recognized as a sensitive plant community by local, state, and federal wildlife agencies. It supports a rich diversity of sensitive plants and animals, and it is estimated that it has been reduced by 75% to 80% of its historical coverage throughout Southern California. It is the focus of the current State of California Natural Community Conservation Planning program in Southern California.

METHODS

Focused surveys for CAGN were performed within the study area between April 25 and June 29, 2016, by CAGN-permitted biologists Paul Lemons (TE051248-5), Erin Bergman (TE813545-5), Jeff Priest (TE840619-3), Thomas Liddicoat (TE139634-2), Brock Ortega (TE813545-6), Kam Muri (TE051250), Bonnie Peterson (TE038701-02), Travis Cooper

(TE170389-5), Alicia Hill (TE06145B-0), Seth Reimers (TE 80703A-0), Ian Maunsell (TE-42833A-2), and Nicole Kimball (TE-053598).

Non-CAGN-permitted biologists Janice Wondolleck, Melissa Blundell, Monique O'Conner, Scott Gressard, and Shana Carey accompanied CAGN-permitted biologists as passive observers, which included sitting quietly with little or no movement for prolonged periods while studying CAGN movements with binoculars and listening carefully to vocalizations. Only permitted biologists used audio-playback techniques to entice CAGN responses.

The surveys were conducted following the currently accepted protocol of the U.S. Fish and Wildlife Service (USFWS), *Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Protocol* (USFWS 1997), using the breeding season survey methods. Per a letter received from USFWS to the City of Santee, the City of Santee is no longer a participant in the Natural Community Conservation Planning (NCCP) interim 4(d) process because it has already permitted disturbance of all of its allotted coastal sage scrub interim loss acres; therefore, surveys included six visits (during the CAGN breeding season) at a minimum of 7-day intervals.

Survey routes completely covered all areas of suitable CAGN habitat on site, as shown in Figures 3a through 3c. Appropriate birding binoculars (7x35 to 10x50 power) were used by each permitted biologist to aid in detecting and identifying bird species. The survey conditions were within protocol limits, as shown in Table 3. A recording of vocalizations was used frequently to elicit a response from the species. The recording was played approximately every 50 to 100 feet, and when a CAGN was detected, the playing of the recording ceased to avoid harassment.

The site was divided into 19 survey polygons (shown on Figures 3a through 3c), each representing a single-day survey effort of approximately 80 acres (i.e., in accordance with USFWS protocol for non-NCCP enrolled areas) resulting in 114 person-days of effort (see Table 2). These survey areas were numbered and assigned to Dudek's permitted biologists and independent investigators. The biologists were provided with digital aerial maps of each survey polygon, used for mapping CAGN individuals, pairs, nests, and family groups, if observed. Binoculars were used to aid in detecting and identifying butterfly and other wildlife species.

Table 2
2016 California Gnatcatcher Survey Polygons

Survey Area	Acreage of Survey Area*
1	76.71
2	75.56
3	79.50

Table 2
2016 California Gnatcatcher Survey Polygons

Survey Area	Acreage of Survey Area*
4	80.95
5	79.94
6	81.80
7	81.31
8	79.45
9	81.48
10	80.58
11	80.57
12	81.70
13	80.19
14	80.78
15	80.37
16	51.94
17	61.99
18	71.13
19	79.42

Note:
* Acreage sum of Table 2 includes approximately 110 acres of disturbed habitat areas associated with dirt roads and trails within each survey area.

Table 3
Schedule of Focused California Gnatcatcher Surveys

Survey Area	Date	Time	Biologist	Conditions
Pass 1				
1	2016-04-28	6:30 AM–12:00 PM	JP	55–62°F; 100% cc; 0–1 to 3–5 mph wind
2	2016-04-29	6:30 AM–12:00 PM	JP	54–70°F; 10–20% cc; 0–1 to 0–4 mph wind
3	2016-04-25	7:00 AM–12:00 PM	PL	56–67°F; 70–80% cc; 2–5 to 5–10 mph wind, with 15 mph gusts
4	2016-04-26	6:30 AM–12:00 PM	PL	55–78°F; 10–30% cc; 0–2 to 3–6 mph wind
5	2016-04-27	6:50 AM–12:00 PM	PL	55–74°F; 20–30% cc; 0–1 to 3–7 mph wind
6	2016-04-28	7:00 AM–12:00 PM	PL	55–60°F; 100% cc; 0–2 to 3–5mph wind, with 6–10 mph gusts
7	2016-04-29	6:55 AM–12:00 PM	PL	56–74°F; 0–50% cc; 0–2 to 0–2 mph wind, with 3–6 mph gusts
8	2016-05-09	6:09 AM–12:01 PM	EB	54.8–66.7°F; 10–30% cc; 1.7 to 2.8 mph wind
9	2016-05-10	6:12 AM–12:03 PM	EB, MP	59.5–71.8°F; 0–100% cc; 2.3 mph wind
10	2016-05-11	6:16 AM–12:06 PM	EB	59.4–73.5°F; 0–90% cc; 2.5 to 3.6 mph wind
11	2016-04-27	6:03 AM–12:02 PM	EB	48.2–78.3°F; 0–80% cc; 2.4 to 3.3 mph wind

Table 3
Schedule of Focused California Gnatcatcher Surveys

Survey Area	Date	Time	Biologist	Conditions
12	2016-05-03	6:44 AM–10:16 AM	BO	55–75°F; 0% cc; 1 mph wind
13	2016-05-10	8:06 AM–11:45 AM	TL	60–64°F; 70–100% cc; 0–3 to 1–4 mph wind
14	2016-05-11	7:08 AM–11:42 AM	TL	58–64°F; 0–100% cc; 0–2 to 1–3 mph wind
15	2016-05-02	6:36 AM–11:57 AM	NK	54–68°F; 0% cc; 0–1 to 1–4 mph wind
16	2016-05-05	5:50 AM–9:53 AM	BO, SC	63–57°F; 100% cc; 1 mph wind
17	2016-04-27	7:40 AM–11:53 AM	SR	60–73°F; 20–70% cc; 1–2 to 2–8 mph wind
18	2016-04-27	7:40 AM–11:53 AM	IM	60–73°F; 20–70% cc; 1–2 to 2–8 mph wind
19	2016-04-28	7:08 AM–12:11 PM	SR	57–55°F; 90–100% cc; 1–5 to 1–3 mph wind
Pass 2				
1	2016-05-08	6:00 AM–12:40 PM	BP	52–66°F; 80–100% cc; 0 to 1 mph wind
2	2016-05-09	6:00 AM–11:40 AM	BP	57–66°F; 20–100% cc; 0 to 1 mph wind
3	2016-05-02	7:00 AM–12:00 PM	PL	55–76°F; 0% cc; 0–1 to 2–6 mph wind
4	2016-05-03	6:40 AM–12:00 PM	PL	56–85°F; 0% cc; 0 to 3–7 mph wind
5	2016-05-04	6:40 AM–12:00 PM	PL	55–70°F; 90–100% cc; 0–2 to 3–6 mph wind
6	2016-05-05	6:45 AM–12:00 PM	PL	55–64°F; 100% cc; 0 to 3–6 mph wind
7	2016-05-13	7:00 AM–12:00 PM	PL, SC	61–83°F; 0–100% cc; 0–1 to 3–7 mph wind, with 8–15 mph gusts
8	2016-05-16	6:17 AM–11:56 AM	EB	57.6–65.4°F; 100% cc; 1.9 to 2.3 mph wind
9	2016-05-17	6:14 AM–12:07 PM	EB, JW	66.4–68.7°F; 100% cc; 0.2 to 3.1 mph wind
10	2016-05-18	6:18 AM–12:05 PM	EB	56.2–80.3°F; 0–100% cc; 0.3 to 0.1 mph wind
11	2016-05-07	6:55 AM–12:00 PM	AH	59–74°F; 70–80% cc; 0–1 to 1–3 mph wind
12	2016-05-10	6:30 AM–11:50 AM	TC	58–79°F; 20–100% cc; 0–1 to 2–3 mph wind
13	2016-05-17	7:04 AM–11:49 AM	TL	60–62°F; 100% cc; 0 to 1–4 mph wind
14	2016-05-19	7:07 AM–12:00 PM	TL	64–72°F; 0–100% cc; 0–2 to 1–4 mph wind
15	2016-05-10	7:00 AM–12:00 PM	AH	64–82°F; 0–100% cc; 0–1 mph wind
16	2016-05-17	8:00 AM–12:05 PM	KM	64–73°F; 100% cc; 2 mph wind
17	2016-05-04	6:40 AM–11:45 AM	AH	61–78°F; 10–100% cc; 1–3 to 1–4 mph wind
18	2016-05-04	6:30 AM–12:00 PM	TC	61–73°F; 0–100% cc; 0–1 to 1–3 mph wind
19	2016-05-07	6:30 AM–12:00 PM	TC	58–72°F; 70–100% cc; 0–2 to 1–3 mph wind
Pass 3				
1	2016-05-15	6:00 AM–12:15 PM	BP	64–70°F; 100% cc; 1 to 3 mph wind
2	2016-05-16	6:00 AM–11:25 AM	BP	61–66°F; 100% cc; 1 mph wind
3	2016-05-09	7:00 AM–12:00 PM	PL	56–65°F; 80–100% cc; 0–1 to 3–6 mph wind, with 7–10 mph gusts
4	2016-05-10	6:50 AM–12:00 PM	PL	55–77°F; 20–100% cc; 0–1 to 2–5 mph wind
5	2016-05-11	7:00 AM–11:30 AM	PL	61–74°F; 10–100% cc; 0–1 to 1–3 mph wind, with 4–6 mph gusts

Table 3
Schedule of Focused California Gnatcatcher Surveys

Survey Area	Date	Time	Biologist	Conditions
6	2016-05-19	6:17 AM–12:02 PM	EB	52.9–80.9°F; 0–100% cc; 0.2 to 1.6 mph wind
7	2016-05-20	6:08 AM–11:59 AM	EB	54.2–70.7°F; 10–100% cc; 0.4 to 0.8 mph wind
8	2016-05-23	6:10 AM–12:01 PM	EB	57.9–72.6°F; 20–100% cc; 0.9 to 1.7 mph wind
9	2016-05-24	6:10 AM–12:02 PM	EB	54.9–69.9°F; 80–100% cc; 0.9 to 2.7 mph wind
10	2016-05-25	6:14 AM–12:12 PM	EB	52.1–67.3°F; 90–100% cc; 2.9 mph wind
11	2016-05-15	6:50 AM–11:45 AM	AH	65–68°F; 100% cc; 1–2 to 0–1 mph wind
12	2016-05-18	7:00 AM–11:30 AM	TC	68–79°F; 0–100% cc; 1–3 mph wind
13	2016-05-24	7:36 AM–11:55 AM	TL	61–63°F; 90% cc; 2–6 mph wind
14	2016-05-26	6:56 AM–11:44 AM	TL	61–64°F; 90–100% cc; 1–4 mph wind
15	2016-05-18	7:15 AM–11:40 PM	AH	64–79°F; 0–100% cc; 1–2 to 1–3 mph wind
16	2016-05-24	8:00 AM–12:24 PM	KM	64–69°F; 50–70% cc; 4 to 7 mph wind
17	2016-05-11	6:45 AM–12:05 PM	TC	60–76°F; 0–100% cc; 1–3 to 1–4 mph wind
18	2016-05-11	7:05 AM–12:00 PM	AH	60–85°F; 0–100% cc; 2–4 to 1–4 mph wind
19	2016-05-15	6:40 AM–11:45 AM	TC	62–78°F; 100% cc; 1–3 mph wind
Pass 4				
1	2016-05-22	6:00 AM–12:15 PM	BP	54–66°F; 10–40% cc; 0 to 8 mph wind
2	2016-05-23	6:00 AM–10:40 AM	BP	52–64°F; 70–80% cc; 1 mph wind
3	2016-05-25	7:00 AM–12:00 PM	PL	55–68°F; 50–80% cc; 0–2 to 1–4 mph wind
4	2016-05-26	6:50 AM–12:00 PM	PL	59–79°F; 80–100% cc; 0–1 to 3–7 mph wind
5	2016-05-27	6:30 PM–12:00 PM	PL	60–73°F; 50–100% cc; 1–2 to 1–5 mph wind
6	2016-05-26	6:13 AM–12:00 PM	EB	62.7–77.5°F; 70–100% cc; 0.4 to 3.2 mph wind
7	2016-05-27	6:07 AM–12:05 PM	EB	61.2–70.2°F; 60–100% cc; 2.8 to 3.7 mph wind
8	2016-05-30	6:12 AM–12:05 PM	EB, SC	59.9–69.8°F; 100% cc; 0.4 to 1.9 mph wind
9	2016-05-31	6:08 AM–12:07 PM	EB, JW, MO	65.9–71.2°F; 100% cc; 0.9 to 1.0 mph wind
10	2016-06-01	6:22 AM–12:10 PM	EB	58.5–76.9°F; 0–100% cc; 0.2 to 0.7mph wind
11	2016-05-24	6:02 AM–11:08 AM	BO	55–66°F; 100–80% cc; 0-3 mph wind
12	2016-06-06	5:50 AM–11:06 AM	BO	60–81°F; 100–0% cc; 3–5 mph wind
13	2016-05-31	7:38 AM–12:00 PM	TL	61–65°F; 100% cc; 0 to 1-3 mph wind
14	2016-06-02	7:30 AM–11:58 AM	TL	64–86°F; 0% cc; 0 to 1–3 mph wind
15	2016-05-27	6:00 AM–12:00 PM	JP	56–70°F; 10–100% cc; 0–1 to 2–6 mph wind
16	2016-05-31	8:30 AM–12:30 PM	KM	64–75°F; 20–100% cc; 2 to 5 mph wind
17	2016-06-08	6:12 AM–10:32 AM	BO	61–80°F; 20–100% cc; 0 to 3 mph wind
18	2016-05-23	6:40 AM–12:00 PM	JP	54–69°F; 50–70% cc; 0–1 to 3–10 mph wind
19	2016-06-02	6:45 AM–12:00 PM	JP	60–92°F; 0% cc; 0–1 to 0–3 mph wind
Pass 5				
1	2016-05-31	6:00 AM–12:00 PM	JP	58–67°F; 100% cc; 0–1 to 2–6 mph wind
2	2016-06-09	6:00 AM–12:00 PM	JP	60–74°F; 20–100% cc; 0–1 to 0–5 mph wind

Table 3
Schedule of Focused California Gnatcatcher Surveys

Survey Area	Date	Time	Biologist	Conditions
3	2016-06-08	8:00 AM–12:00 PM	PL	64–77°F; 30–100% cc; 0–2 to 3–5 mph wind, with 6–10 mph gusts
4	2016-06-09	6:40 AM–12:00 PM	PL	62–75°F; 20–100% cc; 0–2 to 2–4 mph wind, with 5–8 mph gusts
5	2016-06-06	6:00 AM–12:00 PM	JP	60–78°F; 10–100% cc; 0–1 to 2–8 mph wind
6	2016-06-02	6:18 AM–12:14 PM	EB, MP	58.9–90.3°F; 0–70% cc; 0.4 to 0.5 mph wind
7	2016-06-03	6:15 AM–12:12 PM	EB, MO	62.5–89.6°F; 0–100% cc; 0.6 to 0.8 mph wind
8	2016-06-06	6:00 AM–12:18 PM	EB	60.2–78.3°F; 0–100% cc; 0.4 to 0.7 mph wind
9	2016-06-07	6:14 AM–12:01 PM	EB, MP	64.1–79.2°F; 10–100% cc; 0.6 to 0.9 mph wind
10	2016-06-08	6:04 AM–12:02 PM	EB	61.8–76.7°F; 10–100% cc; 0.6 to 1.6 mph wind
11	2016-05-31	5:56 AM–10:47 AM	BO	60–64°F; 100% cc; 0 to 3 mph wind
12	2016-06-20	5:28 AM–10:51 AM	BO	72–80°F; 0–50% cc; 0 to 3 mph wind
13	2016-06-13	6:40 AM–11:15 AM	TL	62–77°F; 0–100% cc; 0–3 to 2–5 mph wind
14	2016-06-15	6:10 AM–11:00 AM	TL	62–77°F; 0–100% cc; 0–3 to 1–4 mph wind
15	2016-06-03	6:00 AM–12:00 PM	JP	58–92°F; 0–100% cc; 0–1 to 1–5 mph wind
16	2016-06-07	7:45 AM–12:02 PM	KM	65–70°F; 10–100% cc; 2 to 6 mph wind
17	2016-06-22	6:11 AM–11:20 AM	BO	67–89°F; 100–20% cc; 0 to 3 mph wind
18	6/21/16	6:00 AM–11:15 AM	JP	66–84°F; 100% cc; 0–1 to 0–3 mph wind
19	2016-06-22	7:15 AM–12:00 PM	JP	73–92°F; 20–70% cc; 0–1 to 3–8 mph wind
Pass 6				
1	2016-06-08	6:00 AM–12:00 PM	JP	60–76°F; 50–100% cc; 0–1 to 2–7 mph wind
2	2016-06-20	6:00 AM–12:00 PM	JP	70–106°F; 0% cc; 0–1 to 1–5 mph wind
3	2016-06-20	5:45 AM–10:45 AM	PL	70–93°F; 0% cc; 0 to 2–5 mph wind
4	2016-06-21	6:10 AM–11:40 AM	PL	64–87°F; 100% cc; 0 to 0–4 mph wind
5	2016-06-22	6:25 AM–11:45 AM	PL	65–87°F; 20–100% cc; 0–1 to 3–5 mph wind, with 6–10 mph gusts
6	2016-06-14	6:30 AM–11:40 AM	PL	62–74°F; 20–100% cc; 0–1 to 3–5 mph wind, with 6–10 mph gusts
7	2016-06-29	6:40 AM–11:00 AM	PL	66–93°F; 0% cc; 0 to 0–3 mph wind, with 4–8 mph gusts
8	2016-06-15	6:20 AM–12:00 PM	JP	60–74°F; 0–100% cc; 0–1 to 2–6 mph wind
9	2016-06-22	6:30 AM–12:10 PM	EB, MB	66.5–102°F; 30–70% cc; 0.2 to 0.5 mph wind
10	2016-06-19	6:20 AM–12:00 PM	JP	62–104°F; 0–20% cc; 2–6 to 2–6 mph wind
11	2016-06-24	6:11 AM–12:07 PM	EB	66.5–85.9°F; 0–80% cc; 0.0 to 0.3 mph wind
12	2016-06-28	6:06 AM–12:04 PM	EB	62.9–86.9°F; 0–90% cc; 2.4 to 0.8 mph wind
13	2016-06-22	6:50 AM–11:37 AM	TL	68–90°F; 0% cc; 0–3 to 2–5 mph wind
14	2016-06-28	6:00 AM–10:05 AM	TL	68–88°F; 0% cc; 0–2 to 1–4 mph wind
15	2016-06-13	6:00 AM–12:00 PM	JP	60–73°F; 90–100% cc; 0–1 to 1–5 mph wind
16	2016-06-14	6:45 AM–11:00 AM	JP	62–70°F; 50–100% cc; 0–1 to 1–5 mph wind

Table 3
Schedule of Focused California Gnatcatcher Surveys

Survey Area	Date	Time	Biologist	Conditions
17	2016-06-30	6:04 AM–12:08 PM	EB	64.3–84.9°F; 0–100% cc; 0.3 to 2.7 mph wind
18	2016-06-21	6:00 AM–11:15 AM	JP	66–84°F; 100% cc; 0–1 to 0–3 mph wind
18	2016-06-28	6:30 AM–11:30 AM	JP	64–92°F; 0% cc; 0-1 to 3–9 mph wind
19	2016-06-29	6:00 AM–11:15 AM	JP	65–94°F; 0% cc; 0–1 to 2–7 mph wind

Notes: AH = Alicia Hill (TE06145B-0); BO = Brock Ortega (TE813545-6); BP = Bonnie Peterson (TE038701-02); EB = Erin Bergman (TE-813545-5); IM = Ian Maunsell (TE-42833A-2); JP = Jeffrey Priest (TE-840619-3); JW = Janice Wondolleck; KM = Kam Muri (TE051250); MB = Melissa Blundell; MO = Monique O'Conner; NK = Nicole Kimball (TE-053598); PL = Paul Lemons (TE-051248-5); MP = Marshall Paymard; SC = Shana Carey; SG = Scott Gressard; SR = Seth Reimers (TE 80703A-0); TC = Travis Cooper (TE170389-5); TL = Thomas Liddicoat (TE139634-2). cc = cloud cover; mph = miles per hour.

RESULTS

Previous presence/absence survey efforts for CAGN occurred within the study area in 1994, 1996, 1997, and 2005. These survey efforts detected several CAGN throughout the study area.

During the 2016 survey, 39 CAGN Use Areas were detected throughout the entire study area. CAGN Use Areas are defined as the specific areas of habitat that each CAGN pair was observed utilizing (i.e., nesting and/or foraging) during the 2016 survey effort. In addition, 42 individual CAGNs were observed during this survey, consisting of 29 juveniles, 7 capped (adult male) CAGN, and 6 non-capped CAGN. Non-capped CAGN were mapped where it could not be determined if the bird was an adult female or juvenile CAGN. All CAGN Use Areas and individual CAGNs observed during the 2016 survey effort are shown on Figures 4a through 4c.

In all, 146 wildlife species were recorded during this survey effort and are included in Appendix A.

Dudek certifies that the information in this survey report and attached exhibits fully and accurately represents the work conducted by the CAGN-permitted biologists who conducted this focused survey. Please feel free to contact Brock Ortega at bortega@dudek.com if you have any questions regarding the contents of this report.

Sincerely,

Paul M. Lemons
Permit #TE051248-4

Brock Ortega
Permit #TE813545-6

Recovery Permit Coordinator

Subject: 2016 Focused California Gnatcatcher Survey Report for the Proposed Fanita Ranch Project, City of Santee, County of San Diego, California

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Antonette Gutierrez
Permit #TE-50992B-0

Diana Saucedo
Permit #TE-811615-6.1

Gretchen Cummings
Permit #TE-031850-4

Monica Alfaro
Permit #TE-051242-3

Att: Figure 1, Regional Map
Figure 2, Vicinity Map
Figure 3a–3c, CAGN Survey Routes
Figure 4a–4c, CAGN Survey Results
Appendix A, Wildlife Species Observed during the 2016 Fanita California Gnatcatcher Survey

cc: Paul Lemons, Dudek

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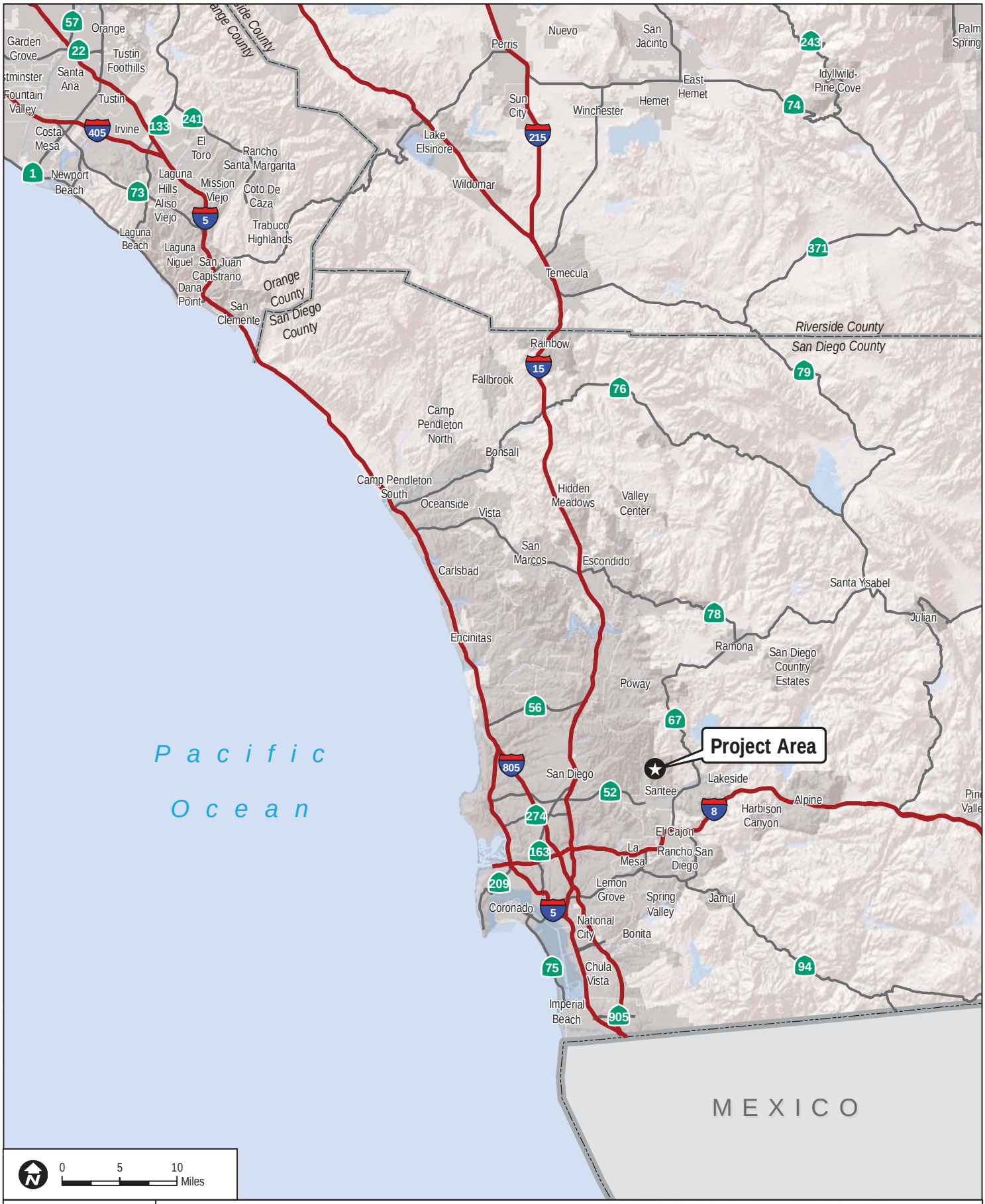
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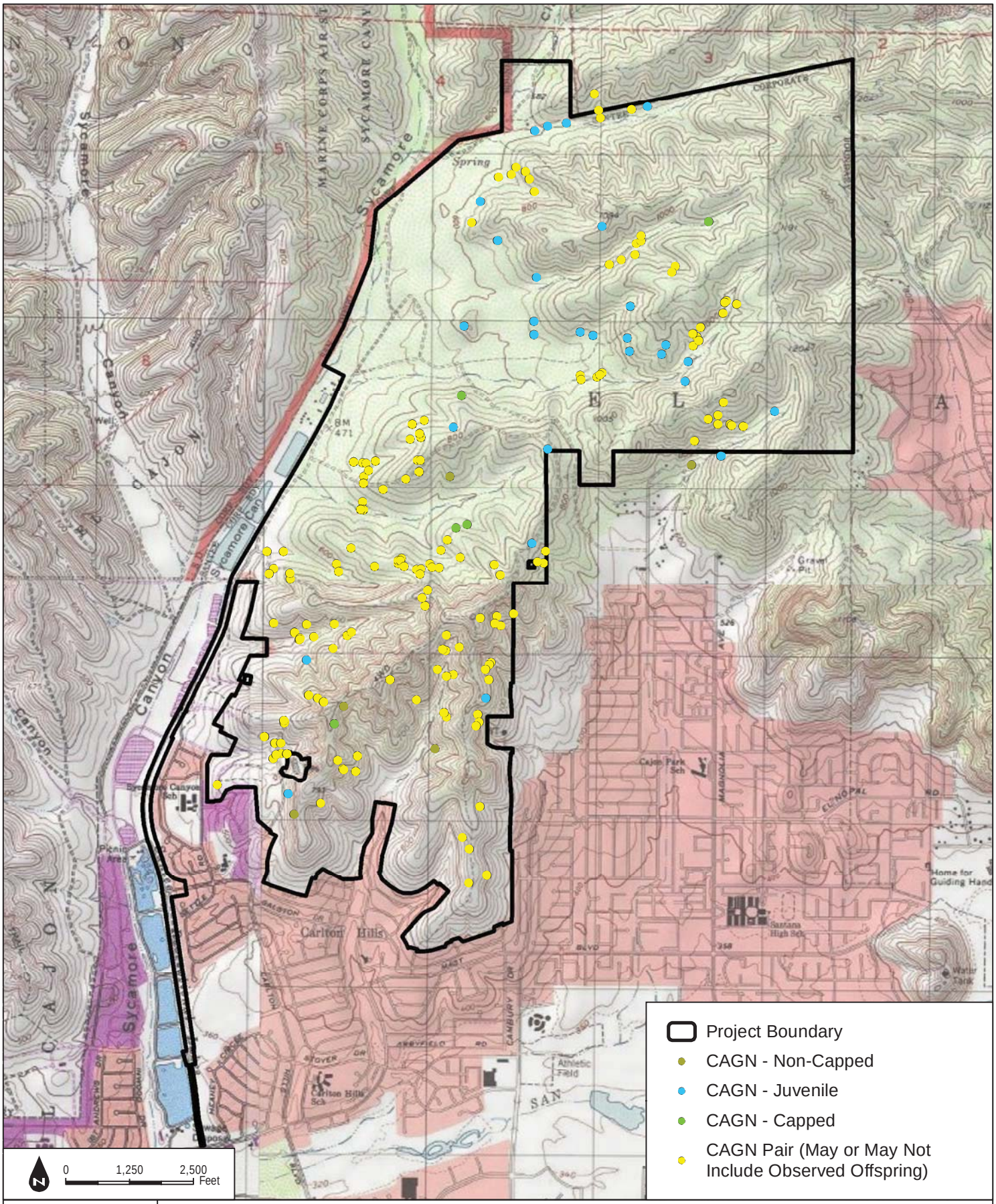
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FIGURE 1

Regional Map



SOURCE: USGS 7.5-Minute Series Jamul Mountains Quadrangle; Hunsaker 2015

FIGURE 2

Vicinity Map

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SOURCE: BING 2016

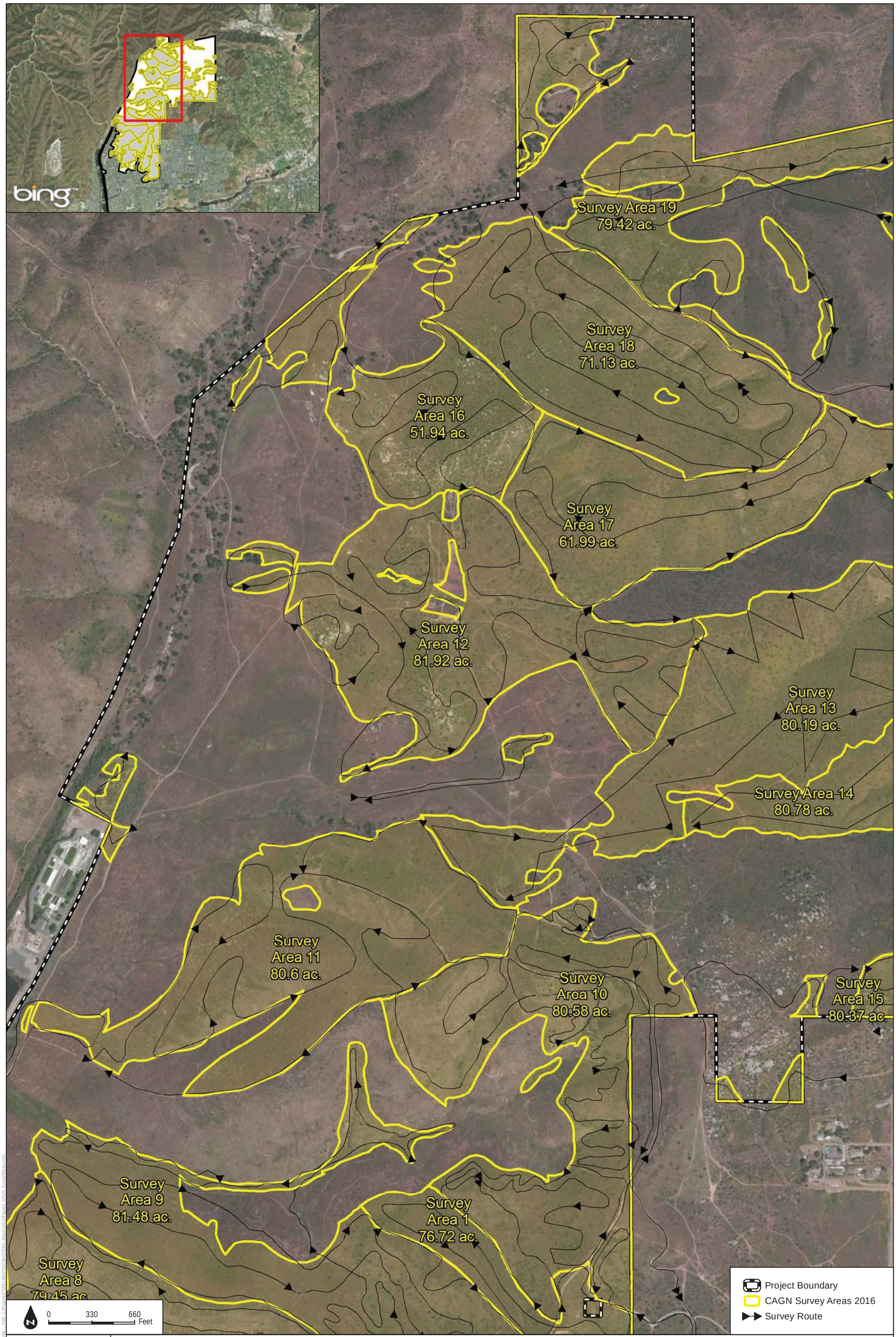
FIGURE 3a

CAGN Survey Routes

2016 Focused California Gnatcatcher Survey Report for the Proposed Fanita Ranch Project, City of Santee, County of San Diego, California

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SOURCE: BING 2016

FIGURE 3b

CAGN Survey Routes

2016 Focused California Gnatcatcher Survey Report for the Proposed Fanita Ranch Project, City of Santee, County of San Diego, California

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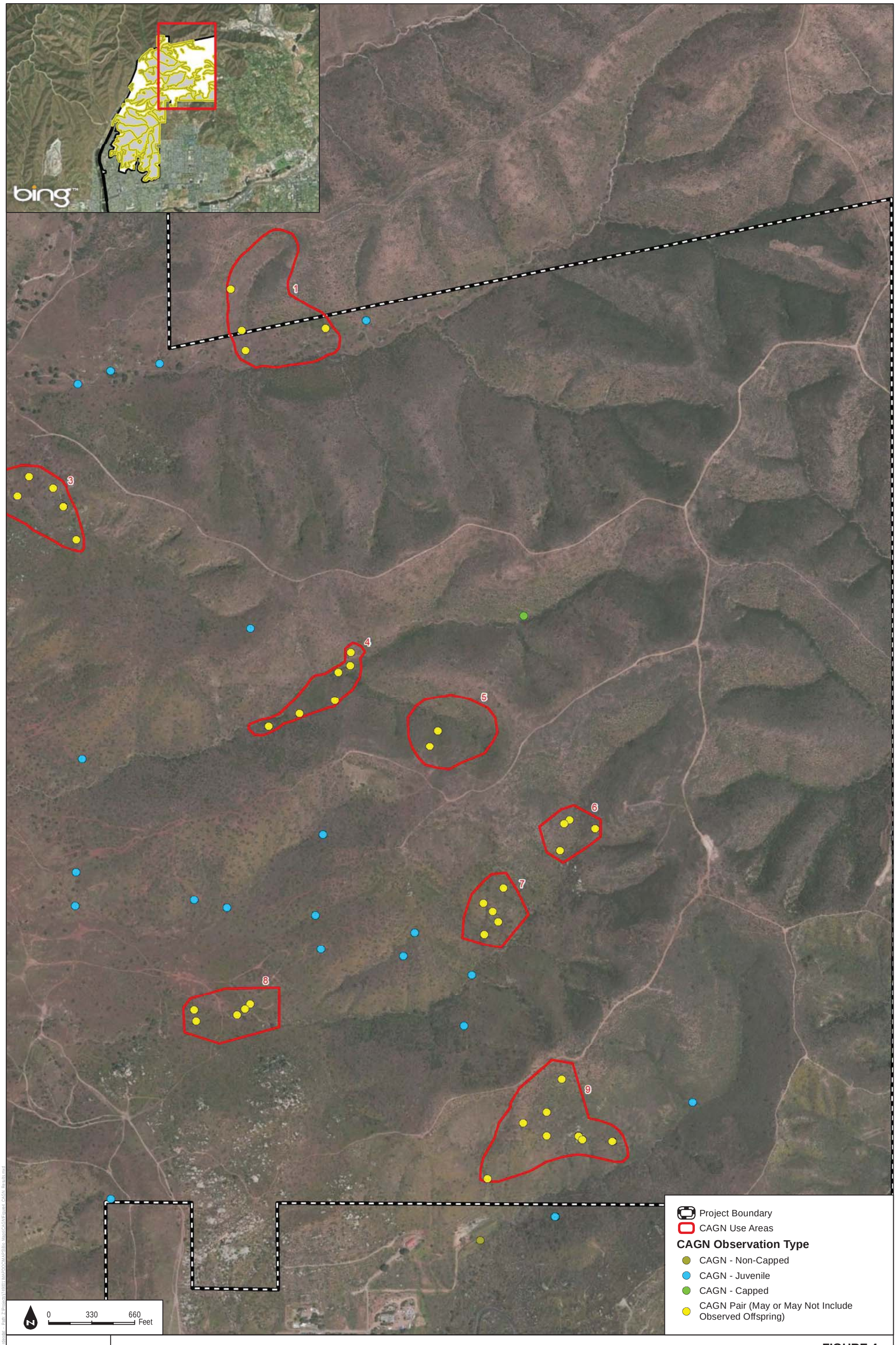
FIGURE 3c

CAGN Survey Routes

2016 Focused California Gnatcatcher Survey Report for the Proposed Fanita Ranch Project, City of Santee, County of San Diego, California

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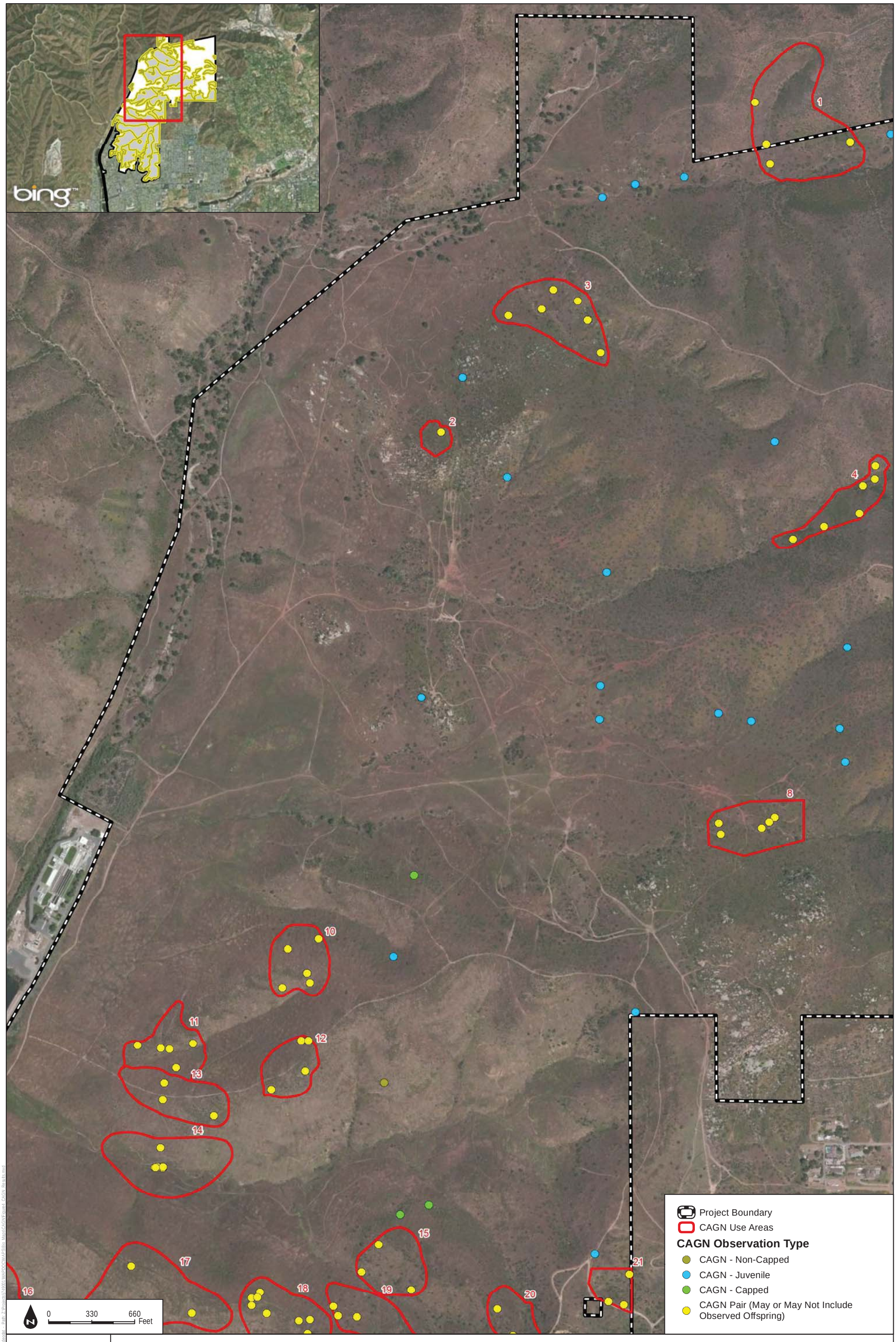
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FIGURE 4a

CAGN Survey Results

2016 Focused California Gnatcatcher Survey Report for the Proposed Fanita Ranch Project, City of Santee, County of San Diego, California

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SOURCE: BING 2016

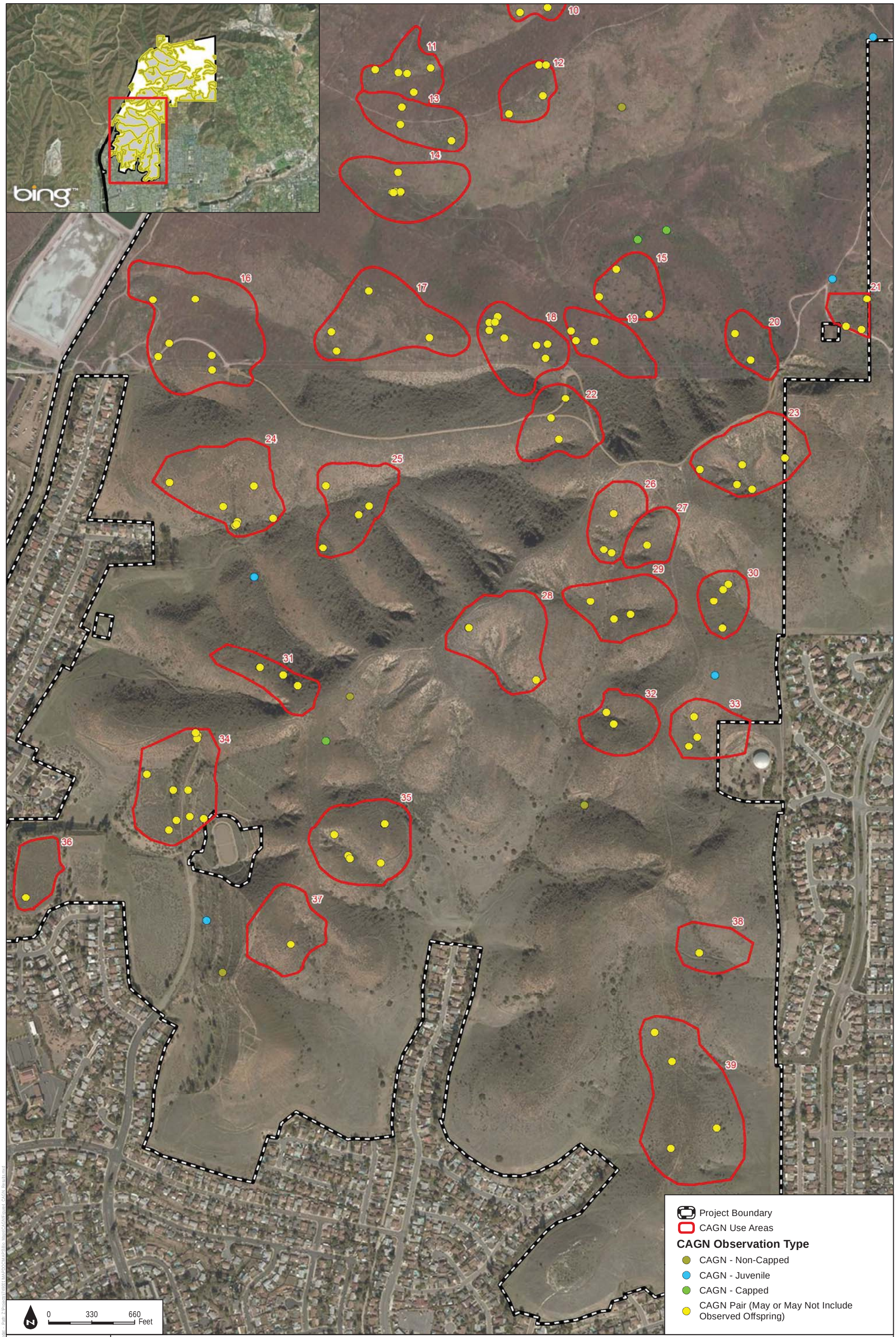
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FIGURE 4b

CAGN Survey Results

2016 Focused California Gnatcatcher Survey Report for the Proposed Fanita Ranch Project, City of Santee, County of San Diego, California

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SOURCE: BING 2016

FIGURE 4c

CAGN Survey Results

2016 Focused California Gnatcatcher Survey Report for the Proposed Fanita Ranch Project, City of Santee, County of San Diego, California

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APPENDIX A

Wildlife Species Observed during the 2016 Fanita California Gnatcatcher Survey

APPENDIX A
Wildlife Species Observed during the 2016 Fanita California Gnatcatcher Survey

BIRDS

BLACKBIRDS, ORIOLES, AND ALLIES

ICTERIDAE—BLACKBIRDS

Agelaius phoeniceus—red-winged blackbird
Icterus bullockii—Bullock's oriole
Quiscalus mexicanus—great-tailed grackle
Sturnella neglecta—western meadowlark
Icterus cucullatus—hooded oriole

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

CARDINALS, GROSBEAKS, AND ALLIES

CARDINALIDAE—CARDINALS AND ALLIES

Passerina amoena—Lazuli bunting
Piranga ludoviciana—western tanager
Passerina caerulea—blue grosbeak
Pheucticus melanocephalus—black-headed grosbeak

CORMORANTS

PHALACROCORACIDAE—CORMORANTS

Phalacrocorax auritus—double-crested cormorant

EMBERIZINES

EMBERIZIDAE—EMBERIZIDS

Ammodramus savannarum—grasshopper sparrow
Chondestes grammacus—lark sparrow
Melospiza melodia—song sparrow
Melozone crissalis—California towhee
Pipilo maculatus—spotted towhee
Spizella atrogularis—black-chinned sparrow
Zonotrichia leucophrys—white-crowned sparrow

Aimophila ruficeps canescens—Southern California rufous-crowned sparrow
Artemisiospiza belli—Bell's sparrow
Aimophila ruficeps—rufous-crowned sparrow

FALCONS

FALCONIDAE—CARACARAS AND FALCONS
Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES
Spinus psaltria—lesser goldfinch
Spinus tristis—American goldfinch
Haemorhous mexicanus—house finch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS
Contopus sordidulus—western wood-pewee
Myiarchus cinerascens—ash-throated flycatcher
Sayornis nigricans—black phoebe
Sayornis saya—Say's phoebe
Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin's kingbird

GOATSUCKERS

CAPRIMULGIDAE—GOATSUCKERS
Chordeiles acutipennis—lesser nighthawk

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES
Accipiter cooperii—Cooper's hawk
Buteo jamaicensis—red-tailed hawk
Buteo lineatus—red-shouldered hawk
Pandion haliaetus—osprey

HERONS AND BITTERNS

ARDEIDAE—HERONS, BITTERNS, AND ALLIES

Ardea alba—great egret
Butorides virescens—green heron
Egretta thula—snowy egret

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird
Calypte costae—Costa's hummingbird
Selasphorus rufus—rufous hummingbird
Selasphorus sasin—Allen's hummingbird

JAYS, MAGPIES, AND CROWS

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—western scrub-jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird
Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

NEW WORLD VULTURES

CATHARTIDAE—CARDINALS AND ALLIES

Cathartes aura—turkey vulture

OLD WORLD SPARROWS

PASSERIDAE—OLD WORLD SPARROWS

* *Passer domesticus*—house sparrow

OLD WORLD WARBLERS AND GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Polioptila caerulea—blue-gray gnatcatcher

Polioptila californica californica—coastal California gnatcatcher

OWLS

TYTONIDAE—BARN OWLS

Tyto alba—barn owl

STRIGIDAE—TYPICAL OWLS

Bubo virginianus—great horned owl

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

* *Columba livia*—rock pigeon (rock dove)

* *Streptopelia decaocto*—Eurasian collared-dove

RAILS, GALLINULES, AND COOTS

RALLIDAE—RAILS, GALLINULES, AND COOTS

Fulica americana—American coot

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

SHOREBIRDS

CHARADRIIDAE—LAPWINGS AND PLOVERS

Charadrius vociferus—killdeer

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

STARLINGS AND ALLIES

STURNIDAE—STARLINGS

* *Sturnus vulgaris*—European starling

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Hirundo rustica—barn swallow
Petrochelidon pyrrhonota—cliff swallow
Stelgidopteryx serripennis—northern rough-winged swallow
Tachycineta bicolor—tree swallow

SWIFTS

APODIDAE—SWIFTS

*Aeronautes sa*xatalis—white-throated swift

TERNS AND GULLS

LARIDAE—GULLS, TERNS, AND SKIMMERS

Sterna forsteri—Forster's tern
Hydroprogne caspia—Caspian tern

THRUSHES

TURDIDAE—THRUSHES

Sialia mexicana—western bluebird
Turdus migratorius—American robin

TITMICE

PARIDAE—CHICKADEES AND TITMICE

Baeolophus inornatus—oak titmouse

VIREOS

VIREONIDAE—VIREOS

Vireo bellii pusillus—least Bell's vireo
Vireo gilvus—warbling vireo

WATERFOWL

ANATIDAE—DUCKS, GEESE, AND SWANS

Anas platyrhynchos—mallard
Branta canadensis—Canada goose
Oxyura jamaicensis—ruddy duck

WOOD WARBLERS AND ALLIES

PARULIDAE—WOOD-WARBLERS

Geothlypis trichas—common yellowthroat
Oreothlypis celata—orange-crowned warbler
Cardellina pusilla—Wilson's warbler
Setophaga petechia—yellow warbler

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Melanerpes formicivorus—Acorn woodpecker
Picoides nuttallii—Nuttall's woodpecker
Picoides pubescens—downy woodpecker
Colaptes auratus—northern flicker

WRENS

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren
Troglodytes aedon—house wren
Campylorhynchus brunneicapillus—cactus wren

INVERTEBRATES

BUTTERFLIES

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Euphilotes battoides bernardino—Bernardino square-spotted blue
Glaucopsyche lygdamus australis—southern blue
Hemiargus ceraunus gyas—Edward's blue
Leptotes marina—marine blue
Plebejus acmon—Acmon blue
Strymon melinus—gray hairstreak
Brephidium exile—western pygmy-blue

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Chlosyne gabbii—Gabb's checkerspot
Danaus gilippus—queen
Junonia coenia—common buckeye
Nymphalis antiopa—mourning cloak
Phyciodes mylitta—Mylitta crescent
Speyeria callippe comstocki—Comstock's fritillary
Vanessa annabella—west coast lady
Vanessa cardui—painted lady
Danaus plexippus—monarch

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

HESPERIIDAE—SKIPPERS

Erynnis funeralis—funereal duskywing
Pyrgus albescens—white checkered-skipper

PAPILIONIDAE—SWALLOWTAILS

Papilio eurymedon—pale swallowtail
Papilio rutulus—western tiger swallowtail
Papilio zelicaon—anise swallowtail

PIERIDAE—WHITES AND SULFURS

Anthocharis sara sara—Pacific sara orangetip
Colias eurydice—California dogface
Phoebis sennae—cloudless sulphur
Pieris rapae—cabbage white
Pontia protodice—checkered white
Pontia sisymbrii—spring white

TARANTULA HAWKS

POMPILIDAE—SPIDER WASPS

Pepsis sp.—Tarantula hawk

MAMMALS

CANIDS

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Lepus californicus bennettii—San Diego black-tailed jackrabbit
Sylvilagus audubonii—desert cottontail
Sylvilagus bachmani—brush rabbit
Lepus californicus—black-tailed jackrabbit

KANGAROO RATS

HETEROMYIDAE—POCKET MICE AND KANGAROO RATS

*Dipodomy*s sp.—kangaroo rat

POCKET GOPHERS

GEOMYIDAE—POCKET GOPHERS

Thomomys bottae—Botta's pocket gopher

RACCOONS

PROCYONIDAE—RACCOONS AND RELATIVES

Procyon lotor—raccoon

RATS AND MICE

MURIDAE—RATS AND MICE

Peromyscus eremicus—cactus deermouse

SQUIRRELS

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

REPTILES

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Phrynosoma blainvillii—Blainville's horned lizard
Sceloporus occidentalis—western fence lizard
Sceloporus orcutti—granite spiny lizard
Uta stanburiana—common side-blotched lizard

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis hyperythra beldingi—Belding's orange-throated whiptail
Aspidoscelis tigris—tiger whiptail
Aspidoscelis tigris stejnegeri—San Diegan tiger whiptail

SNAKES

COLUBRIDAE—COLUBRID SNAKES

Pituophis catenifer—gophersnake
Lampropeltis californiae—California kingsnake
Rhinocheilus lecontei—long-nosed snake

VIPERIDAE—VIPERS

Crotalus atrox—western diamond-backed rattlesnake
Crotalus oreganus—western rattlesnake
Crotalus ruber—red diamondback rattlesnake

TURTLES

EMYDIDAE—BOX AND WATER TURTLES

* *Trachemys scripta*—pond slider

* signifies introduced (non-native) species

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APPENDIX F

2016 Focused Least Bell's Vireo/ Southwestern Willow Flycatcher Survey Report

DUDEK

MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 T 800.450.1818 F 760.632.0164

September 7, 2016 7490

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: ***2016 Least Bell's Vireo and Southwestern Willow Flycatcher Focused Survey Results for the Fanita Ranch Project, City of Santee, County of San Diego, California***

Dear Recovery Permit Coordinator:

This report documents the results of eight protocol-level presence/absence surveys for the state- and federally listed endangered least Bell's Vireo (*Vireo bellii pusillus*; vireo) and the state- and federally listed endangered southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher). These focused surveys were conducted within approximately 36.5 acres of suitable habitat within Fanita Ranch project (Fanita), located in the City of Santee, California. The surveys were conducted in all areas of suitable vireo and flycatcher habitat located within the proposed project footprint (study area).

The vireo and flycatcher are closely associated with riparian habitats, especially densely vegetated willow scrub and riparian forest vegetation. These species are threatened primarily by loss, degradation, and fragmentation of riparian habitats. They also are impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism.

LOCATION AND EXISTING CONDITIONS

Fanita, including the alignment of Fanita Parkway south to Carlton Oaks Boulevard, the Cuyamaca Street extension, and the disjunct ownership along the western boundary of Santee Lakes, is situated in the northwestern portion of the City of Santee in western San Diego County, California (Figure 1). The site is bordered by the Sycamore Canyon County Park and other protected open space to the north and east, by residential development to the south and east, and by vacant land on MCAS Miramar to the west. The property lies approximately 3 miles northeast of State Route 52. The site occupies portions of Township 15 South, Range 1 West, projected Sections 2, 3, 4, 8, 9, 10, 16, 17, 20, and 21 on the San Vicente Reservoir, El Cajon, La Mesa, and Poway West U.S. Geological Survey 7.5 minute quadrangle maps (Figure 2).

Elevations range from about 320 feet above mean sea level in the southern end of Fanita Parkway to approximately 1,204-foot above mean sea level peaks in the northeastern corner of the site. The project site contains a series of northeast- to southwest-trending hills and valleys that form a transition between the relatively low, flat Sycamore Canyon on the western end of the site and the foothills of the Peninsular Range to the east. Numerous large rock outcrops also are present on site, particularly in the northern and northeastern portions of the property.

Soils on site consist of Redding series; Wyman loam; sandy loams soils of the Cieneba series, Las Posas series, Las Flores loamy fine sand, and Visalia gravelly sandy loam; clay-loam soil series including Linne clay loam and Salinas clay loam; Diablo-Olivenhain complex; and Bosanko clay (Bowman 1973).

VEGETATION COMMUNITIES

Vegetation communities in the study area suitable for vireo and flycatcher total approximately 36.5-acres and include: disturbed wetland, mulefat scrub, southern willow scrub, coast live oak riparian forest, freshwater marsh, disturbed freshwater marsh, and sycamore alluvial woodland (Figure 3). Suitable riparian vegetation communities and their acreages are listed in Table 1 and shown on Figure 3.

Table 1
Vegetation Communities and Land Cover Types on the Fanita Ranch Project Site

Vegetation Community/Land Cover	Acres
Coast Live Oak Riparian Forest	17.6
Disturbed Wetlands	0.08
Freshwater Marsh	0.16
Mulefat Scrub	0.5
Southern Willow Scrub	1.63
Sycamore Alluvial Woodland	16.5
Grand Total*	**36.5**

Note:
* Numbers do not sum precisely due to rounding.

Disturbed Wetland

Disturbed wetlands are areas permanently or periodically inundated by water that have been substantially modified by human activity. Disturbed wetland is often unvegetated, but may include some scattered native or non-native vegetation. Some characteristic non-native species

that may be associated with disturbed wetlands include giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.), eucalyptus (*Eucalyptus* spp.), palms (*Phoenix* spp., *Washingtonia* spp.), pampas grass (*Cortaderia* spp.), and Bermuda grass (*Cynodon dactylon*).

Native wetland species, such as willows and cattails (*Typha* spp.), also may be present at low cover. Disturbed wetlands include portions of wetlands with obvious artificial structures, such as concrete lining, barricades, rip-rap, piers, or gates. Therefore, lined channels, Arizona crossings, detention basins, culverts, and ditches would be considered disturbed wetlands. Disturbed wetlands occur throughout San Diego County (Oberbauer et al., 2008).

Disturbed wetlands (0.08 acres) dominated by non-native species occur in one area on the southern end of the drainage on the northwestern edge of the project site.

Freshwater Marsh

Freshwater marshes are typically dominated by perennial, emergent monocots to 13 to 16 feet tall often forming completely closed canopies. Characteristic species include species such as sedges (Carex spp.), flatsedges (Cyperus spp.), bulrush (Scirpus spp.), cattail (Typha spp.), and rushes (Juncus spp.). Within the project Site, there is one small area (0.16 acres) mapped east of Sycamore Canyon Road.

Coast Live Oak Riparian Forest

Coast live oak riparian forest is an open to locally dense evergreen riparian woodland dominated by coast live oak. Characteristic species of this vegetation community include mugwort (*Artemisia douglasiana*), coast live oak, California blackberry (*Rubus ursinus*), California laurel (*Umbellularia californica*), and hoary nettle (*Urtica dioica* ssp. *holosericea*). The shrub layer is poorly developed but may contain native shrubs such as toyon (Heteromeles arbutifolia), laurel sumac (Malosma laurina), and Mexican elderberry. A continuous herb layer dominated by non-native grasses and herbs is typically present. This community occurs on fine-grained, rich alluvium on bottomlands and outer floodplains along larger streams.

Coast live oak riparian forest is the dominate vegetation community in the study area (17.6 acres) and occurs along the drainage and the northern edge of the project site.

Mulefat Scrub

Mulefat scrub is an herbaceous riparian scrub dominated by mulefat that occurs along intermittent stream channels with generally coarse substrate and a moderate depth to the water table (Holland, 1986). Frequent flooding and/or scouring apparently maintain this community in an early successional state. Characteristic plant species in this community include mulefat, willows, and giant stinging nettle (*Urtica holosericea*).

Mulefat scrub (0.5 acre) in the study area occurs in one small area within the drainage and one area east of Sycamore Canyon Road.

Southern Willow Scrub

According to Holland (1986), southern willow scrub is a dense, broad-leafed, winter-deciduous riparian thicket dominated by several species of willow, with scattered emergent Fremont cottonwood and California sycamore. Most stands are too dense to allow much understory development. This vegetation community is considered seral (i.e., intermediate or temporary) due to repeated disturbance and flooding and is, therefore, unable to develop into the taller southern cottonwood willow riparian forest.

Southern willow scrub (1.63 acres) occurs in one small area on the southern end of the drainage and one area on the southern portion of the study area.

Sycamore Alluvial Woodland

Sycamore alluvial woodland is a winter-deciduous, broad-leaved riparian woodland, dominated by well-spaced western sycamore with occasional Mexican elderberry in the subcanopy. The understory usually is comprised of introduced grasses or mulefat. This community occurs in braided channels of intermittent streams that may be subject to violent flooding. Sycamores may respond to flood damage or uprooting by vegetative reproduction, giving a clumped appearance to the woodland (Holland 1986).

Most of the 16.5 acres of sycamore alluvial woodland on site occurs along the drainage on the western edge of the project site, and within an additional drainage east of Sycamore Canyon Road. Sycamore and oaks are an important component, along with deergrass, mulefat, wild rye (*Leymus glaucus*), yerba mansa, Mexican rush, and western poison-oak. Although this vegetation type at Fanita Ranch does not precisely agree with Holland's description of sycamore alluvial woodland, it is closer to this community than any other Holland category.

METHODS

Suitable habitat areas within the study area were surveyed eight times for vireo and five times for flycatcher (Table 2). Permitted Dudek wildlife biologist Brock Ortega (BO; Recovery Permit # TE813545-6) conducted all combined flycatcher/vireo surveys with assistance from Dudek biologist Madison Ortega (MO), while qualified Dudek biologists Patricia Schulyer (PS), Callie Ford (CF), and Janice Wondolleck (JW) conducted vireo surveys. Focused surveys for these species were initiated on April 20, 2016, and continued through July 7, 2016.

As directed by Stacey Love, the United States Fish & Wildlife Service (USFWS) Recovery Permit Coordinator, surveys for vireo and flycatcher were not conducted concurrently. Due to differences in detectability, surveys were conducted sequentially, with surveys for the flycatcher first (i.e., first thing in the morning) and surveys for the vireo conducted afterwards. Additionally, for linear survey routes within a riparian corridor: flycatchers were surveyed from the starting point to the end, and vireos were surveyed on the way back

Areas surveyed in 2016 included suitable habitat within the northeastern portion of the Fanita (Figure 3).

Table 2. Survey Conditions

Survey Pass	Date	Hours	Personnel	Focus	Conditions
1-LBVI	2016-04-20	7:00 AM–10:47 AM	PS	LBVI	60–84°F; 0% cc; 0-1 to 1-2 mph wind
2-LBVI	2016-05-02	6:57 AM–10:43 AM	CF, JW	LBVI	52–72°F; 0%–10% cc; 0 mph wind
3-LBVI	2016-05-12	6:36 AM–11:30 AM	CF	LBVI	64–76°F; 0%–100% cc; 0-0.5 mph wind
4-LBVI 1-WIFL	2016-05-23	NR–9:34 AM	BO, MO	LBVI/SWFL	NR–64°F; NR–90% cc; 0-1 mph wind
5-LBVI 2-WIFL	2016-06-01	6:20 AM–10:39 AM	BO	LBVI/SWFL	64–67°F; 100% cc; 0 mph wind
6-LBVI 3-WIFL	2016-06-13	5:27 AM–10:23 AM	BO	LBVI/SWFL	60–65°F; 60%–100% cc; 0-1 mph wind
7-LBVI 4-WIFL	2016-06-27	5:44 AM–11:00 AM	BO	LBVI/SWFL	63–75°F; 30%–100% cc; 0-3 mph wind
8-LBVI 5-WIFL	2016-07-07	5:36 AM–10:00 AM	BO	LBVI/SWFL	64–81°F; 0%–100% cc; 0-3 mph wind

Notes: LBVI = least Bell's vireo; SWFL = southwestern willow flycatcher; BO = Brock Ortega; CF = Callie Ford; JW = Janice Wondolleck; MO = Madison Ortega; PS = Patricia Schulyer; °F = Fahrenheit; cc = cloud cover; mph = miles per hour.

Surveys for flycatcher were conducted concurrently with the vireo surveys. All surveys consisted of slowly walking a methodical, meandering transect within and adjacent to all riparian habitat on site. The perimeter also was surveyed. This route was arranged to cover all suitable habitat on site (depicted on Figures 4). A vegetation map (1:2,400 scale; 1 inch=200 feet) of the project site was available to record any detected vireo or flycatcher. Binoculars (7×50, 10×42, 10×50) were used to aid in detecting and identifying wildlife species.

The five surveys conducted for flycatcher followed the currently accepted protocol (*A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher* [Sogge et al. 2010]), which states that a minimum of five survey visits is needed to evaluate project effects on flycatchers. The protocol recommends one survey between May 15 and 31, two surveys between June 1 and June 24, and two surveys between June 25 and July 17. Consistent with the protocol, surveys during the final period (June 25 and July 17) were separated by at least five days. A tape of recorded flycatcher vocalizations was used, approximately every 50 to 100 feet within suitable habitat, to induce flycatcher responses. If flycatcher were detected, tape playback ceased immediately to avoid harassment.

A Section 10(a)(1)(A) permit is not required to conduct presence/absence surveys for vireo. The eight surveys for vireo followed the currently accepted *Least Bell's Vireo Survey Guidelines* (USFWS, 2001), which states that a minimum of eight survey visits should be made to all riparian areas and any other potential vireo habitats between April 10 and July 31. The site visits are required to be conducted at least 10 days apart to maximize the detection of early and late arrivals, females, non-vocal birds, and nesting pairs. Taped playback of vireo vocalizations was not used during the surveys. Surveys were conducted between dawn and noon and were not conducted during periods of excessive or abnormal cold, heat, wind, rain, or other inclement weather.

Weather conditions, time of day, and season were appropriate for the detection of flycatcher and vireo (Table 2).

RESULTS

Least Bell's vireo and willow flycatchers (*Empidonax traillii*) were observed during the 2016 survey effort. A single least Bell's vireo nesting pair was observed in one canyon outside of the survey area during focused surveys for California gnatcatcher. This canyon was comprised of mixed chaparral and sage scrub. Shortly after discovery, the pair appeared to disband, but the male stayed in the canyon for much of the season, singing up and down the canyon, but never

venturing into the actual survey areas one willow flycatcher was observed on May 23, 2017. It was not observed during subsequent visits. In accordance with the protocol, this individual is assumed to be a migrant. Vireo and flycatcher detection information is depicted on Figure 4.

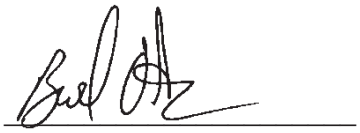
Other special-status species observed included coastal California gnatcatcher (*Polioptila californica californica*), a federally listed threatened species; yellow-breasted chat (*Icteria virens*), a California Department of Fish and Wildlife (CDFW) Species of Special Concern (SSC); song sparrow (*Melospiza melodia*), a CDFW SSC; grasshopper sparrow (*Ammodramus savannarum*), a CDFW SSC; and an olive-sided flycatcher (*Contopus cooperi*), a CDFW SSC (Appendix A).

A full list of 64 wildlife species observed during the surveys is provided in Appendix A. The willow flycatcher survey and detection form is included as Appendix B.

Please feel free to contact Brock Ortega, bortega@dudek.com with questions or if you require additional information.

I certify that the information in this survey report and attached exhibits fully and accurately represent our work.

Sincerely,



Brock Ortega
Principal Biologist

Att: Figures 1–4
Appendices A–B

REFERENCES

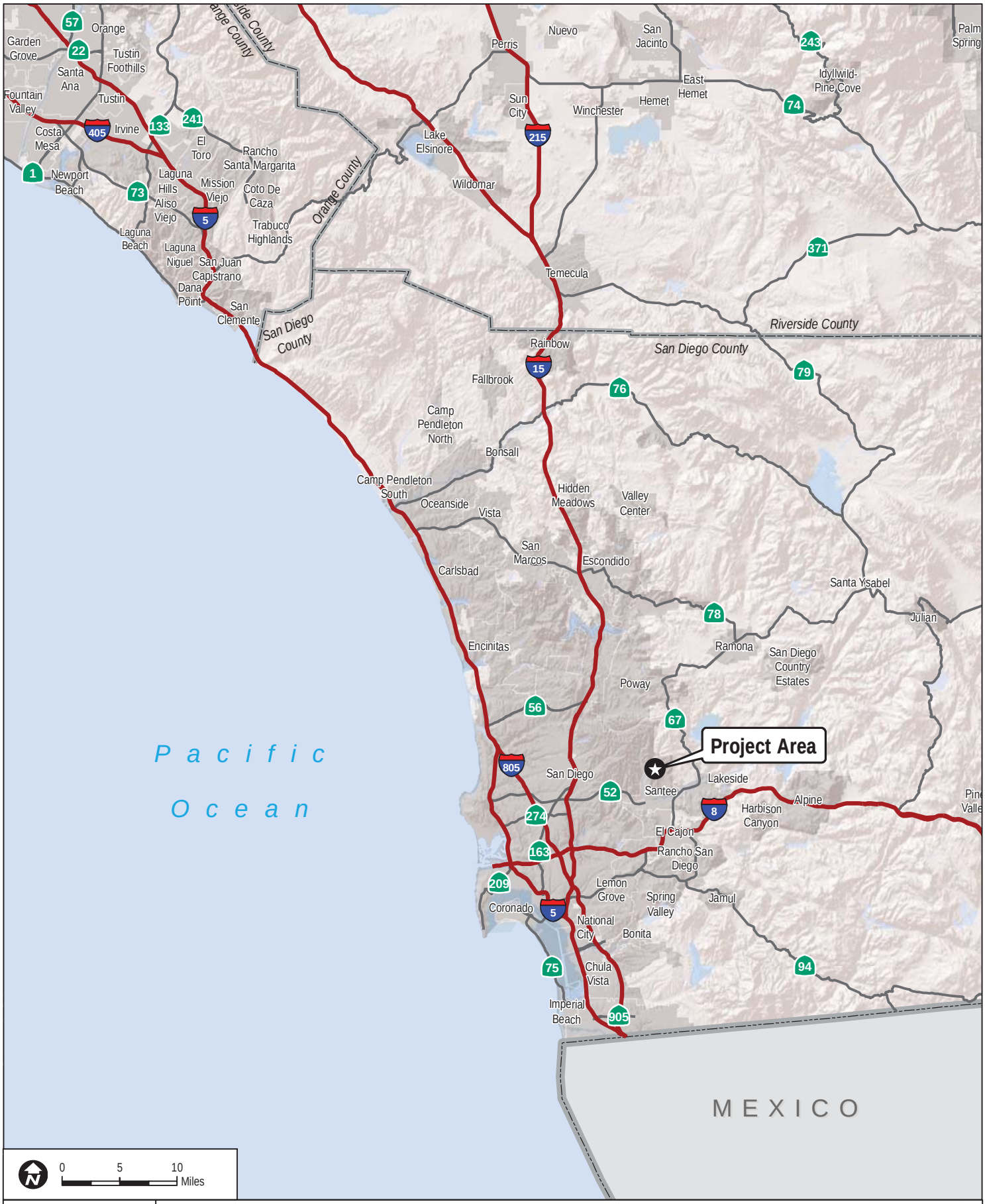
Holland, R.F. 1986. *Preliminary descriptions of the terrestrial natural communities of California. Nongame-Heritage Program, California Department of Fish and Game.*

SANGIS. 2006. *Vegetation Information in the San Diego Region*. Shapefile. Maintained by San Diego County Department of Planning and Land Use and updated from 1995 using aerial imagery and georeferenced bio-maps.

Sogge, M.K., Ahlers, Darrell, and Sferra, S.J., 2010. *A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher*. U.S. Geological Survey Techniques and Methods 2A-10, 38 p.

USFWS (U.S. Fish and Wildlife Service). 2000. *Southwestern Willow Flycatcher Protocol Revision 2000.* July 11.

USFWS. 2001. *Least Bell's Vireo Survey Guidelines.* January 19.

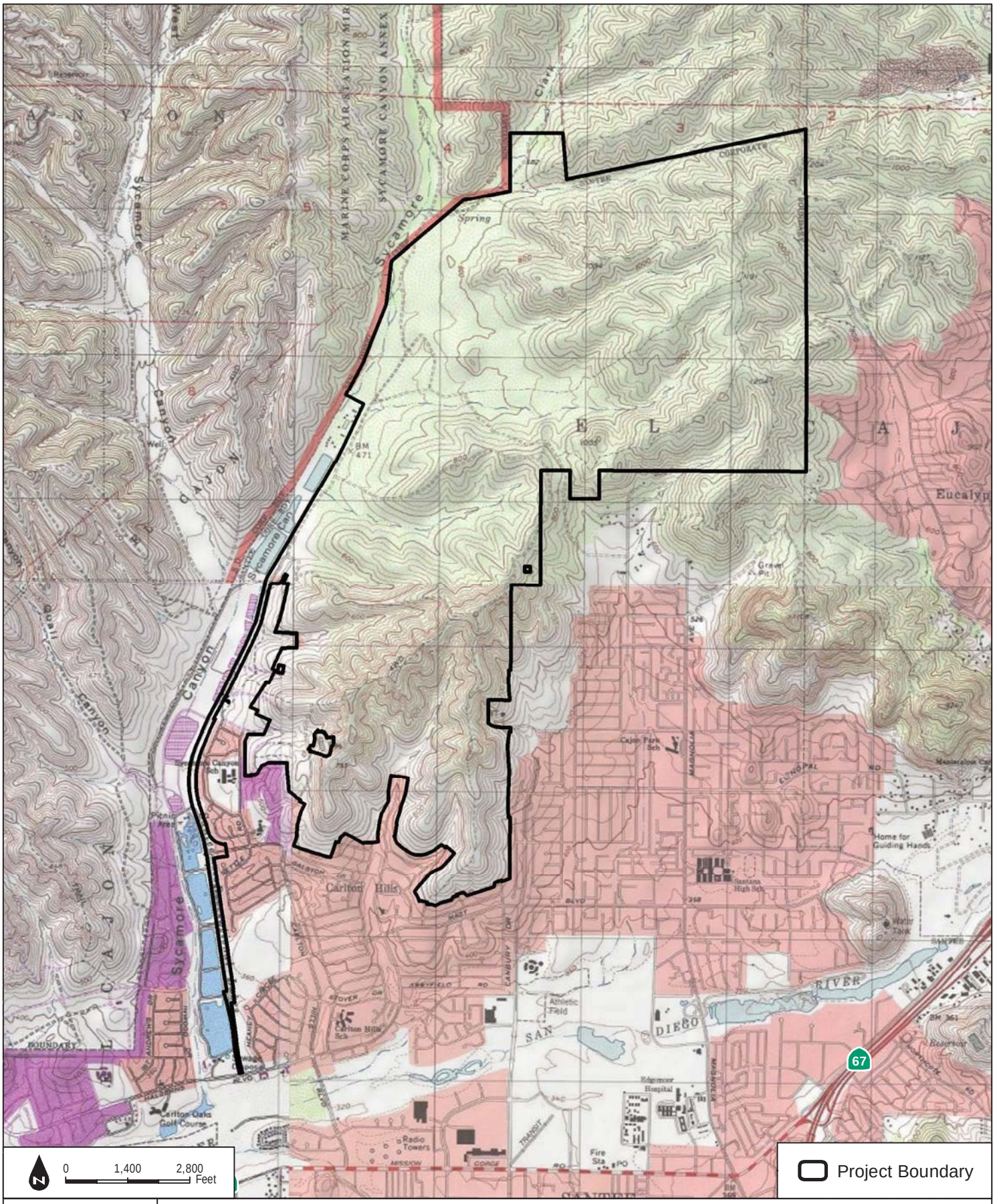


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FIGURE 1

Regional Map

LBVI/SWFL Survey, Fanita Ranch Project, Santee, California



SOURCE: USGS 7.5-Minute Series Jamul Mountains Quadrangle; Hunsaker 2015

FIGURE 2

Vicinity Map

DUDEK

LBVI/SWFL Survey, Fanita Ranch Project, Santee, California



SOURCE: BING 2016

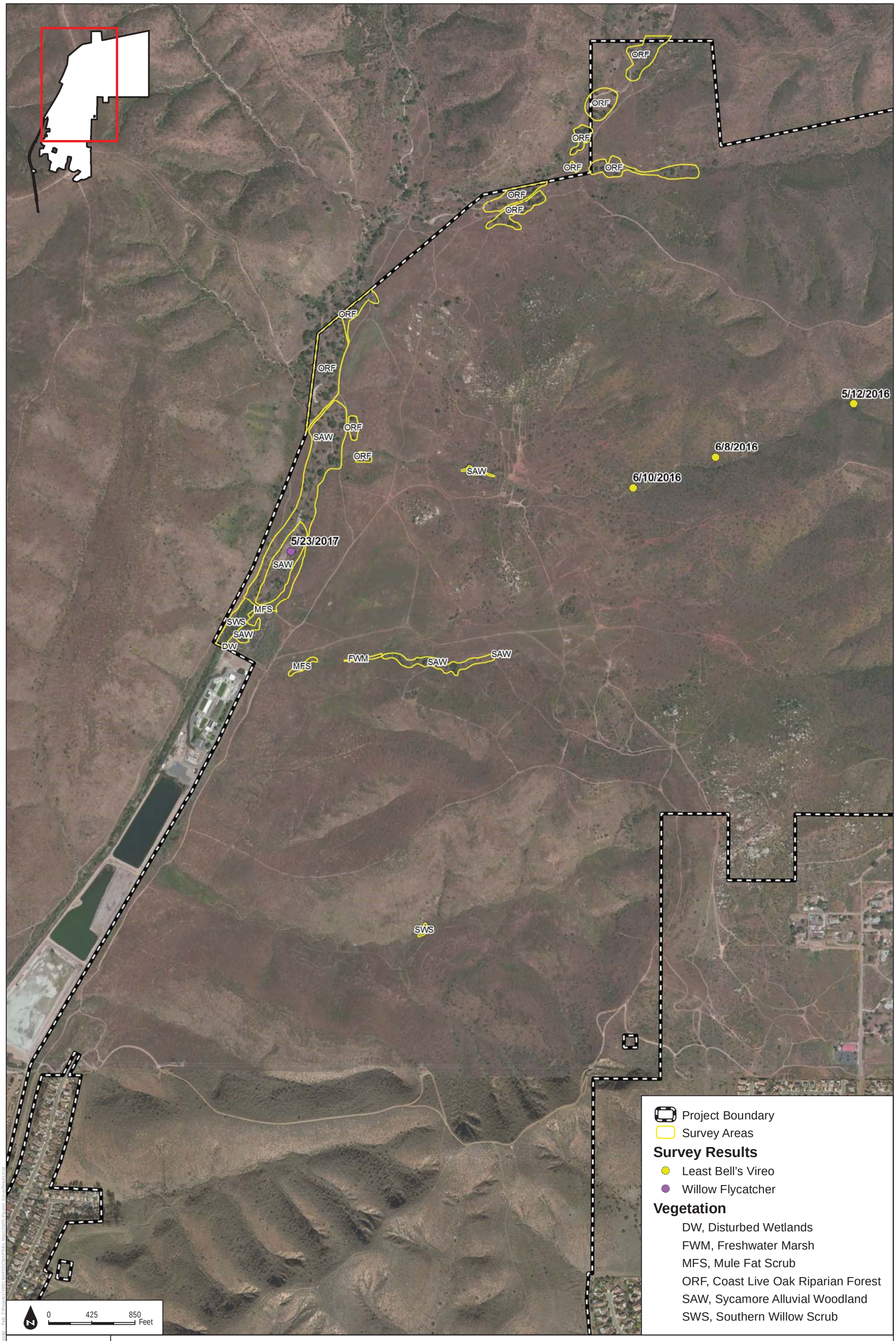
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FIGURE 3

Vegetation Communities and Survey Areas

LBVI/SWFL Survey, Fanita Ranch Project, Santee, California

Date: 4/14/2017 - Last saved by rdeadm - Path: J:\Projects\17\4001\MAPDOC\MAPS\Bio_Maps\SWFL\Figure3_Vegetation.mxd



SOURCE: BING 2016

DUDEK

FIGURE 4

LBVI/WIFL Locaitons

LBVI/SWFL Survey, Fanita Ranch Project, Santee, California

Date: 4/14/2017 - Last saved by: mfowler - Path: Z:\Projects\Y\16001\MAPPING\MAPS\Biv Mtrix\SWFL\Figure4_SurveyResults.mxd

APPENDIX A

Wildlife Species Observed in Survey Area

APPENDIX A
Wildlife Species Observed in Study Area

BIRD

BLACKBIRDS, ORIOLES AND ALLIES

ICTERIDAE—BLACKBIRDS

* *Molothrus ater*—brown-headed cowbird
Icterus cucullatus—hooded oriole

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

CARDINALS, GROSBEAKS AND ALLIES

CARDINALIDAE—CARDINALS AND ALLIES

Passerina caerulea—blue grosbeak

EMBERIZINES

EMBERIZIDAE—EMBERIZIDS

Ammodramus savannarum—grasshopper sparrow
Chondestes grammacus—lark sparrow
Melospiza melodia—song sparrow
Melozone crissalis—California towhee
Pipilo maculatus—spotted towhee
Aimophila ruficeps—rufous-crowned sparrow

FALCONS

FALCONIDAE—CARACARAS AND FALCONS

Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Spinus psaltria—lesser goldfinch
Haemorhous mexicanus—house finch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Contopus cooperi—olive-sided flycatcher
Myiarchus cinerascens—ash-throated flycatcher
Sayornis nigricans—black phoebe
Tyrannus vociferans—Cassin's kingbird
Empidonax traillii—willow flycatcher
Empidonax hammondii—Hammond's flycatcher

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis—red-tailed hawk

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

JAYS, MAGPIES AND CROWS

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—western scrub-jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven

KINGLETS

REGULIDAE—KINGLETS

Regulus calendula—ruby-crowned kinglet

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird
Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

NEW WORLD VULTURES

CATHARTIDAE—CARDINALS AND ALLIES

Cathartes aura—turkey vulture

OLD WORLD WARBLERS AND GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Polioptila caerulea—blue-gray gnatcatcher

Polioptila californica californica—coastal California gnatcatcher

OWLS

TYTONIDAE—BARN OWLS

Tyto alba—barn owl

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Zenaida macroura—mourning dove

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

STARLINGS AND ALLIES

STURNIDAE—STARLINGS

* *Sturnus vulgaris*—European starling

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Petrochelidon pyrrhonota—cliff swallow

SWIFTS

APODIDAE—SWIFTS

Aeronautes saxatalis—white-throated swift

THRUSHES

TURDIDAE—THRUSHES

Sialia mexicana—western bluebird

TITMICE

PARIDAE—CHICKADEES AND TITMICE

Baeolophus inornatus—oak titmouse

VIREOS

VIREONIDAE—VIREOS

Vireo bellii pusillus—least Bell's vireo

WOOD WARBLERS AND ALLIES

PARULIDAE—WOOD-WARBLERS

Geothlypis trichas—common yellowthroat
Icteria virens—yellow-breasted chat

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Melanerpes formicivorus—Acorn woodpecker
Picoides nuttallii—Nuttall's woodpecker
Colaptes auratus—northern flicker

WRENS

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren
Troglodytes aedon—house wren

INVERTEBRATE

BUTTERFLIES

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Danaus gilippus—queen

Speyeria callippe comstocki—Comstock's fritillary

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark

HESPERIIDAE—SKIPPERS

Pyrgus albescens—white checkered-skipper

PIERIDAE—WHITES AND SULFURS

Nathalis iole—dainty sulphur

MAMMAL

CANIDS

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote

CATS

FELIDAE—CATS

Lynx rufus—bobcat

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Sylvilagus bachmani—brush rabbit

Lepus californicus—black-tailed jackrabbit

KANGAROO RATS

HETEROMYIDAE—POCKET MICE AND KANGAROO RATS

Dipodomys sp.—kangaroo rat

POCKET GOPHERS

GEOMYIDAE—POCKET GOPHERS

Thomomys bottae—Botta's pocket gopher

SQUIRRELS

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

REPTILE

LIZARDS

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis hyperythra beldingi—Belding's orange-throated whiptail

Aspidoscelis tigris—tiger whiptail

* signifies introduced (non-native) species

APPENDIX B

Willow Flycatcher Survey and Detection Form

DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Bio Field Data

Record: 2693	
Date	*2016-04-20*
Biologist	*Patricia Schuyler*
Project	*Fanita*
Region	*San Diego*
Survey Area	*Entire*
Survey Type	*Riparian Bird (LBVI, WIFL)*
Notes	

Survey Conditions	
Status	*Start*
Time	*07:00:00*
TEMPERATURE	*°F*
Air Temp	*60*
Cloud Cover	*0%*
WIND	*mph*
Wind	*0-1*

Survey Conditions	
Status	*End*
Time	*10:47:00*
TEMPERATURE	*°F*
Air Temp	*84*
Cloud Cover	*0%*
WIND	*mph*
Wind	*1-2*

Riparian Birds	
Survey #	*1*
LBVI/WIFL Detected?	*Neither*
Estimated Number of WIFL Pairs	*0*
Estimated Number of LBVI Pairs	*0*
Estimated Number of WIFL Territories	*0*
Estimated Number of LBVI Territories	*0*
Vegetation Characteristics	
Predominant Tree or Shrub Species	*Sycamore, oaks*
Comments - Include any information that supports estimates of total territory numbers and breeding status, evidence of pairs or breeding, nesting, and changes in survey length and route throughout the season.	

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Habitat Photos	
Type	*Photo*
Photo	
Description	*Sycamore*

Habitat Photos	
Type	*Photo*
Photo	
Description	*Oak woodlands*

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Habitat Photos	
Type	*Photo*
Photo	
Description	*Disturbed southern willow scrub*

Wildlife List	
Code	*B-BUOR*
Common Name	*Bullock's oriole*
Scientific Name	*Icterus bullockii*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WEME*
Common Name	*western meadowlark*
Scientific Name	*Sturnella neglecta*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WESJ*
Common Name	*western scrub-jay*
Scientific Name	*Aphelocoma californica*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-MODO*
Common Name	*mourning dove*
Scientific Name	*Zenaida macroura*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAQU*
Common Name	*California quail*
Scientific Name	*Callipepla californica*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NUWO*
Common Name	*Nuttall's woodpecker*
Scientific Name	*Picoides nuttallii*
Lat/Long	
Federal and State Status	*BCC/ None*

Wildlife List	
Code	*B-WETA*
Common Name	*western tanager*
Scientific Name	*Piranga ludoviciana*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CALT*
Common Name	*California towhee*
Scientific Name	*Melozone crissalis*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-SPTO*
Common Name	*spotted towhee*
Scientific Name	*Pipilo maculatus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-LEGO*
Common Name	*lesser goldfinch*
Scientific Name	*Spinus psaltria*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-ACWO*
Common Name	*Acorn woodpecker*
Scientific Name	*Melanerpes formicivorus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CORA*
Common Name	*common raven*
Scientific Name	*Corvus corax*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WEKI*
Common Name	*western kingbird*
Scientific Name	*Tyrannus verticalis*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-COHA*
Common Name	*Cooper's hawk*
Scientific Name	*Accipiter cooperii*
Lat/Long	
Federal and State Status	*None/ WL*

Wildlife List	
Code	*B-RTHA*
Common Name	*red-tailed hawk*
Scientific Name	*Buteo jamaicensis*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-ANHU*
Common Name	*Anna's hummingbird*
Scientific Name	*Calypte anna*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WEBL*
Common Name	*western bluebird*
Scientific Name	*Sialia mexicana*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NOMO*
Common Name	*northern mockingbird*
Scientific Name	*Mimus polyglottos*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-PHAI*
Common Name	*phainopepla*
Scientific Name	*Phainopepla nitens*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOFI*
Common Name	*house finch*
Scientific Name	*Haemorhous mexicanus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-AMCR*
Common Name	*American crow*
Scientific Name	*Corvus brachyrhynchos*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NRWS*
Common Name	*northern rough-winged swallow*
Scientific Name	*Stelgidopteryx serripennis*
Lat/Long	
Federal and State Status	*None/ None*

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CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Bio Field Data

Record: 2726	
Date	*2016-05-02*
Biologist	*Callie Ford, Janice Wondolleck*
Project	*Fanita*
Region	*San Diego*
Survey Area	*Entire*
Survey Type	*Riparian Bird (LBVI, WIFL)*
Notes	

Survey Conditions	
Status	*Start*
Time	*06:57:00*
TEMPERATURE	*°F*
Air Temp	*52*
Cloud Cover	*10%*
WIND	*mph*
Wind	*0*

Survey Conditions	
Status	*End*
Time	*10:43:00*
TEMPERATURE	*°F*
Air Temp	*72*
Cloud Cover	*0%*
WIND	*mph*
Wind	*0*

Riparian Birds	
Survey #	*2*
LBVI/WIFL Detected?	*Neither*
Estimated Number of WIFL Pairs	*0*
Estimated Number of LBVI Pairs	*0*
Estimated Number of WIFL Territories	*0*
Estimated Number of LBVI Territories	*0*
Vegetation Characteristics	
Predominant Tree or Shrub Species	
Comments - Include any information that supports estimates of total territory numbers and breeding status, evidence of pairs or breeding, nesting, and changes in survey length and route throughout the season.	

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Wildlife List	
Code	*B-BLGR*
Common Name	*blue grosbeak*
Scientific Name	*Passerina caerulea*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-MODO*
Common Name	*mourning dove*
Scientific Name	*Zenaida macroura*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-ANHU*
Common Name	*Anna's hummingbird*
Scientific Name	*Calypte anna*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-RCKI*
Common Name	*ruby-crowned kinglet*
Scientific Name	*Regulus calendula*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-WESJ*
Common Name	*western scrub-jay*
Scientific Name	*Aphelocoma californica*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

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Wildlife List	
Code	*B-WIWA*
Common Name	*Wilson's warbler*
Scientific Name	*Cardellina pusilla*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-BUSH*
Common Name	*bushtit*
Scientific Name	*Psaltriparus minimus*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-WEME*
Common Name	*western meadowlark*
Scientific Name	*Sturnella neglecta*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-YWAR*
Common Name	*yellow warbler*
Scientific Name	*Setophaga petechia*
Lat/Long	
Federal and State Status	*BCC/ SSC*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-ATFL*
Common Name	*ash-throated flycatcher*
Scientific Name	*Myiarchus cinerascens*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

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Wildlife List	
Code	*B-HOOR*
Common Name	*hooded oriole*
Scientific Name	*Icterus cucullatus*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-HOFI*
Common Name	*house finch*
Scientific Name	*Haemorhous mexicanus*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-NRWS*
Common Name	*northern rough-winged swallow*
Scientific Name	*Stelgidopteryx serripennis*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-LEGO*
Common Name	*lesser goldfinch*
Scientific Name	*Spinus psaltria*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-AMCR*
Common Name	*American crow*
Scientific Name	*Corvus brachyrhynchos*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

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Wildlife List	
Code	*B-SOSP*
Common Name	*song sparrow*
Scientific Name	*Melospiza melodia*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-BHCO*
Common Name	*brown-headed cowbird*
Scientific Name	*Molothrus ater*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-CAQU*
Common Name	*California quail*
Scientific Name	*Callipepla californica*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-YBCH*
Common Name	*yellow-breasted chat*
Scientific Name	*Icteria virens*
Lat/Long	
Federal and State Status	*None/ SSC*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-NUWO*
Common Name	*Nuttall's woodpecker*
Scientific Name	*Picoides nuttallii*
Lat/Long	
Federal and State Status	*BCC/ None*
Needs confirmation (click if yes)	*0*

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Wildlife List	
Code	*B-SPTO*
Common Name	*spotted towhee*
Scientific Name	*Pipilo maculatus*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-CORA*
Common Name	*common raven*
Scientific Name	*Corvus corax*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-BCHU*
Common Name	*black-chinned hummingbird*
Scientific Name	*Archilochus alexandri*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-NOMO*
Common Name	*northern mockingbird*
Scientific Name	*Mimus polyglottos*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-HOWR*
Common Name	*house wren*
Scientific Name	*Troglodytes aedon*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

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Wildlife List	
Code	*B-AMGO*
Common Name	*American goldfinch*
Scientific Name	*Spinus tristis*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-ACWO*
Common Name	*Acorn woodpecker*
Scientific Name	*Melanerpes formicivorus*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-RTHA*
Common Name	*red-tailed hawk*
Scientific Name	*Buteo jamaicensis*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-CALT*
Common Name	*California towhee*
Scientific Name	*Melozone crissalis*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-COYE*
Common Name	*common yellowthroat*
Scientific Name	*Geothlypis trichas*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

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Wildlife List	
Code	*B-COHA*
Common Name	*Cooper's hawk*
Scientific Name	*Accipiter cooperii*
Lat/Long	
Federal and State Status	*None/ WL*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-PHAI*
Common Name	*phainopepla*
Scientific Name	*Phainopepla nitens*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*B-GRRO*
Common Name	*greater roadrunner*
Scientific Name	*Geococcyx californianus*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*I-MONA*
Common Name	*monarch*
Scientific Name	*Danaus plexippus*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

Wildlife List	
Code	*I-PSOR*
Common Name	*Pacific sara orangetip*
Scientific Name	*Anthocharis sara sara*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

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Wildlife List	
Code	*I-CHWH*
Common Name	*checkered white*
Scientific Name	*Pontia protodice*
Lat/Long	
Federal and State Status	*None/ None*
Needs confirmation (click if yes)	*0*

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DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Bio Field Data

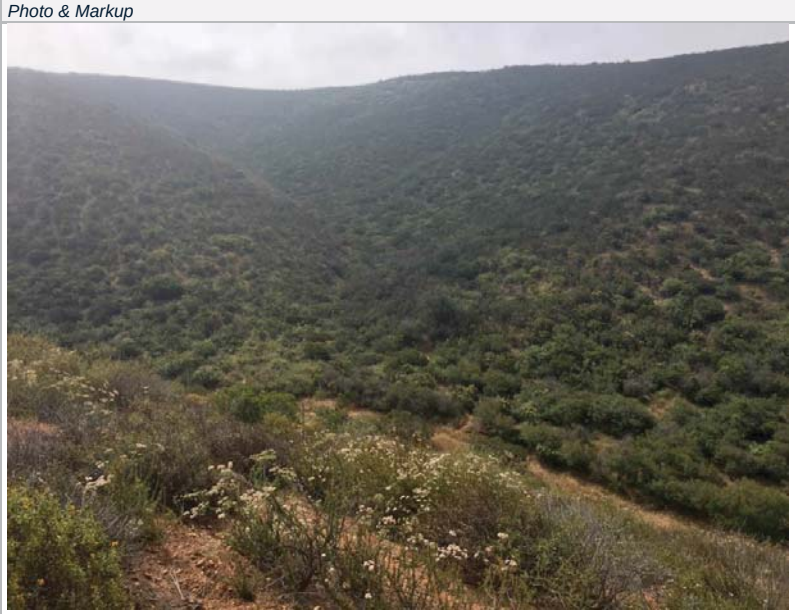
Record: 3890	
Date	*2016-05-12*
Biologist	*Callie Ford*
Project	*Fanita*
Region	*San Diego*
Survey Area	*1*
Survey Type	*Riparian Bird (LBVI, WIFL)*
Notes	

Survey Conditions	
Status	*Start*
Time	*06:36:00*
TEMPERATURE	*°F*
Air Temp	*64*
Cloud Cover	*100%*
WIND	*mph*
Wind	*0-0.5*

Survey Conditions	
Status	*End*
Time	*11:30:00*
TEMPERATURE	*°F*
Air Temp	*76*
Cloud Cover	*0%*
WIND	*mph*
Wind	*0*

Riparian Birds	
Survey #	*3*
LBVI/WIFL Detected?	*LBVI*
Estimated Number of WIFL Pairs	*0*
Estimated Number of LBVI Pairs	*1*
Estimated Number of WIFL Territories	*0*
Estimated Number of LBVI Territories	*1*
Nests Found?	*Nest(s)*
Number of Nests Found	*1*
Vegetation Characteristics	*Mixed native and exotic plants (mostly native, 50-90% native)*
Predominant Tree or Shrub Species	*Scrub oak, chamise, Ceanothus, black sage(SMX)*
Average height of canopy (m)	*2*
Comments - Include any information that supports estimates of total territory numbers and breeding status, evidence of pairs or breeding, nesting, and changes in survey length and route throughout the season.	*Pair was first detected by Alicia Hill and investigated by Travis Cooper who confirmed nesting pair in SMX not near any riparian habitat.*

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Habitat Photos	
Type	*Photo & Markup*
Photo	
Photo & Markup	
Description	*Looking down towards nest*

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Habitat Photos	
Type	*Photo & Markup*
Photo & Markup	

Wildlife List	
Code	*B-SPTO*
Common Name	*spotted towhee*
Scientific Name	*Pipilo maculatus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOWR*
Common Name	*house wren*
Scientific Name	*Troglodytes aedon*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-ANHU*
Common Name	*Anna's hummingbird*
Scientific Name	*Calypte anna*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-CAQU*
Common Name	*California quail*
Scientific Name	*Callipepla californica*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WREN*
Common Name	*wrentit*
Scientific Name	*Chamaea fasciata*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-LEGO*
Common Name	*lesser goldfinch*
Scientific Name	*Spinus psaltria*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NOMO*
Common Name	*northern mockingbird*
Scientific Name	*Mimus polyglottos*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*I-DASU*
Common Name	*dainty sulphur*
Scientific Name	*Nathalis iole*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*I-WCSK*
Common Name	*white checkered-skipper*
Scientific Name	*Pyrgus albescens*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-BOBC*
Common Name	*bobcat*
Scientific Name	*Lynx rufus*
Sign/Direct Observation	*Sign*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAKI*
Common Name	*Cassin's kingbird*
Scientific Name	*Tyrannus vociferans*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-RCKI*
Common Name	*ruby-crowned kinglet*
Scientific Name	*Regulus calendula*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BLPH*
Common Name	*black phoebe*
Scientific Name	*Sayornis nigricans*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-ATFL*
Common Name	*ash-throated flycatcher*
Scientific Name	*Myiarchus cinerascens*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CORA*
Common Name	*common raven*
Scientific Name	*Corvus corax*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*I-BEME*
Common Name	*Behr's metalmark*
Scientific Name	*Apodemia mormo virgulti*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WESJ*
Common Name	*western scrub-jay*
Scientific Name	*Aphelocoma californica*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*I-QUEE*
Common Name	*queen*
Scientific Name	*Danaus gilippus*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-PHAI*
Common Name	*phainopepla*
Scientific Name	*Phainopepla nitens*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*R-BOWH*
Common Name	*Belding's orange-throated whiptail*
Scientific Name	*Aspidoscelis hyperythra beldingi*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CALT*
Common Name	*California towhee*
Scientific Name	*Melozone crissalis*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-COYE*
Common Name	*common yellowthroat*
Scientific Name	*Geothlypis trichas*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOOR*
Common Name	*hooded oriole*
Scientific Name	*Icterus cucullatus*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-LASP*
Common Name	*lark sparrow*
Scientific Name	*Chondestes grammacus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-COYO*
Common Name	*coyote*
Scientific Name	*Canis latrans*
Sign/Direct Observation	*Sign*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-OSFL*
Common Name	*olive-sided flycatcher*
Scientific Name	*Contopus cooperi*
Sign/Direct Observation	*Direct Observation*
Lat/Long	
Federal and State Status	*BCC/ SSC*
Needs confirmation (click if yes)	*1*
Notes	*Has anyone else recorded this onsite?*

Wildlife List	
Code	*I-COFR*
Common Name	*Comstock's fritillary*
Scientific Name	*Speyeria callippe comstocki*
Lat/Long	
Federal and State Status	*None/ None*

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FIELD DATA REPORT

Bio Field Data

Record: 3254	
Date	*2016-05-23*
Biologist	*Brock Ortega, Madison Ortega*
Project	*Fanita*
Region	*San Diego*
Survey Area	*Entire*
Survey Type	*Riparian Bird (LBVI, WIFL)*
Notes	

Survey Conditions	
TEMPERATURE	*°F*
WIND	*mph*
Wind	*0*

Survey Conditions	
Status	*End*
Time	*09:34:00*
TEMPERATURE	*°F*
Air Temp	*64*
Cloud Cover	*90%*
WIND	*mph*
Wind	*1*

Riparian Birds	
Survey #	*1*
LBVI/WIFL Detected?	*Both*
Estimated Number of WIFL Pairs	*1*
Estimated Number of LBVI Pairs	*0*
Estimated Number of WIFL Territories	*0*
Estimated Number of LBVI Territories	*0*
Nests Found?	*No Nest(s)*
Vegetation Characteristics	
Predominant Tree or Shrub Species	*poison oak (Toxicodendron diversilobum), Fremont cottonwood (Populus fremontii), Coast live oak*
Average height of canopy (m)	*10*
Comments - Include any information that supports estimates of total territory numbers and breeding status, evidence of pairs or breeding, nesting, and changes in survey length and route throughout the season.	*Probable migrant*

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Wildlife List	
Code	*B-COYE*
Common Name	*common yellowthroat*
Scientific Name	*Geothlypis trichas*
Lat/Long	*33.902237,-117.948286*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOFI*
Common Name	*house finch*
Scientific Name	*Haemorhous mexicanus*
Lat/Long	*33.902237,-117.948286*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOWR*
Common Name	*house wren*
Scientific Name	*Troglodytes aedon*
Lat/Long	*33.902237,-117.948286*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-MODO*
Common Name	*mourning dove*
Scientific Name	*Zenaida macroura*
Lat/Long	*33.902237,-117.948286*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NOMO*
Common Name	*northern mockingbird*
Scientific Name	*Mimus polyglottos*
Lat/Long	*33.902237,-117.948286*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*M-BOPG*
Common Name	*Botta's pocket gopher*
Scientific Name	*Thomomys bottae*
Lat/Long	*33.902237,-117.948286*
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-BRRA*
Common Name	*brush rabbit*
Scientific Name	*Sylvilagus bachmani*
Lat/Long	*33.902237,-117.948286*
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-MUDE*
Common Name	*mule deer*
Scientific Name	*Odocoileus hemionus*
Lat/Long	*33.902237,-117.948286*
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-COYO*
Common Name	*coyote*
Scientific Name	*Canis latrans*
Lat/Long	*33.902237,-117.948286*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WIFL*
Common Name	*willow flycatcher*
Scientific Name	*Empidonax traillii*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*BCC/ SE*

Special-Status Wildlife Observation	
Start observation time	*06:55:00*
Lat/Long	*32.889230,-116.994517*
Detection	*Heard*
Roost	*N/A*
Sign Description	*N/A*
Adults	*Male*
Number of Adults	*1*
Juveniles	*None*
Number of Juveniles	*0*
Number of Larvae	
Number of Egg Masses	*0*
Total Number of Adults and Juveniles	*1*
Nectar Species	*N/A*

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Color band information (if any)	
Vegetation Community(ies)	*Mixed Oak Woodland*
Habitat Quality	*Poor*
Threats	

Wildlife List	
Code	*B-BLGR*
Common Name	*blue grosbeak*
Scientific Name	*Passerina caerulea*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-SPTO*
Common Name	*spotted towhee*
Scientific Name	*Pipilo maculatus*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CALT*
Common Name	*California towhee*
Scientific Name	*Melozone crissalis*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-ANHU*
Common Name	*Anna's hummingbird*
Scientific Name	*Calypte anna*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAKI*
Common Name	*Cassin's kingbird*
Scientific Name	*Tyrannus vociferans*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-PHAI*
Common Name	*phainopepla*
Scientific Name	*Phainopepla nitens*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HAFL*
Common Name	*Hammond's flycatcher*
Scientific Name	*Empidonax hammondii*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WESJ*
Common Name	*western scrub-jay*
Scientific Name	*Aphelocoma californica*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NUWO*
Common Name	*Nuttall's woodpecker*
Scientific Name	*Picoides nuttallii*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*BCC/ None*

Wildlife List	
Code	*B-GRRO*
Common Name	*greater roadrunner*
Scientific Name	*Geococcyx californianus*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-CORA*
Common Name	*common raven*
Scientific Name	*Corvus corax*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-KARA*
Common Name	*kangaroo rat*
Scientific Name	*Dipodomys sp.*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BGGN*
Common Name	*blue-gray gnatcatcher*
Scientific Name	*Polioptila caerulea*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-*
Lat/Long	*32.889232,-116.994541*

Wildlife List	
Code	*B-BHGR*
Common Name	*black-headed grosbeak*
Scientific Name	*Pheucticus melanocephalus*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-OATI*
Common Name	*oak titmouse*
Scientific Name	*Baeolophus inornatus*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*BCC/ None*

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Wildlife List	
Code	*B-CAQU*
Common Name	*California quail*
Scientific Name	*Callipepla californica*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-YWAR*
Common Name	*yellow warbler*
Scientific Name	*Setophaga petechia*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*BCC/ SSC*

Wildlife List	
Code	*B-GRSP*
Common Name	*grasshopper sparrow*
Scientific Name	*Ammodramus savannarum*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ SSC*

Wildlife List	
Code	*B-WEME*
Common Name	*western meadowlark*
Scientific Name	*Sturnella neglecta*
Lat/Long	*32.889232,-116.994541*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-*
Lat/Long	*32.889232,-116.994541*

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FIELD DATA REPORT

Bio Field Data

Record: 3461	
Date	*2016-06-01*
Biologist	*Brock Ortega*
Project	*Fanita*
Region	*San Diego*
Survey Area	*Entire*
Survey Type	*Riparian Bird (LBVI, WIFL)*
Notes	

Survey Conditions	
Status	*Start*
Time	*06:20:00*
TEMPERATURE	*°F*
Air Temp	*64*
Cloud Cover	*100%*
WIND	*mph*
Wind	*0*

Survey Conditions	
Status	*End*
Time	*10:39:00*
TEMPERATURE	*°F*
Air Temp	*67*
Cloud Cover	*100%*
WIND	*mph*
Wind	*0*

Riparian Birds	
Survey #	*2*
LBVI/WIFL Detected?	*WIFL*
Estimated Number of WIFL Pairs	*0*
Estimated Number of LBVI Pairs	*0*
Estimated Number of WIFL Territories	*0*
Estimated Number of LBVI Territories	*0*
Vegetation Characteristics	
Predominant Tree or Shrub Species	
Comments - Include any information that supports estimates of total territory numbers and breeding status, evidence of pairs or breeding, nesting, and changes in survey length and route throughout the season.	

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Wildlife List	
Code	*B-SOSP*
Common Name	*song sparrow*
Scientific Name	*Melospiza melodia*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-MODO*
Common Name	*mourning dove*
Scientific Name	*Zenaida macroura*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CLSW*
Common Name	*cliff swallow*
Scientific Name	*Petrochelidon pyrrhonota*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-RTHA*
Common Name	*red-tailed hawk*
Scientific Name	*Buteo jamaicensis*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-ANHU*
Common Name	*Anna's hummingbird*
Scientific Name	*Calypte anna*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-HOOR*
Common Name	*hooded oriole*
Scientific Name	*Icterus cucullatus*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-COYE*
Common Name	*common yellowthroat*
Scientific Name	*Geothlypis trichas*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOWR*
Common Name	*house wren*
Scientific Name	*Troglodytes aedon*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BLPH*
Common Name	*black phoebe*
Scientific Name	*Sayornis nigricans*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOFI*
Common Name	*house finch*
Scientific Name	*Haemorhous mexicanus*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-GRSP*
Common Name	*grasshopper sparrow*
Scientific Name	*Ammodramus savannarum*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ SSC*

Wildlife List	
Code	*B-NOMO*
Common Name	*northern mockingbird*
Scientific Name	*Mimus polyglottos*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-COYO*
Common Name	*coyote*
Scientific Name	*Canis latrans*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-MUDE*
Common Name	*mule deer*
Scientific Name	*Odocoileus hemionus*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAKI*
Common Name	*Cassin's kingbird*
Scientific Name	*Tyrannus vociferans*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-WESJ*
Common Name	*western scrub-jay*
Scientific Name	*Aphelocoma californica*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-RSFL*
Common Name	*northern flicker*
Scientific Name	*Colaptes auratus*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-PHAI*
Common Name	*phainopepla*
Scientific Name	*Phainopepla nitens*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CALT*
Common Name	*California towhee*
Scientific Name	*Melozone crissalis*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAQU*
Common Name	*California quail*
Scientific Name	*Callipepla californica*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-WTSW*
Common Name	*white-throated swift*
Scientific Name	*Aeronautes saxatalis*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-OATI*
Common Name	*oak titmouse*
Scientific Name	*Baeolophus inornatus*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*BCC/ None*

Wildlife List	
Code	*B-WREN*
Common Name	*wrentit*
Scientific Name	*Chamaea fasciata*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WEBL*
Common Name	*western bluebird*
Scientific Name	*Sialia mexicana*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-BOPG*
Common Name	*Botta's pocket gopher*
Scientific Name	*Thomomys bottae*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*M-BRRA*
Common Name	*brush rabbit*
Scientific Name	*Sylvilagus bachmani*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-KARA*
Common Name	*kangaroo rat*
Scientific Name	*Dipodomys sp.*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-COYO*
Common Name	*coyote*
Scientific Name	*Canis latrans*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-BTJR*
Common Name	*black-tailed jackrabbit*
Scientific Name	*Lepus californicus*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-CAGS*
Common Name	*California ground squirrel*
Scientific Name	*Spermophilus (Otospermophilus) beecheyi*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-CATH*
Common Name	*California thrasher*
Scientific Name	*Toxostoma redivivum*
Lat/Long	*32.880425,-116.993583*
Federal and State Status	*None/ None*

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DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Bio Field Data

Record: 3932	
Date	*2016-06-13*
Biologist	*Brock Ortega*
Project	*Fanita*
Region	*San Diego*
Survey Area	*Entire*
Survey Type	*Riparian Bird (LBVI, WIFL)*
Notes	

Survey Conditions	
Status	*Start*
Time	*05:27:00*
TEMPERATURE	*°F*
Air Temp	*60*
Cloud Cover	*100%*
WIND	*mph*
Wind	*1*

Survey Conditions	
Status	*End*
Time	*10:23:00*
TEMPERATURE	*°F*
Air Temp	*65*
Cloud Cover	*60%*
WIND	*mph*
Wind	*0*

Riparian Birds	
Survey #	*2*
LBVI/WIFL Detected?	*Both*
Estimated Number of WIFL Pairs	*0*
Estimated Number of LBVI Pairs	*0*
Estimated Number of WIFL Territories	*0*
Estimated Number of LBVI Territories	*0*
Nests Found?	*No Nest(s)*
Vegetation Characteristics	
Predominant Tree or Shrub Species	
Comments - Include any information that supports estimates of total territory numbers and breeding status, evidence of pairs or breeding, nesting, and changes in survey length and route throughout the season.	

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Wildlife List	
Code	*B-YBCH*
Common Name	*yellow-breasted chat*
Scientific Name	*Icteria virens*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ SSC*

Wildlife List	
Code	*B-MODO*
Common Name	*mourning dove*
Scientific Name	*Zenaida macroura*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NOMO*
Common Name	*northern mockingbird*
Scientific Name	*Mimus polyglottos*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAKI*
Common Name	*Cassin's kingbird*
Scientific Name	*Tyrannus vociferans*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CALT*
Common Name	*California towhee*
Scientific Name	*Melozone crissalis*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-SOSP*
Common Name	*song sparrow*
Scientific Name	*Melospiza melodia*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-EUST*
Common Name	*European starling*
Scientific Name	*Sturnus vulgaris*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOFI*
Common Name	*house finch*
Scientific Name	*Haemorhous mexicanus*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-COYE*
Common Name	*common yellowthroat*
Scientific Name	*Geothlypis trichas*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOWR*
Common Name	*house wren*
Scientific Name	*Troglodytes aedon*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-SPTO*
Common Name	*spotted towhee*
Scientific Name	*Pipilo maculatus*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-AMCR*
Common Name	*American crow*
Scientific Name	*Corvus brachyrhynchos*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CLSW*
Common Name	*cliff swallow*
Scientific Name	*Petrochelidon pyrrhonota*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAGN*
Common Name	*coastal California gnatcatcher*
Scientific Name	*Polioptila californica californica*
Lat/Long	*32.892784,-116.977654*
Federal and State Status	*FT/ SSC*

Special-Status Wildlife Observation	
Start observation time	*07:23:00*
Lat/Long	*32.901948,-116.983621*
Detection	*Observed, Heard*
Roost	*N/A*
Sign Description	*N/A*
Adults	*Male*
Number of Adults	*1*
Juveniles	*None*
Number of Juveniles	*0*
Number of Larvae	
Number of Egg Masses	*0*
Total Number of Adults and Juveniles	*1*
Nectar Species	*N/A*
Color band information (if any)	
Vegetation Community(ies)	
Threats	

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Wildlife List	
Code	*B-PHAI*
Common Name	*phainopepla*
Scientific Name	*Phainopepla nitens*
Lat/Long	
Federal and State Status	*None/ None*

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CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Bio Field Data

Record: 4754	
Date	*2016-06-27*
Biologist	*Brock Ortega*
Project	*Fanita*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Riparian Bird (LBVI, WIFL)*
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*05:44:00*
TEMPERATURE	*°F*
Air Temp	*63*
Cloud Cover	*100%*
WIND	*mph*
Wind	*0*

Survey Conditions	
Status	*End*
Time	*11:00:00*
TEMPERATURE	*°F*
Air Temp	*75*
Cloud Cover	*30%*
WIND	*mph*
Wind	*3*

Riparian Birds	
Survey #	*4*
LBVI/WIFL Detected?	*Neither*
Estimated Number of WIFL Pairs	*0*
Estimated Number of LBVI Pairs	*0*
Estimated Number of WIFL Territories	*0*
Estimated Number of LBVI Territories	*0*
Vegetation Characteristics	
Predominant Tree or Shrub Species	
Comments - Include any information that supports estimates of total territory numbers and breeding status, evidence of pairs or breeding, nesting, and changes in survey length and route throughout the season.	

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Wildlife List	
Code	*B-HOFI*
Common Name	*house finch*
Scientific Name	*Haemorhous mexicanus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-SOSP*
Common Name	*song sparrow*
Scientific Name	*Melospiza melodia*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-COYE*
Common Name	*common yellowthroat*
Scientific Name	*Geothlypis trichas*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-GBHE*
Common Name	*great blue heron*
Scientific Name	*Ardea herodias*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BAOW*
Common Name	*barn owl*
Scientific Name	*Tyto alba*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*M-COYO*
Common Name	*coyote*
Scientific Name	*Canis latrans*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-GRRO*
Common Name	*greater roadrunner*
Scientific Name	*Geococcyx californianus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BUSH*
Common Name	*bushtit*
Scientific Name	*Psaltriparus minimus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-RTHA*
Common Name	*red-tailed hawk*
Scientific Name	*Buteo jamaicensis*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-AMKE*
Common Name	*American kestrel*
Scientific Name	*Falco sparverius*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-MODO*
Common Name	*mourning dove*
Scientific Name	*Zenaida macroura*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NUWO*
Common Name	*Nuttall's woodpecker*
Scientific Name	*Picoides nuttallii*
Lat/Long	
Federal and State Status	*BCC/ None*

Wildlife List	
Code	*B-WEBL*
Common Name	*western bluebird*
Scientific Name	*Sialia mexicana*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAKI*
Common Name	*Cassin's kingbird*
Scientific Name	*Tyrannus vociferans*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BLPH*
Common Name	*black phoebe*
Scientific Name	*Sayornis nigricans*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-ACWO*
Common Name	*Acorn woodpecker*
Scientific Name	*Melanerpes formicivorus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NOMO*
Common Name	*northern mockingbird*
Scientific Name	*Mimus polyglottos*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WESJ*
Common Name	*western scrub-jay*
Scientific Name	*Aphelocoma californica*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CORA*
Common Name	*common raven*
Scientific Name	*Corvus corax*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-SPTO*
Common Name	*spotted towhee*
Scientific Name	*Pipilo maculatus*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-CALT*
Common Name	*California towhee*
Scientific Name	*Melozone crissalis*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-ANHU*
Common Name	*Anna's hummingbird*
Scientific Name	*Calypte anna*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-MALL*
Common Name	*mallard*
Scientific Name	*Anas platyrhynchos*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-MUDE*
Common Name	*mule deer*
Scientific Name	*Odocoileus hemionus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-BRRA*
Common Name	*brush rabbit*
Scientific Name	*Sylvilagus bachmani*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-PHAI*
Common Name	*phainopepla*
Scientific Name	*Phainopepla nitens*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-GRSP*
Common Name	*grasshopper sparrow*
Scientific Name	*Ammodramus savannarum*
Lat/Long	
Federal and State Status	*None/ SSC*

Wildlife List	
Code	*B-CLSW*
Common Name	*cliff swallow*
Scientific Name	*Petrochelidon pyrrhonota*
Lat/Long	
Federal and State Status	*None/ None*

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CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Bio Field Data

Record: 4436	
Date	*2016-07-07*
Biologist	*Brock Ortega*
Project	*Fanita*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Riparian Bird (LBVI, WIFL)*
Notes	

Survey Conditions	
Status	*Start*
Time	*05:36:00*
TEMPERATURE	*°F*
Air Temp	*64*
Cloud Cover	*100%*
WIND	*mph*
Wind	*0*

Survey Conditions	
Status	*End*
Time	*10:00:00*
TEMPERATURE	*°F*
Air Temp	*81*
Cloud Cover	*0%*
WIND	*mph*
Wind	*3*

Riparian Birds	
Survey #	*5*
LBVI/WIFL Detected?	*Neither*
Estimated Number of WIFL Pairs	*0*
Estimated Number of LBVI Pairs	*0*
Estimated Number of WIFL Territories	*0*
Estimated Number of LBVI Territories	*0*
Threats List (Add additional notes to comments section below)	*other*
Vegetation Characteristics	*Mixed native and exotic plants (mostly native, 50-90% native)*
Predominant Tree or Shrub Species	*willows (Salix spp.), Oaks, sycamore*
Average height of canopy (m)	*10*
Comments - Include any information that supports estimates of total territory numbers and breeding status, evidence of pairs or breeding, nesting, and changes in survey length and route throughout the season.	*Threats include weeds*

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Habitat Photos	
Type	*Photo*
Photo	
Description	

Habitat Photos	
Type	*Photo*
Photo	

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Wildlife List	
Code	*B-YBCH*
Common Name	*yellow-breasted chat*
Scientific Name	*Icteria virens*
Lat/Long	
Federal and State Status	*None/ SSC*

Wildlife List	
Code	*B-MODO*
Common Name	*mourning dove*
Scientific Name	*Zenaida macroura*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-SOSP*
Common Name	*song sparrow*
Scientific Name	*Melospiza melodia*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-COYE*
Common Name	*common yellowthroat*
Scientific Name	*Geothlypis trichas*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CLSW*
Common Name	*cliff swallow*
Scientific Name	*Petrochelidon pyrrhonota*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-CALT*
Common Name	*California towhee*
Scientific Name	*Melozone crissalis*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-SPTO*
Common Name	*spotted towhee*
Scientific Name	*Pipilo maculatus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BHCO*
Common Name	*brown-headed cowbird*
Scientific Name	*Molothrus ater*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NUWO*
Common Name	*Nuttall's woodpecker*
Scientific Name	*Picoides nuttallii*
Lat/Long	
Federal and State Status	*BCC/ None*

Wildlife List	
Code	*B-NOMO*
Common Name	*northern mockingbird*
Scientific Name	*Mimus polyglottos*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-ACWO*
Common Name	*Acorn woodpecker*
Scientific Name	*Melanerpes formicivorus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-ANHU*
Common Name	*Anna's hummingbird*
Scientific Name	*Calypte anna*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WESJ*
Common Name	*western scrub-jay*
Scientific Name	*Aphelocoma californica*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BUSH*
Common Name	*bushtit*
Scientific Name	*Psaltriparus minimus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WREN*
Common Name	*wrentit*
Scientific Name	*Chamaea fasciata*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-CAQU*
Common Name	*California quail*
Scientific Name	*Callipepla californica*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-TUVU*
Common Name	*turkey vulture*
Scientific Name	*Cathartes aura*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BAOW*
Common Name	*barn owl*
Scientific Name	*Tyto alba*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BHCO*
Common Name	*brown-headed cowbird*
Scientific Name	*Molothrus ater*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-PHAI*
Common Name	*phainopepla*
Scientific Name	*Phainopepla nitens*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-BEWR*
Common Name	*Bewick's wren*
Scientific Name	*Thryomanes bewickii*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOOR*
Common Name	*hooded oriole*
Scientific Name	*Icterus cucullatus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAQU*
Common Name	*California quail*
Scientific Name	*Callipepla californica*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-GRRO*
Common Name	*greater roadrunner*
Scientific Name	*Geococcyx californianus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BGGN*
Common Name	*blue-gray gnatcatcher*
Scientific Name	*Polioptila caerulea*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-CATH*
Common Name	*California thrasher*
Scientific Name	*Toxostoma redivivum*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CORA*
Common Name	*common raven*
Scientific Name	*Corvus corax*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOFI*
Common Name	*house finch*
Scientific Name	*Haemorhous mexicanus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-COYO*
Common Name	*coyote*
Scientific Name	*Canis latrans*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-BTJR*
Common Name	*black-tailed jackrabbit*
Scientific Name	*Lepus californicus*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*M-BOPG*
Common Name	*Botta's pocket gopher*
Scientific Name	*Thomomys bottae*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-AMCR*
Common Name	*American crow*
Scientific Name	*Corvus brachyrhynchos*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-HOWR*
Common Name	*house wren*
Scientific Name	*Troglodytes aedon*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BHGR*
Common Name	*black-headed grosbeak*
Scientific Name	*Pheucticus melanocephalus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-RCSP*
Common Name	*rufous-crowned sparrow*
Scientific Name	*Aimophila ruficeps*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-WTSW*
Common Name	*white-throated swift*
Scientific Name	*Aeronautes saxatalis*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-BLPH*
Common Name	*black phoebe*
Scientific Name	*Sayornis nigricans*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAKI*
Common Name	*Cassin's kingbird*
Scientific Name	*Tyrannus vociferans*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*M-MUDE*
Common Name	*mule deer*
Scientific Name	*Odocoileus hemionus*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-AMKE*
Common Name	*American kestrel*
Scientific Name	*Falco sparverius*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*R-TIWH*
Common Name	*tiger whiptail*
Scientific Name	*Aspidoscelis tigris*
Lat/Long	
Federal and State Status	*None/ None*

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APPENDIX G

2003/2004 Focused Fairy Shrimp Survey Report

November 5, 2004 4151-01

Mr. Daniel Marquez
U. S. Fish and Wildlife Service
6080 Hidden Valley Road
Carlsbad, California 92008

Subject: Wet Season Presence/Absence Survey for Vernal Pool Branchiopods for Fanita Ranch, City of Santee, California

Dear Mr. Marquez:

A wet season presence/absence survey for vernal pool branchiopods was conducted for the Fanita Ranch Site, located in the northwestern portion of the City of Santee. The surveys were conducted by Vipul R. Joshi (permit number TE019949) and Anita M. Hayworth, Ph.D. (permit number TE781084) of Dudek and Associates, Inc. (Dudek) from January to March 2004. The survey focused on the determination of the presence/absence of two federally-listed endangered vernal pool branchiopod species: Riverside fairy shrimp (*Streptocephalus woottoni*) and San Diego fairy shrimp (*Branchinecta sandiegonensis*) according to the April 19, 1996 *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*. The survey consisted of a inspection of 71 depressions throughout the site. Branchiopod individuals were observed and collected from 25 depressions mainly located within dirt roadways onsite.

PROJECT LOCATION AND EXISTING CONDITIONS

Fanita Ranch, including the alignment of Fanita Parkway south to Carlton Oaks Boulevard, and the Street extension, is situated in the northwestern portion of the City of Santee in western San Diego County, California *(Figure 1)*. The site is bordered by the Sycamore Canyon County Park and other open space to the north and east, by residential development to the south and east, and by vacant land on Miramar Naval Air Station to the west. The property lies approximately 3 miles northeast of State Route 52, and occupies portions of four U.S. Geological Survey 7.5 minute quadrangles: San Vicente Reservoir, El Cajon, La Mesa, and Poway (*Figure 2*).

The soils, topography, and vegetation of the site are heterogeneous. Elevations range from about 500 to 1,204 feet above mean sea level. The project area currently is open space supporting disturbed and undisturbed native plant communities. The site supports a complex system of dirt roads and trails, many of which receive illegal use from off-road vehicle traffic. Some of the dirt roads provide necessary access to power transmission towers. Recent fires have diminished the

habitat value of much of the native shrublands onsite, at least temporarily converting coastal sage scrub to non-native grassland.

According to Bowman (1973), soils onsite mostly are loams, including Redding series (ReE, RfF), Cieneba series (CmE2), Las Posas series (LrE), Las Flores series (LeC), Visalia series (VbB), and Wyman series (WmC). Two clay-loam complexes, Diablo-Olivenhain series (DoE) and Linne series (LsE), are present in the southeastern portion of the site. Redding soils support vernal pools to the west on Naval Air Station Miramar (Wier and Bauder 1991), and Los Posas soils support sensitive plant species at some locations in western San Diego County.

A single series of clay soils, Bosanko clay (BsC), is present in the north-central and eastern north-central portions of the property. Onsite, this soil type mostly supports annual grassland. Significant rock outcrops also are present onsite, particularly in the northern and northeastern portions of the property.

Vegetation Communities

Based on species composition and general physiognomy, twenty-one vegetation types and land covers occurred within the project study area prior to the October 2003 fire. These areas were mapped in 1997/1998 and rechecked in the summer of 2003, prior to the fire.

Acreages of vegetation communities and land covers within the project area (prior to the 2003 fire)are presented in *Table 1*. Vegetation communities are described following the table (Please note that these discussions relate to the 1997/8 habitat survey).

TABLE 1
1997 ACREAGES BY HABITAT TYPE

Coastal sage scrub	546 acres
Coastal sage scrub/Valley needlegrass grassland	10 acres
Disturbed coastal sage scrub	478 acres
Disturbed coastal sage scrub/Annual grassland	229 acres
Disturbed coastal sage scrub/Broom baccharis scrub	7 acres
Disturbed coastal sage scrub/Valley needlegrass grassland	42 acres
Broom baccharis scrub	9 acres
Southern mixed chaparral	619 acres
Coast live oak woodland	9 acres
Southern willow scrub	2 acres
Coast and valley freshwater marsh	1 acre

TABLE 1
1997 ACREAGES BY HABITAT TYPE

Southern coast live oak riparian forest	11 acres
Sycamore alluvial woodland	15 acres
vernal pool	<1 acre
Valley needlegrass grassland	174 acres
Annual grassland	219 acres
Ruderal	75 acres
Revegetation	35 acres
Ornamental plantings	4 acres
Disturbed habitat	104 acres
Developed	3 acres
TOTAL	**2592 acres**

Coastal Sage Scrub

Coastal sage scrub is a native plant community composed of a variety of soft, low; aromatic shrubs, characteristically dominated by drought-deciduous species such as California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia spp.*), with scattered evergreen shrubs, including lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and toyon (*Heteromeles arbutifolia*). It typically develops on south-facing slopes and other xeric situations.

Onsite, coastal sage scrub is variable. Much of it is dominated by California sagebrush and flat-top buckwheat, with laurel sumac, redberry (*Rhamnus crocea*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), San Diego County viguiera (*Viguiera laciniata*), toyon, and bush monkeyflower (*Mimulus aurantiacus*) as lesser components. In the southern portion of the site, a few patches are dominated by white sage; in the north, red berry (*Rhamnus crocea*) is the dominant shrub in some areas. This community supports a diverse understory of native herbs and forbs, including virgate tarplant (*Holocarpha virgata*), deerweed (*Lotus scoparius*), blue dicks (*Dichelostemma capitata*), Cleveland's shooting-star (*Dodecatheon clevelandii*), blue-eyed grass (*Sisyrinchium bellum*), canchalagua (*Centaurium venustum*), and several species of grasses, both native and introduced. The primary introduced grass is slender wild oat (*Avena barbata*).

Large portions of the site that probably historically supported coastal sage scrub have been disturbed severely or repeatedly by fire or other activities. These areas include a much higher percent cover of non-native grasses and a lower density of native shrubs. Where native shrub density was greater than 20 percent, the habitat was mapped as coastal sage scrub; where native shrub density was 11-20 percent, the habitat was mapped as disturbed coastal sage scrub. Where native shrub density was 5-10 percent, the habitat was mapped as disturbed coastal sage scrub/annual grassland.

Broom Baccharis Scrub

Broom baccharis scrub is not recognized as a native plant community by Holland (1986). Nonetheless, it is a distinct vegetational association in southern California, dominated by broom baccharis (*Baccharis sarothroides*), usually with a few scattered individuals of other native shrub species. It frequently is a successional community that occurs in more mesic sites and along drainages where coastal sage scrub or chaparral has been eliminated by perturbation.

Onsite this habitat is characterized by nearly uniform stands of broom baccharis with a few other native shrubs in low density, including California sagebrush, flat-top buckwheat, Mexican elderberry (*Sambucus mexicanus*), and a variety of non-native herbs and grasses.

Southern Mixed Chaparral

Southern mixed chaparral is a drought-and fire-adapted community of woody shrubs, 1.5-3.0 m tall, frequently forming dense, impenetrable stands. It develops primarily on mesic north-facing slopes and in canyons, and is characterized by crown- or stump-sprouting species that regenerate following burns or other ecological catastrophes. This association is typically a mixture of chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicolor*), ceanothus (*Ceanothus spp*.), scrub oak (*Quercus berberidifolia*), laurel sumac (*Malosma laurina*), and black sage.

Onsite, southern mixed chaparral is common in the northern portion of the property at higher elevations. There is little or no understory in this community, except for in openings. Characteristic shrubs onsite include chamise, black sage, laurel sumac, coastal spicebush (*Cneoridium Dumosum*), and mission manzanita. Understory species include dark-tipped bird's-beak (*Cordylanthus rigidus*), rush- rose (*Helianthemum scoparium*), and ashy spike-moss (*Selaginella cinerascens*).

Coast Live Oak Woodland

According to Holland (1986), coast live oak woodland is a broad-leaved, sclerophyllous woodland dominated by a single evergreen species -coast live oak (*Quercus agrifolia*). Canopy height ranges from 10-25 m. The shrub layer is poorly developed, and the herb component is dominated by a variety of introduced taxa.

Onsite, coast live oak woodland occurs as scattered patches, each of several trees, in the northern portion of the property. Coast live oaks form small homogeneous stands, with a disturbed understory that includes ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), red brome (*Bromus madritensis ssp. rubens*), and slender wild oat. It is contiguous, or nearly so, with some areas of southern coast live oak riparian forest, but slightly higher in elevation, and not associated with a drainage.

Southern Willow Scrub

Holland (1986) describes southern willow scrub as a dense, broad-leafed, winter-deciduous riparian thicket dominated by several species of willow (*Salix spp.*), with scattered emergent Fremont cottonwood (*Populus fremontii*) and western sycamore (*Platanus racemosa*). The closed canopy of this riparian community typically inhibits the development of diverse understory.

Onsite, southern willow scrub is restricted to a small patch in the main drainage of Sycamore Canyon along the western edge of the property just north of the Padre Dam facilities. This patch is dominated by arroyo willow (*Salix lasiolepis*), and black willow (*Salix gooddingii*).

Coastal and Valley Freshwater Marsh

Coastal and Valley freshwater marsh (freshwater marsh) is a wetland habitat type that develops where the water table is at or just above the ground surface, such as around the margins of lakes, ponds, slow-moving streams, ditches, and seepages. It typically is dominated by tall, emergent monocots, such as cattail (*Typha* sp.) and bulrush (*Scirpus* sp.).

On Fanita Ranch, freshwater marsh occurs at a number of disturbed sites where it is represented by small patches of emergent monocots. Most of the freshwater marsh is found along the improved or maintained drainage adjacent to Fanita Parkway and the access road to the upper Santee Lakes. This habitat generally is dominated by alien hydrophytes, including umbrella sedge (*Carex alternifolius*), rabbitsfoot grass (*Polypogon monspeliensis*), toad rush (*Juncus bufonius*), fan-palm (*Washingtonia robusta*), and others.

One distinct area of freshwater marsh that occurs in a relatively natural area adjacent to the Santee Lakes access road is dominated by Mexican rush (*Juncus mexicanus*) and cocklebur (*Xanthium strumarium*). The small area of marsh in the central portion of the site adjacent to sycamore alluvial woodland is actually a swale of Mexican rush and yerba mansa (*Anemopsis californica*).

Southern Coast Live Oak Riparian Forest

Southern coast live oak riparian forest is an open to locally dense evergreen sclerophyllous riparian woodland dominated by coast live oak (*Quercus agrifolia*). According to Holland (1986) it is richer in herbs and poorer in understory shrubs than other riparian communities. It typically occurs in bottomlands and outer floodplains along larger streams, on fine grained, rich alluvium.

Onsite this community is represented by a broad band of sparsely distributed western sycamore (*Platanus racemosa*) and coast live oak, with scattered individuals of southwestern willow (*Salix gooddingii*) and mule fat (*Baccharis salicifolia*), and an understory that includes poison-oak (*Toxicodendron diversilobum*), flat-top buckwheat, deergrass (*Muhlenbergia rigens*), willowy monardella (*Monardella linoides ssp. viminea*), and several annuals. It occurs along the clearly-defined waterway of Sycamore Creek, and was mapped as subject to Corps of Engineers' jurisdiction.

Sycamore Alluvial Woodland

Sycamore alluvial woodland is an open to moderately closed, winter-deciduous, broad-leaved riparian woodland, dominated by well-spaced western sycamores (*Platanus racemosa*) with occasional individuals of Mexican elderberry (*Sambucus mexicanus*). The understory usually is comprised of introduced grasses or Baccharis species (Holland 1986).

The large Sycamore Creek drainage supports the bulk of this habitat, however, two other small drainages have this vegetation. In Sycamore Creek, coast live oak is an important component, along with deergrass, mulefat (*Baccharis salicifolia*), wild rye (*Leymus glaucus*), yerba mansa, Mexican rush and poison-oak. Although this habitat at Fanita Ranch does not precisely agree with Holland's description of sycamore alluvial woodland, it is closer to this community than any other Holland category.

Vernal Pool

Vernal pools are generally small, poorly drained depressions that occur in areas of level or gently undulating (mima mound) topography. These ephemeral ponds collect the runoff of winter and spring rains and support a unique biota adapted specifically to these temporary conditions. Once

fairly common and widespread, this community has been reduced by greater than 95 percent of its former acreage in San Diego County.

The vernal pool ecosystem is characterized by a variety of plant and animal species adapted to aquatic conditions that occur for a brief period in the spring following winter rainfall, followed by intense desiccation. This habitat type typically develops in small depressions within mima mound topography on otherwise flat mesas of marine terraces or inland valleys where a semi-impermeable subsoil of clay or hardpan acts to collect runoff, resulting in a "perched water table." Many of the faunal and floral elements of vernal pools occur in no other habitat type.

Vernal pools were observed at two locations onsite. Vernal pool indicator species found in the pools include woolly marbles (*Psilocarphus brevissimus*), graceful hairgrass (*Deschampsia danthonioides*),long-stalk water-starwort (*Callitriche longipedunculata*), grass poly (*Lythrum hyssopifolium*), harvest brodiaea (*Brodiaea jolonensis*), toad rush (*Juncus bufonius*), and pygmy stonecrop (*Crassula aquatica*).

Valley Needlegrass Grassland

Valley needlegrass grassland is a native grassland dominated by perennial bunchgrasses, such as needlegrass (*Nassella spp*.). This plant community typically alternates with coastal sage scrub on some clay soils, often on more mesic exposures and at the bases of slopes, but also may occur in large patches.

Onsite, Valley needlegrass grassland is dominated by non-native grasses, including red brome (*Bromus madritensis ssp. rubens*), soft-chess (*Bromus hordeaceus*), and ripgut grass (*Bromus diandrus*). It is distinguished from non-native grassland by the presence of irregular tussocks of native needlegrass (*Nassella pulchra*). Other native species in these situations include blue-eyed grass (*Sisyrinchium bellum*), morning-glory (*Calystegia macrostegia*), blue dicks, wild onion (*Allium* sp.), Cleveland's shooting-star (*Dodecatheon clevelandii*), Cleveland's golden-star (*Muilla clevelandii*), sanicle (*Sanicula arguta*), dot-seed plantain (*Plantago erecta*), purple owl's-clover (*Castilleja exserta*), and common goldenstar (*Bloomeria crocea*).

Almost all native grasslands onsite are disturbed as indicated by the abundance of invasive non-native species. Grasslands in which at least 5% of the cover consists of Nassella and other native species were considered Valley needlegrass grasslands; all others were mapped as non-native grasslands.

Annual Non-native Grassland

Where the native habitat has been disturbed frequently or intensively by grazing, fire, agriculture, or other activities, the native community usually is incapable of recovering. These areas are characterized by weedy, introduced annuals, primarily grasses, including especially slender wild oat (*Avena barbata*), bromes (*Bromus diandrus, B. madritensis, B. hordeaceus*), mustards (*Brassica and Sisymbrium* spp.), filaree (*Erodium botrys*), and Russian-thistle (*Salsola tragus*). On Fanita Ranch, most of the present-day annual grassland evidently is the result of farming, other mechanical disturbances, or repeated fires.

Ruderal

Ruderal habitat is similar to annual grassland in that alien species predominate over natives and native habitat recovery is unlikely, yet differs in the type of alien species present. Generally, ruderal habitat is characterized by forbs rather than grasses, such as black mustard (*Brasslca nigra*), star-thistle (*Centaurea melitensis*), filaree, sweet-fennel (*Foeniculum vulgare*), etc. One prominent area mapped as ruderal habitat is a dense thicket of giant cane (Arundo donax).

Ornamental Plantings

Ornamental plantings refer to areas where ornamentals and landscaping have been installed. These areas are concentrated around the southern perimeter of the property adjacent to existing development. The primary vegetation in these areas includes eucalyptus (*Eucalyptus* sp.) and pepper- trees (*Schinus* spp.).

Revegetation

Revegetation refers to those areas where native vegetation has been planted on cut and/or fill slopes. These areas are found around the water storage facility in the southwestern portion of the property.

Revegetation areas are heterogenous -some are dominated by native species and others support a large number of exotics. One patch of revegetated habitat north of the facility supports a dense, uniform stand of broom baccharis; the slope south of the facility supports a sparse mix of introduced coastal sage scrub species. Other slopes have a substantial component of Peruvian pepper-tree (*Schinus molle*) and laurel sumac, with few native shrubs.

Disturbed Habitat

Disturbed habitat refers to areas that lack vegetation entirely. These areas generally are the result of severe or repeated mechanical perturbation. Within the property, disturbed habitat includes dirt roads and trails as well as other scrapes, soil test pits, and transmission tower sites.

PREVIOUS BRANCHIOPOD STUDIES

The Fanita Ranch site has been previously surveyed for identification of vernal pools by Odgen (early 1990's). Recon conducted dry season sampling from 10 depressions that were within a mima-mound complex and supported wooly marbles *(Psilocarphus brevissimus)*. The hydration results were negative for presence of any fairy shrimp species.

Dudek conducted wet season surveys in 1997 that consisted of visual surveys throughout the wet season and traditional sampling surveys on two days during the season. The visual surveys were conducted within a mima-mound complex where as the sampling effort included all areas from the current terminus of Fanita Parkway to the location of the mima-mound complex. Both the visual surveys and ponded water sampling were negative for presence of any fairy shrimp species.

2004 SURVEY METHODOLOGY

Dirt roads on relatively flat ground and mima mound complexes were surveyed from the time that access was gained to the project site (January 28, 2004) until rains had ceased and all non-occupied depressions had dried (March 30, 2003). During this period the site was visited every one to two weeks for a total of seven visits *(Table 2)*.

TABLE 2
SCHEDULE OF SURVEYS - WINTER 2004

VISIT NUMBER	DATE	TIME	AVG. AIR TEMP (oC)	AVG WATER TEMP (oC)
1	28 January	NR	16	13
2	5 February	1130-1600	20	13
3	18 February	1130-1430	19	12
4	3 March	0800-1500	20	15
5	5 March	1030-1300	22	14
6	16 March	0800-1230	17	17
7	30 March	0600-0800	14	NA

All survey visits were conducted by Vipul Joshi (permit #TE019949). David Flietner (permit #TE008031), of Dudek, assisted in the collection of data on March 3. Anita Hayworth, Ph.D. (permit #TE781084), of Dudek, assisted in the collection of data on the 16 March and 30 March.

During each visit, depressions containing ponded water at least 3 cm deep were staked using pin flags and labeled numerically. For ponded water within mima mound areas, the 3 cm threshold was not applied; rather, where any inundation of water was observed, a depression number and pin flag was assigned. An inundated depression was labeled as a "vernal pool" if it occurred outside of a defined, regularly used dirt roadway. It should be noted that 10 vernal pool basins were previously identified by Dudek in 1996 & 1997. The location of these basins was mapped using a survey-quality Global Positioning System unit. These basins are included in the numbering and results regardless of presence of inundation during the 2004 survey season. An inundated depression within a clearly defined, regularly used dirt road was labeled as a "road rut." One additional depression type was distinguished; "wetland basin" was used for a relatively large basin area which receives storm drain flow and supports significant wetlands vegetation not typical of vernal pools or road ruts. The limits of the depressions were recorded using a GPS unit mainly on 3 March 2004. These limits were verified at the end of the season to be the maximum basin area for each depression as observed over the course of the season.

During each visit all depressions were inspected for depth of inundation, surface area of water, air and water temperature, level of disturbance and presence of aquatic wildlife. All information was recorded on a data sheet as provided in the Survey Protocol (*attached*). Data sheets were completed for every depression which met the inundation requirement at the time of surveying.

An aquarium net was passed through all pools which retained water at least 3 cm deep at the time of surveying. The net passed through nearly all portions of the ponded water area and from the bottom to the water surface. The surveyors were not familiar with most aquatic invertebrates but was able to identify fairy shrimp and tadpoles where present. Samples were collected when needed using the aquarium net and a glass vial. Specimens were stored in the vial with water collected from the same pool where the specimen was found. Each vial was labeled according to the pool from which it was collected. Specimens were taken to the laboratory within 24 hours and placed in a 70% ethyl alcohol solution. Each specimen was inspected using microscope at 3X scale and the key found in Eriksen and Belk (1999). Mature samples were separated from non-fully developed individuals in labeled vials. Numbers of individuals of each sex were recorded for each vial.

The samples are currently being prepared and submitted for accessioning with the Carlsbad Field Office according to the specification of the USFWS Survey Protocol. Survey forms are also being completed to be submitted to the California Natural Diversity Database (CNDDB).

2004 Survey Results

Surveys yielded a large number of road ruts, several "vernal pools" and one wetlands basin - each named based on the criteria discussed above. The distribution of seasonal basins is depicted in *Figures 3A – 3G*. Road ruts on the project site are generally homogenous. They typically are shaped as a depression of depth varying approximately from six to 15 inches. The soil is heavily compacted within all the road ruts. Road rut basin surface areas vary from 31 to 989 square feet.

The "vernal pools" include vernal pool 1, which is located adjacent to roadway within a seemingly disturbed or eroded area. Vernal pools 2 through 10 are basin areas within two mima mound complexes that were identified by Dudek in 1996/97 and were likely the subject of earlier investigations by Odgen and Recon. Vernal pools 11 and 12 occur on the side of the road where a drainage swale reaches the road berm. Vernal pools 13 and 14 are within the southern mima mound complex that contains the basins identified by Dudek in 1996/97. These areas were found to be briefly inundated but did not correspond to the previously mapped basin locations. Vernal pool 15 is actually an approximately four-foot deep pit that appears to have been mechanically excavated from the manufactured slope where it is located. Vernal pool 16 is adjacent to vernal pools 2 and road rut 10 in the southern mima-mound complex; at the peak of inundation these three basins formed one large basin. To summarize, only vernal pools 2 through 10, 13, 14, and 16 occur within mima-mound complexes. Vernal pools 1, 11, 12, and 15 occur on road-side areas.

The wetlands basin is fed by an adjacent residential storm drain outlet. The basin supports diverse mule fat scrub habitat.

The following tables summarize the findings of the 2004 wet season survey *(Tables 3 & 4).*

TABLE 3
SUMMARY OF INUNDATION - WINTER 2004

Approximate Duration of Inundation	Road Ruts	Vernal Pools	Wetland Basin
0 days		4, 5, 6, 7, 8, 9, 10	
13 days (from visit 4 to 5)	14-16, 18-31, 33, 39-54	3, 11, 12, 13, 14	
14 days (from visit 5 to 6)		15	
26 days (from visit 2 to 3 then again from visit 4 to 5)	2, 3, 5-10, 12	2	
27 days (from visit 4 to 6)	17, 32, 34-38	16	1*

TABLE 3
SUMMARY OF INUNDATION - WINTER 2004

Approximate Duration of Inundation	Road Ruts	Vernal Pools	Wetland Basin
39 days (from visit 2 to 5)	11		
40 days (from visit 2 to 3 then again from visit 4 to 6)	4	1	
61 days (from visit 1 to 6)	1, 13		

* Wetland basin actually was not surveyed prior to 5th visit. Presumed to be inundated from visits 4 to 6 or longer based on observed conditions.

TABLE 4
SUMMARY OF SAN DIEGO FAIRY SHRIMP OCCURRENCES - WINTER 2004

Approximate Number of San Diego Fairy Shrimp Observed	Road Ruts	Vernal Pools	Wetland Basin
0	8, 11, 13, 15, 16, 19-26, 28-31, 40, 42-51, 53, 54	3-15	1
10's	3, 5, 9, 12, 14, 17, 52		
100's	1, 18, 27, 33, 37, 41	1, 2, 16	
1000's	2, 4, 6, 7, 10, 32, 34-36, 38, 39		

The first site visit found only two ponded water areas: road ruts 1 and 13. San Diego fairy shrimp were collected from road rut 1 only. Several more road ruts (1 through 13) and one vernal pool (vernal pool 2) were inundated at the second visit, however no fairy shrimp were observed. Nearly all the depressions dried by the third visit, with the exception of road ruts 1, 11, and 13. Fairy shrimp were again present within road rut 1.

The fourth visit (conducted over two days) yielded the highest number of inundated depressions. All 54 road ruts were inundated with 23 ruts found to support San Diego fairy shrimp. A total of 9 vernal pools were observed inundated on the fourth survey visit. San Diego fairy shrimp were then observed in vernal pools 1, 2, and 16 (vernal pools 2 and 16 had joined along with road rut 10, to form a single basin area).

The fifth survey visit showed a drastic reduction in the number of depressions which retained water. A total of 11 road ruts and three vernal pools still contained water. In addition, the wetlands basin was surveyed for the first time, although it is presumed that the basin had been inundated since the fourth visit. The sixth, and last, survey visit indicated that only two road ruts still retained water. Since both of these ruts were already found to support San Diego fairy

shrimp, and no additional rainfall occurred, no additional surveys were conducted. No new locations of San Diego fairy shrimp were recorded during the fifth and sixth visits.

In total, San Diego fairy shrimp was the only listed branchiopod species found on the site and it was found in 24 of 54 road ruts and three of 16 vernal pools.

Pictures were taken of the site during the second (vernal pool 1 and adjacent road ruts) and third (road ruts 1 and 5) survey visits (*Figure 4*).

Please refer to the data sheets for more complete and precise information on each pool and each visit.

Please feel free to call me at (760) 942-5147 if you have any questions regarding the contents of this letter.

Very truly yours,

Dudek & Associates, Inc.

Vipul R. Joshi
Biologist
Permit Number TE019949

cc: Nick Arthur, Barratt American
Jim Whalen, Whalen & Associates, Inc.
Brock Ortega, Dudek

att: Figures 1-4
U.S. Fish and Wildlife Service Vernal Pool Data Sheets

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APPENDIX H

2004/2005 Focused Fairy Shrimp Survey Report

October 13, 2005 4151-01

Mr. Daniel Marquez
U. S. Fish and Wildlife Service
6080 Hidden Valley Road
Carlsbad, California 92008

Subject: ***Wet Season Presence/Absence Survey for Vernal Pool Branchiopods for Fanita Ranch, City of Santee, California***

Dear Mr. Marquez:

A wet season presence/absence survey for vernal pool branchiopods was conducted for the Fanita Ranch Site, located in the northwestern portion of the City of Santee. The surveys were conducted by Vipul R. Joshi (permit number TE019949) and assisted by Brock Ortega, Michelle Balk, David Flietner, and Marc Doalson of Dudek and Associates, Inc. (Dudek) and Dale Powell of Powell Consulting from November 2004 to May 2005 (referred to here as 2005 survey). Previous surveys were conducted on the same project site by Dudek in January through March 2004 (2004 survey) (Dudek 2004). The 2005 wet season survey represents the second of two consecutive years of surveys focused on the determination of the presence/absence of two federally-listed endangered vernal pool branchiopod species: Riverside fairy shrimp (*Streptocephalus woottoni*) and San Diego fairy shrimp (*Branchinecta sandiegonensis*) according to the April 19, 1996 *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods*.

Over the two consecutive wet seasons surveys, 229 basins have been identified and sampled for presence/absence of vernal pool branchiopod species. Over the two surveys, San Diego fairy shrimp is the only species of branchiopod identified from the project site. The 2004 survey determined that 27 basins were occupied by San Diego fairy shrimp. These basins were not surveyed in 2005; a total of 202 basins were surveyed in 2005. During the 2005 survey San Diego fairy shrimp were observed and collected from 32 basins. Over the two years of surveys, a total of 59 seasonal basins were determined occupied with San Diego fairy shrimp while the remaining 170 seasonal basins were determined absent for all listed vernal pool branchiopod species.

PROJECT LOCATION AND EXISTING CONDITIONS

Fanita, including the alignment of Fanita Parkway south to Carlton Oaks Boulevard, the Cuyamaca Street extension, and the disjunct ownership along the western boundary of Santee Lakes, is situated in the northwestern portion of the City of Santee in western San Diego County,

California (*Figure 1)*. The site is bordered by the Sycamore Canyon County Park and other open space to the north and east, by residential development to the south and east, and by vacant land on Marine Corps Air Station Miramar to the west. The property lies approximately 3 miles northeast of State Route 52. The site occupies portions of Township 15 South, Range 1 West, projected Sections 2, 3, 4, 8, 9, 10, 16, 17, 20, and 21 on the San Vicente Reservoir, El Cajon, La Mesa, and Poway West U.S. Geological Survey 7.5 minute quadrangle maps (*Figure 2*).

Elevations range from about 320 feet AMSL in the southern end of Fanita Parkway to two 1,204-foot tall peaks in the northeastern part corner of the site. The project site contains a series of northeast to southwest-trending hills and valleys that form a transition between the relatively low, flat Sycamore Canyon on the western end of the site and the foothills of the Peninsular Range to the east. Numerous large rock outcrops also are present onsite, particularly in the northern and northeastern portions of the property.

The most common soils on site are loams (*Figure 4*), primarily Redding series (Redding gravelly loam, 2 to 9 percent slopes [RdC], Redding cobbly loam, 9 – 30 percent slopes [ReE], and Redding cobbly loam, dissected, 15 - 30 percent slopes [RfF], and Redding-Urban land complex, 2 – 9 percent slopes) and also Wyman loam, 5 – 9 percent slopes, which occurs in the north-central part of the site.

RdC contains a heavy clay loam to gravelly clay subsoil at 15 to 30 inches depth, which is underlain by a iron-silica hardpan; mima mound topography occurs with this soil series. RdC provides a substrate for several sensitive plant species (Vanderwier 2002). Coastal sage scrub habitats (52.8 acres) and annual grassland (26.5 acres) are the main vegetation communities on RdC onsite. ReE and RfF typically have a hard pan starting at between 10 to 20 inches depth (Bowman 1973). Redding soils support vernal pools to the west on Naval Air Station Miramar (Wier and Bauder 1991).

Most of the north-central part of the site contains sandy loam or loamy sand soils of the Cieneba series (Cieneba rocky coarse sandy loam, 9 – 30 percent slopes, and Cieneba very rocky coarse sandy loam, 30 – 75 percent slopes), Las Posas series (Las Posas stony fine sandy loam, 9 – 30 percent slopes, and Las Posas stony fine sandy loam, 30 to 65 percent slopes), Las Flores loamy fine sand 2 – 9 percent slopes, and Visalia gravelly sandy loam, 2 – 5 percent slopes (Bowman 1973).

Las Flores and Las Posas series soils contain gabbros (Vanderweir 2002), with a relatively high iron and magnesium content and support sensitive plant species at some locations in western San Diego County. Los Flores soils are derived from marine sandstone and have sandy clay subsoil starting at

about 14 inches depth; there are about 1.9 acres of Las Flores soils onsite. Los Posas series soils are derived from basic igneous rock and contain a reddish-brown clay subsoil from about four to 26 inches depth. Coastal sage scrub (170.6 acres) and southern mixed chaparral (84.2 acres) are the predominant plant communities found on the 256.6 acres of Las Posas soils onsite.

Two clay-loam soil series, Linne clay loam, 9 to 30 percent slopes, and Salinas clay loam, 0 – 2 percent slopes are present on 50.9 acres, primarily in the southern part of the site. Linne soils, are derived from soft sandstone and shale and are comprised of dark gray heavy clay loam soil to a depth of about 28 inches (Bowman 1973).

Diablo-Olivenhain complex, 9 – 30 percent slopes and is present on 220.3 acres, primarily in the southern part of the site adjacent to the residential development. Diablo –Olivenhain complex is about 50 percent Diablo clay, 45 percent Olvenhain soil, and five percent Linne clay. Both Diablo and Olivenhain soils are substrates associates with sensitive plant species (MHCP). Diablo clays have a dark-gray clay topsoil layer about 27 inches thick. Olivenhain has a reddish-born cobbly clay subsoil starting at about ten inches depth. Vegetation present on Diablo-Olivenhain soils includes annual grassland (21.6 acres), coastal sage scrub habitats (89.8 acres), annual grassland (20.6 acres) and valley and foothill grassland (31.6 acres).

Bosanko clay, 2 to 9 percent slopes (BsC), is present on 31.8 acres in the north-central and eastern north-central portions of the property. BsC are moderately deep clays with low permeability and are derived from acid igneous rock. The upper 23 inches are typically composed of dark gray clay with a slightly acid to moderately alkaline pH (Bowman 1973). Bosanko clay provides a substrate for several sensitive plant taxa (Vanderweir 2002). Onsite, this soil type mostly supports valley and foothill grassland (17.8 acres) and annual grassland (8.0 acres).

Riverwash, Stony land, and a small amount of Tujunga sand, 5 – 9 percent slopes, are present along the eastern edge of the site, associated with the historic floodplain of the Sycamore Creek.

Approximately 642.2 acres onsite (25 percent) contains soils that are considered to provide a substrate for sensitive plant species.

Vegetation Communities

Based on species composition and general physiognomy, 14 vegetation communities, 11 sub-communities or intergraded communities, and three land use types were identified on Fanita Ranch and the Cuyamaca Road extension area. Their acreages are presented in *Table 1*.

TABLE 1
VEGETATION COMMUNITIES AND LAND COVER TYPES

VEGETATION COMMUNITY/LAND COVER TYPE	Fanita Ranch	Cuyamac St, Extension	Total[1]
Annual (Non-native) Grassland	201.7	7.2	208.9
Annual Grassland / Ornamental	19.7	0	19.7
Cismontane Alkali Marsh	0.9	0	0.9
Coast Live Oak Woodland	5.7	0	5.7
Coastal Sage Scrub Communities			
Diegan Coastal Sage Scrub	764.3	0	764.3
Broom Baccharis Scrub	8.9	0	8.9
Coastal Sage Scrub / Southern Mixed Chaparral	13.5	0	13.5
Coastal Sage Scrub / Valley Needlegrass Grassland	9.4	0	9.4
Coastal Sage Scrub / Disturbed Valley Needlegrass Grassland	35.3	0	35.3
Disturbed Coastal Sage Scrub	352.6	32.9	352.6
Disturbed Coastal Sage Scrub / Annual Grassland	106.0	0	106.0
Disturbed Coastal Sage Scrub / Baccharis Scrub	6.9		6.9
Disturbed Coastal Sage Scrub / Valley Needlegrass Grassland	41.1	6.6	47.7
Subtotal for Coastal Sage Scrub	***1,338.0***	***39.5***	***1,337.4***
Developed	12.5	2.1	14.6
Disturbed Habitat	103.5	4.0	107.5
Disturbed Wetland	0.3	0	0.3
Freshwater and Valley Marsh	0.3	0	0.3
Disturbed Freshwater Marsh	0.1	0	0.1
Mule Fat Scrub	0.6	0	0.6
Ornamental Plantings	5.0	0	5.0
Revegetation	34.9	0	34.9
Ruderal	21.9	0	21.9
Ruderal/Disturbed Habitat	22.5	0	22.5

TABLE 1
VEGETATION COMMUNITIES AND LAND COVER TYPES

VEGETATION COMMUNITY/LAND COVER TYPE	Fanita Ranch	Cuyamac St, Extension	Total[1]
Southern Coast Live Oak Riparian Forest	16.2	0	16.2
Southern Mixed Chaparral	615.0	8.1	623.1
Southern Willow Scrub	1.9	0	1.9
Sycamore Alluvial Woodland	15.5	0	15.5
Valley Needlegrass Grassland	175.4	0	175.4
TOTAL[1]	**2,591.5**	**60.9**	**2,652.4**

[1] Column may not total precisely due to rounding errors.

Annual (Non-native) Grassland

A total of 208.9 acres of annual grassland communities were mapped on the project area. Most of the existing annual grassland onsite evidently is the result of farming, other mechanical disturbances, or repeated fires. Where the disturbance has been frequent and/or intensive, the native vegetation community often does not recover. These areas are characterized by weedy, introduced annuals, primarily grasses, including especially slender wild oat (*Avena barbata*), bromes (*Bromus* spp.), mustards (*Brassica* and *Sisymbrium* spp.), filarees, and Russian-thistle (*Salsola tragus*).

Annual grassland containing non-native trees and shrubs in a linear area in the extreme southern portion of the project area, along the access road into the site between Santee Lakes and a subdivision, is mapped as annual grassland / ornamental.

Broom Baccharis Scrub

It is a distinctive vegetation association in southern California, dominated by broom baccharis (*Baccharis sarothroides*) and usually containing scattered individuals of other native shrub species. It frequently is an early successional community that occurs in more mesic sites or along drainages where coastal sage scrub or chaparral have been eliminated by perturbation.

On Fanita Ranch, this vegetation consists of nearly uniform stands of broom baccharis with a sparse cover of other native shrubs, including California sagebrush (*Artemisia californica*),

California buckwheat (*Eriogonum californica*), and Mexican elderberry (*Sambucus mexicanus*), and non-native herbs and grasses. Approximately 8.9 acres are present on Fanita Ranch.

Cismontane Alkali Marsh

Three patches of cismontane alkali marsh, with a total area of 0.9 acre, occur along the Sycamore Creek and a tributary drainage. Low herbaceous plants such as salt grass, pale spike-sedge (*Eleocharis macrostachya*), toad rush (*Juncus bufonius var. bufonius*), and curly dock (*Rumex crispus*).

Coast Live Oak Woodland

Coast live oak woodland onsite occurs as several scattered patches totaling 5.7 acres in the northern part of Fanita Ranch. Coast live oaks form small homogeneous stands, with a disturbed understory that includes ripgut grass (*Bromus diandrus*), soft chess (*B. hordeaceus*), red brome (*B. madritensis* ssp. *rubens*), and slender wild oat. It is contiguous, or nearly so, with some areas of southern coast live oak riparian forest, but occurs slightly higher topographically, and not in association with a drainage.

Coastal and Valley Freshwater Marsh

On Fanita Ranch, freshwater marsh occurs as seven small patches of emergent monocots (occupying 0.4 acre) along the improved or maintained drainage adjacent to Fanita Parkway and the access road to the upper Santee Lakes. These are generally dominated by non-native hydrophytic species, including umbrella sedge (*Carex alternifolius),* rabbit's-foot grass (*Polypogon monspeliensis*) and Mexican fan-palm (*Washingtonia robusta*). One patch of freshwater marsh in a relatively natural area adjacent to the Santee Lakes access road is dominated by Mexican rush (*Juncus mexicanus*) and spiny cocklebur (*Xanthium strumarium*). In the central part of the site near sycamore alluvial woodland contains Mexican rush (*Juncus mexicanus*) and yerba mansa (*Anemopsis californica*).

Coastal Sage Scrub Communities

Coastal sage scrub vegetation onsite is dominated by California sagebrush and California buckwheat, with laurel sumac, redberry (*Rhamnus crocea*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), San Diego County viguiera (*Viguiera laciniata*), toyon, and bush monkeyflower (*Mimulus aurantiacus*) as lesser components. In the southern portion of the site, some patches are dominated by white sage; in the north, redberry (*Rhamnus crocea*) is the dominant shrub in some areas. This community supports a diverse understory of native herbs and

forbs, including virgate tarplant (*Holocarpha virgata*), deerweed (*Lotus scoparius*), blue dicks (*Dichelostemma capitata*), Cleveland's shooting-star (*Dodecatheon clevelandii*), blue-eyed grass (*Sisyrinchium bellum*), canchalagua (*Centaurium venustum*), and several species of grasses, both native and introduced. The primary introduced grass is slender wild oat (*Avena barbata*).

Disturbed coastal sage scrub communities contain relatively more non-native grasses and fewer native shrubs. Areas with native coastal sage scrub shrub cover greater than 20 percent are mapped as coastal sage scrub; areas with native shrub cover of 11-20 percent are mapped as disturbed coastal sage scrub; areas with native shrub cover of 5-10 percent are mapped as disturbed coastal sage scrub/annual grassland. In addition, transitional areas containing a mix of coastal sate scrub types and baccharis scrub, valley needlegrass grasslands, or southern mixed chaparral have been identified and mapped.

Developed

The paved roadway in the extreme southern part of the site, between Santee Lakes and the residential development is mapped as developed.

Disturbed Habitat

Disturbed habitat refers to land that does not heave habitat value for native species due to lawful activities (San Diego County 2004). Disturbed habitat typically includes areas that lack vegetation entirely, generally as the result of severe or repeated mechanical perturbation, and areas dominated by invasive, broadleaved (ruderal) species that typically develop on compacted soils following intense disturbance. Typical ruderal species in San Diego County include horse weed (*Conyza* spp.), garland chrysanthemum (*Chrysanthemum coronarium*), sow thistle (*Sonchus* spp.) and Russian thistle (*Salsola tragus*) (City of San Diego 2002). Approximately 103.5 acres onsite are unvegetated dirt roads, trails, scrapes, soil test pits, or transmission tower sites.

Disturbed Wetland

Hydrophytic vegetation with over 80 percent cover of non-native species is mapped as disturbed wetland. Several patches of disturbed wetlands are mapped along Fanita Parkway; a single patch occurs at the downstream end of Sycamore Creek on the project site. Component species in disturbed wetlands onsite include Bermuda grass (*Cynodon dactylon*), umbrella sedge and salt-cedar.

Mule Fat Scrub

Mule fat scrub is a tall, herbaceous riparian scrub strongly dominated by mule fat (*Baccharis salicifolia*). Three patches of mulefat scrub with a total area of 0.6 acre occur in the lower portion of the Sycamore Creek drainage and along Fanitay Parkway.

Ornamental Plantings

Ornamental plantings refer to areas where ornamentals and landscaping have been installed. These areas are concentrated around the southern edge of Fanita Ranch in patches adjacent to the existing residential development. The most common ornamental species are eucalyptus (*Eucalyptus* sp.) and pepper trees (*Schinus* spp.).

Revegetation

Revegetation refers to those areas where native vegetation has been planted on cut and/or fill slopes. These areas are found around the water storage facility in the southwestern portion of the property. Revegetation areas are heterogenous - some are dominated by native species and others support a large number of exotics. One patch of revegetated habitat north of the facility supports a dense, uniform stand of broom baccharis; the slope south of the facility supports a sparse mix of coastal sage scrub species. Other slopes have a substantial component of Peruvian pepper-tree (*Schinus molle*) and laurel sumac, with few native shrubs.

Ruderal

Ruderal refers to areas supporting broad-leaved non-native species to the exclusion of native plants. These areas typically form as a result of repeated soil perturbation.

Approximately 22 acres in the western portion of Fanita Ranch include a dense, upland thicket of giant cane (*Arundo donax*) and patches dominated by black mustard (*Brassica nigra*), star-thistle (*Centaurea melitensis*), filaree, or fennel (*Foeniculum vulgare*). An additional 22.5 acres along the southern boundary of the project site support similar species as well as bare ground due to ongoing brush management practices.

Southern Coast Live Oak Riparian Forest

The 16.2 acres of southern coast live oak riparian forest on Fanita Ranch occurs as a broad band of sparsely distributed western sycamore (*Platanus racemosa*) and coast live oak along Sycamore Creek. This community contains scattered black willow (*Salix gooddingii*) and mule fat, and an

understory that includes western poison oak (*Toxicodendron diversilobum*), California buckwheat, and deergrass (*Muhlenbergia rigens*).

Southern Mixed Chaparral

Southern mixed chaparral is the second most common vegetation type in the project area, with approximately 623.1 acres in the northern portion of the project area. There is little or no understory in this community, except for in openings. The dominant species in the southern mixed chaparral onsite are chamise, black sage (*Salvia mellifera*), laurel sumac, coastal spicebush (*Cneoridium dumosum*), and mission manzanita. Understory species include dark-tipped bird's-beak (*Cordylanthus rigidus*), rock-rose (*Helianthemum scoparium*), and ashy spike-moss (*Selaginella cinerascens*).

Southern Willow Scrub

Onsite, southern willow scrub occurs in a 1.9-acre patch in the main drainage of Sycamore Canyon along the western edge of the property just north of the Padre Dam facilities and along Fanita Parkway. The patches are dominated by arroyo willow (*Salix lasiolepis*) and black willow (*Salix gooddingii*) with an understory of mule fat.

Sycamore Alluvial Woodland

Most of the 15.5 acres of sycamore alluvial woodland occurs along the Sycamore Creek drainage, with two tributaries also supporting this vegetation. In Sycamore Creek, coast live oak is an important component, along with deergrass, mulefat, wild rye (*Leymus glaucus*), yerba mansa, Mexican rush and western poison oak. Although this habitat at Fanita Ranch does not precisely agree with Holland's description of sycamore alluvial woodland, it is closer to this community than any other Holland category.

Valley Needlegrass Grassland

The 175.4 acres mapped as valley needlegrass grassland on Fanita Ranch mapped onsite are dominated by non-native grasses, such as red brome, soft-chess, and ripgut grass, with tussocks of purple needlegrass (*Nassella pulchra*) scattered throughout. Native herbs that occur in the valley needlegrass grassland are blue-eyed grass, morning-glory (*Calystegia macrostegia*), blue dicks, wild onion (*Allium* sp.), Cleveland's shooting-star, Cleveland=s golden-star, purple sanicle (*Sanicula arguta*), dot-seed plantain (*Plantago erecta*), purple owl's-clover (*Castilleja exserta*), and common goldenstar (*Bloomeria crocea*).

PREVIOUS BRANCHIOPOD STUDIES

The Fanita Ranch site has been previously surveyed for identification of vernal pools by Odgen (early 1990's). Recon conducted dry season sampling from 10 depressions that were within a mima-mound complex and supported wooly marbles *(Psilocarphus brevissimus)*. The hydration results were negative for presence of any fairy shrimp species.

Dudek conducted wet season surveys in 1997 that consisted of visual surveys throughout the wet season and traditional sampling surveys on two days during the season. The visual surveys were conducted within a mima-mound complex where as the sampling effort included all areas from the current terminus of Fanita Parkway to the location of the mima-mound complex. Both the visual surveys and ponded water sampling were negative for presence of any fairy shrimp species.

Dudek conducted wet season surveys in 2004 according to the USFWS protocol and the methodology described below. Surveys were conducted from January through March 2004 and covered all seasonal basins throughout the project site. Rainfall during the period was near average for San Diego County. A total of 71 basins were sampled; 27 were determined occupied by San Diego fairy shrimp. Other basins did not support any vernal pool branchiopod species. Dudek completed a protocol survey report dated November 5, 2004.

2005 Survey Methodology

Seasonal basins throughout the project site were surveyed from the time that onset of winter rains (November 2, 2004) until rains had ceased and all non-occupied depressions had dried (May 4, 2005). During this period the site was visited every one to two weeks for a total of 13 visits *(Table 2)*.

TABLE 2
SCHEDULE OF SURVEYS - WINTER 2004-2005

VISIT NUMBER	DATE	TIME	AVG. AIR TEMP (oC)	AVG WATER TEMP (oC)
1	2 November	0730-1100	17	18
2	16 November	0730-1030	19.5	15
3	30 November	0830-1300	12	12
4	14 December	0800-1130	17	15
5	6 January	730-1530	12	12

TABLE 2
SCHEDULE OF SURVEYS - WINTER 2004-2005

VISIT NUMBER	DATE	TIME	AVG. AIR TEMP (oC)	AVG WATER TEMP (oC)
6	15-18 January	0640-1415	15	14
7	20 January	0745-1610	16	14
8	3 February	0730-1453	12	9
9	24 February	0630-1510	14	12
10	8 March	0700-1530	16	18
11	24 March	0830-1400	17	15
12	22 April	0630-0700	17	20
13	4 May	1030-1230	17	--

During each visit, basins containing ponded water at least 3 cm deep were staked using pin flags and labeled numerically. The limits of the basins were recorded using a GPS unit throughout the 2005 survey season as they were identified with each new rain event. These limits were verified at the end of the season to be the maximum basin area for each depression as observed over the course of the season.

During each visit all seasonal basins were inspected for depth of inundation, surface area of water, air and water temperature, level of disturbance and presence of aquatic wildlife. A few basins supported flowing water during some survey dates; these basins were not sampled during when water was flowing through them. If a basin was determined occupied, surveys were discontinued. The exception for this was when only female shrimp samples were collected, in which case surveys were continued to try to obtain a male sample. Where only a single female was observed in a basin, the female was not collected so as not to disrupt potential reproduction from occurring in the basin. All information was recorded on a data sheet as provided in the Survey Protocol (*attached*). A Survey Log is attached which summarizes which basins were sampled during which surveys and the reason why basins were not sampled *(i.e.,* determined occupied during previous survey, basin supporting flowing water, or basin dry).

Seasonal basins were numbered during the 2004 season in three categories: vernal pools, road ruts, and wetland basins. This distinction was used during the 2005 surveys as indicated by the

field data sheets. However, all the three groups have been combined for the final data presentation in order to provide unique identification numbers and to remove arbitrary distinctions. The Survey Log contains both the categorized identification numbers (VP 1-44, RR 1-180, WB 1-5) and the unique identification numbers (Join ID 1-229).

An aquarium net was passed through all pools which retained water at least 3 cm deep at the time of surveying. The net passed through nearly all portions of the ponded water area and from the bottom to the water surface. The surveyors were not familiar with most aquatic invertebrates but were able to identify fairy shrimp and tadpoles where present. Samples were collected when needed using the aquarium net and a glass vial. Specimens were stored in the vial with water collected from the same pool where the specimen was found. Each vial was labeled according to the pool from which it was collected. Specimens were taken to the laboratory within 24 hours and placed in a 70% ethyl alcohol solution. Each specimen was inspected using microscope at 3X scale and the key found in Eriksen and Belk (1999). Mature samples were separated from non-fully developed individuals in labeled vials. Numbers of individuals of each sex were recorded for each vial.

The samples are currently being prepared and submitted for accessioning with the Carlsbad Field Office according to the specification of the USFWS Survey Protocol. Survey forms are also being completed to be submitted to the California Natural Diversity Database (CNDDB).

2005 Survey Results

The distribution of seasonal basins surveyed during 2004 and 2005 is depicted in *Figures 3A-3M*. A total of 229 seasonal basins were identified during the two wet survey seasons. Of those, 27 were determined occupied by San Diego fairy shrimp during 2004 surveys. An additional 32 were determined occupied by San Diego fairy shrimp during 2005 surveys. A total of 170 basins were determined absent for all listed vernal pools branchiopod species. San Diego fairy shrimp is the only branchiopod species detected on the project site.

Pictures were taken of the site on January 14, 2005; a variety of basin types are illustrated on *Figures 4A & 4B.*

Please refer to the data sheets for more complete and precise information on each pool and each visit.

Please feel free to call me at (760) 942-5147 if you have any questions regarding the contents of this letter.

Very truly yours,

Dudek & Associates, Inc.

Vipul R. Joshi
Biologist
Permit Number TE019949

cc: Nick Arthur, Barratt American
Jim Whalen, Whalen & Associates, Inc.
Brock Ortega, Dudek

att: Figures 1-4
Survey Log
U.S. Fish and Wildlife Service Vernal Pool Data Sheets

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Basin 2 (Photo taken by Vipul Joshi on Jan. 14, 2005)



Basin 61 (Photo taken by Vipul Joshi on Jan. 14, 2005)



Basins 65, 120, 186 & 217 (Photo taken by Vipul Joshi on Jan. 14, 2005)



Basin 84 (Photo taken by Vipul Joshi on Jan. 14, 2005)



Basin 92 (Photo taken by Vipul Joshi on Jan. 14, 2005)



Basin 96 (Photo taken by Vipul Joshi on Jan. 14, 2005)

Fanita - 2005 Branchiopod Survey Report

Basin Photos - Sheet 1

FIGURE 4a



Basins 99 & 100 (Photo taken by Vipul Joshi on Jan. 14, 2005)



Basin 158 (Photo taken by Vipul Joshi on Jan. 14, 2005)



Basin 202 (Photo taken by Vipul Joshi on Jan. 14, 2005)



Basin 206 (Photo taken by Vipul Joshi on Jan. 14, 2005)



Basins 211 & 212 (Photo taken by Vipul Joshi on Jan. 14, 2005)

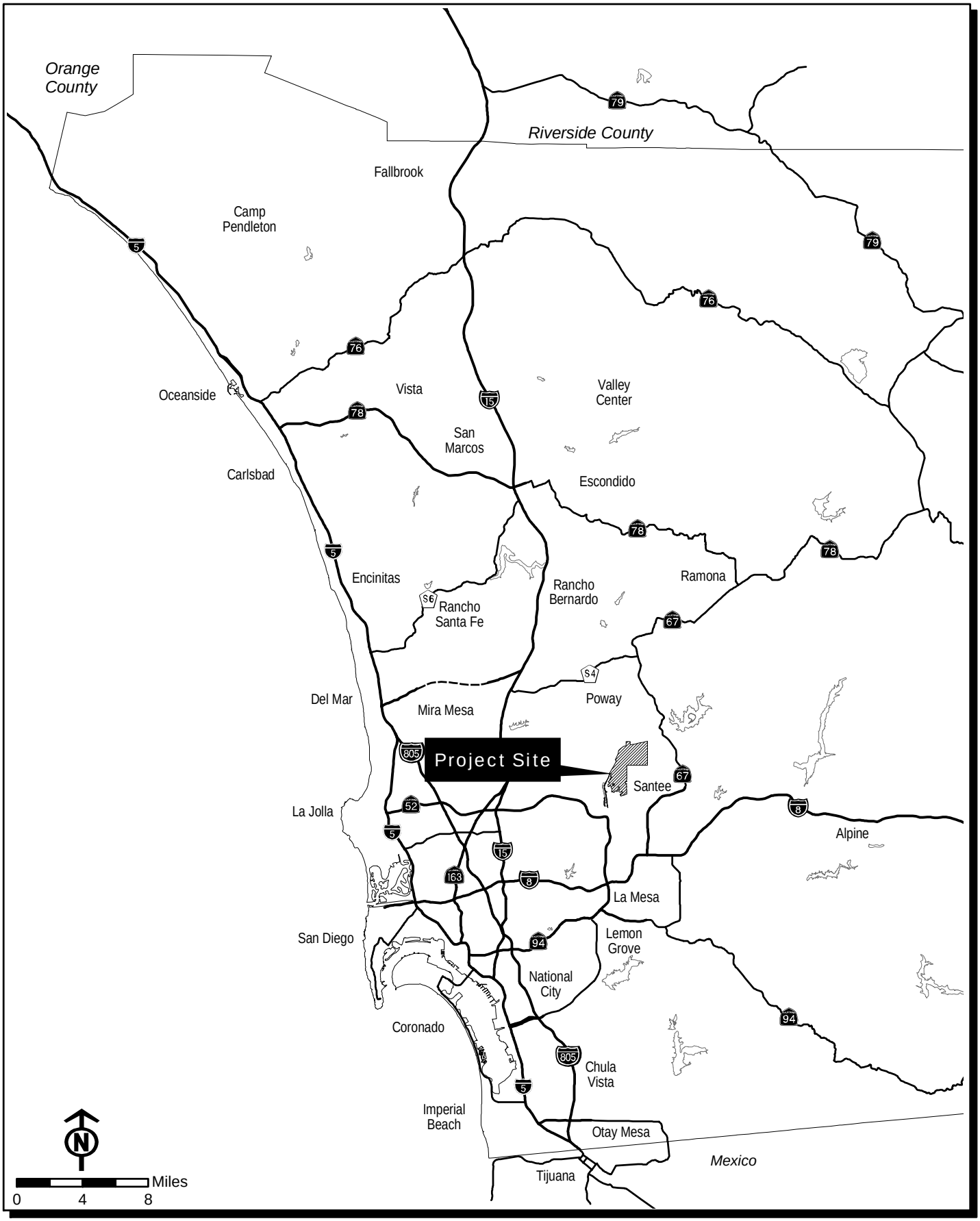


Basin 216 (Photo taken by Vipul Joshi on Jan. 14, 2005)

Fanita - 2005 Branchiopod Survey Report

Basin Photos - Sheet 2

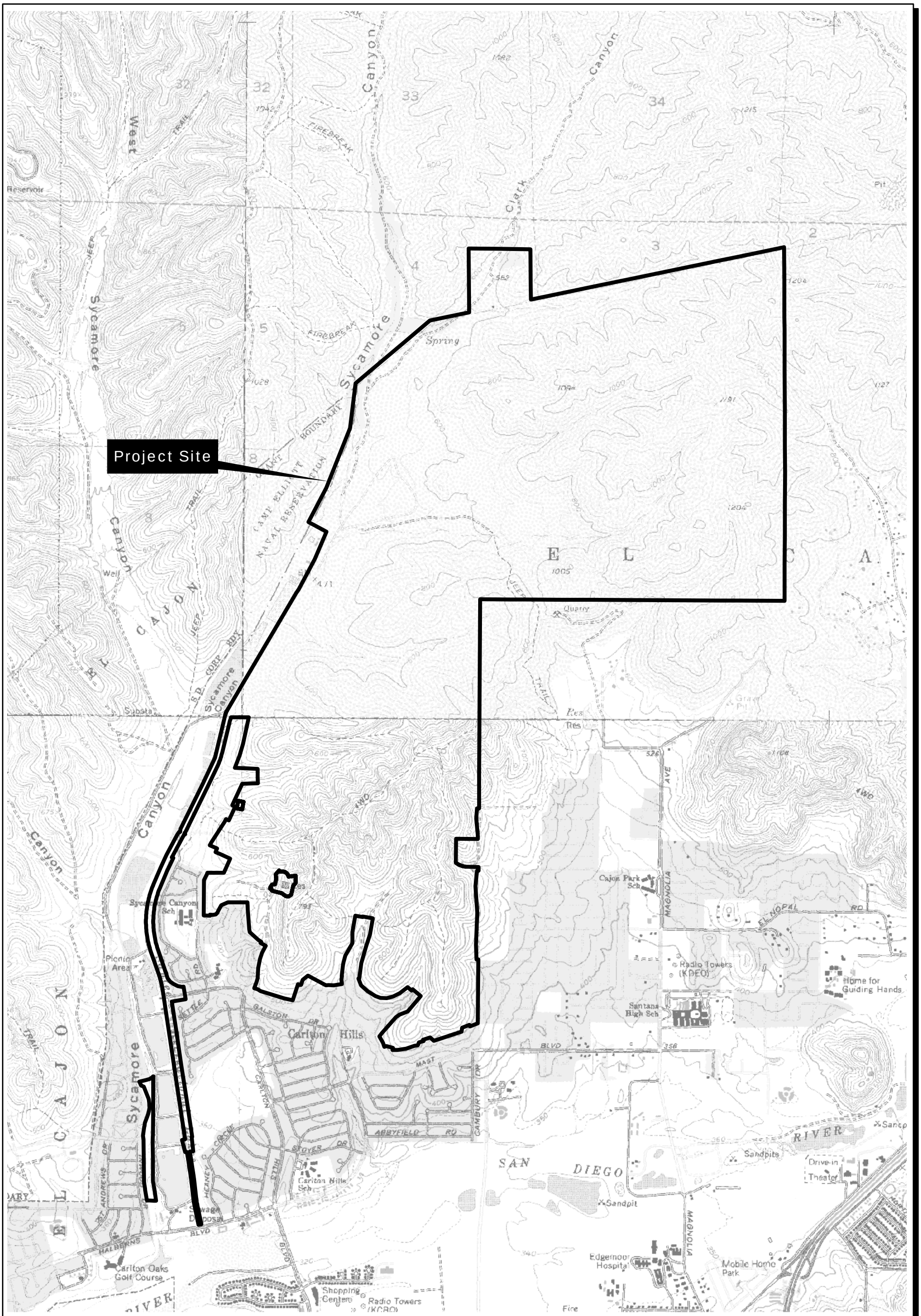
FIGURE 4b



Fanita - 2005 Branchiopod Survey Report

Regional Map

FIGURE 1

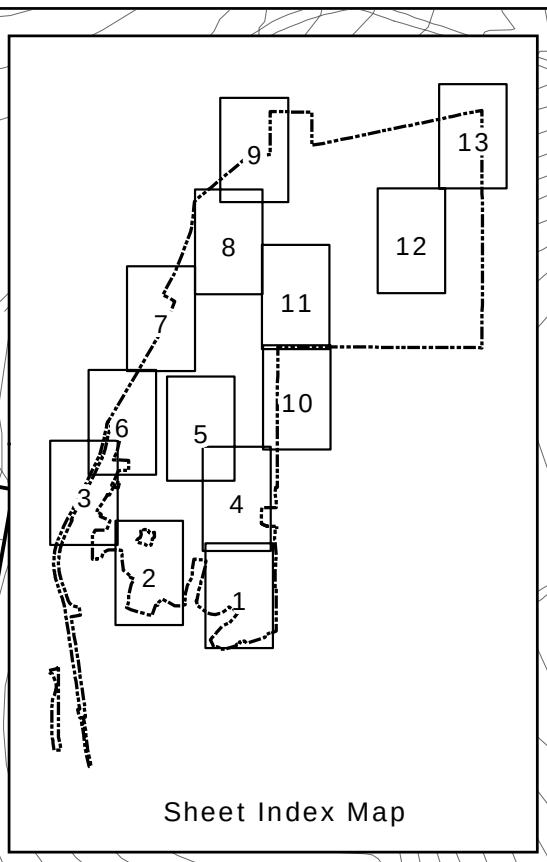


BASE MAP SOURCE: USGS 7.5 Minute Series, Poway, San Vicente Reservoir, La Mesa and El Cajon Quadrangles

Fanita - 2005 Branchiopod Survey Report

Vicinity Map

FIGURE 2



Sheet Index Map

Seasonal Basins (with Unique ID's):

- SDFS Present 2005
- SDFS Present 2004
- SDFS Absent 2004 & 2005

159
75
74
76
77
181
202
78

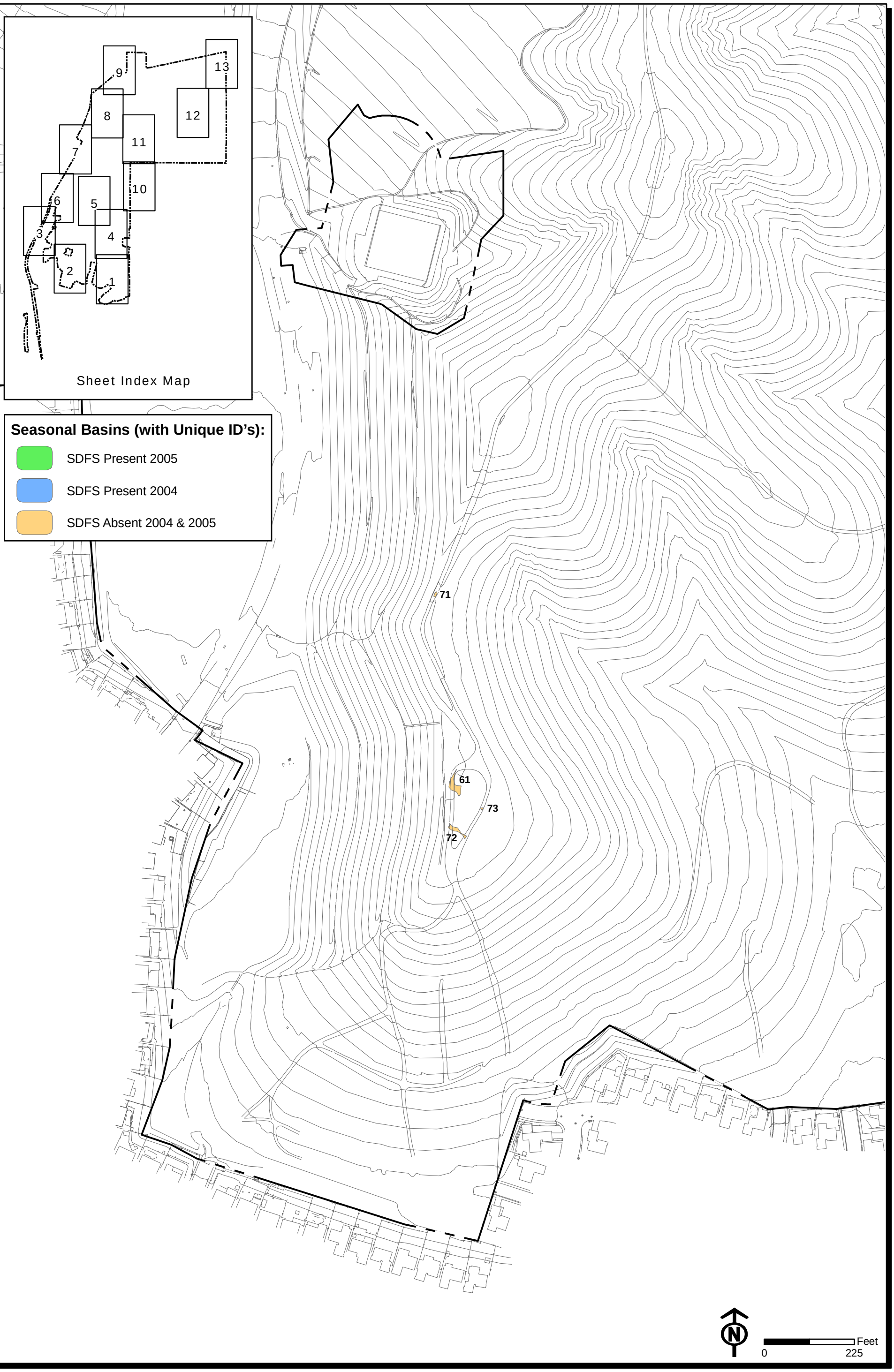
N

0 225 Feet

Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 01

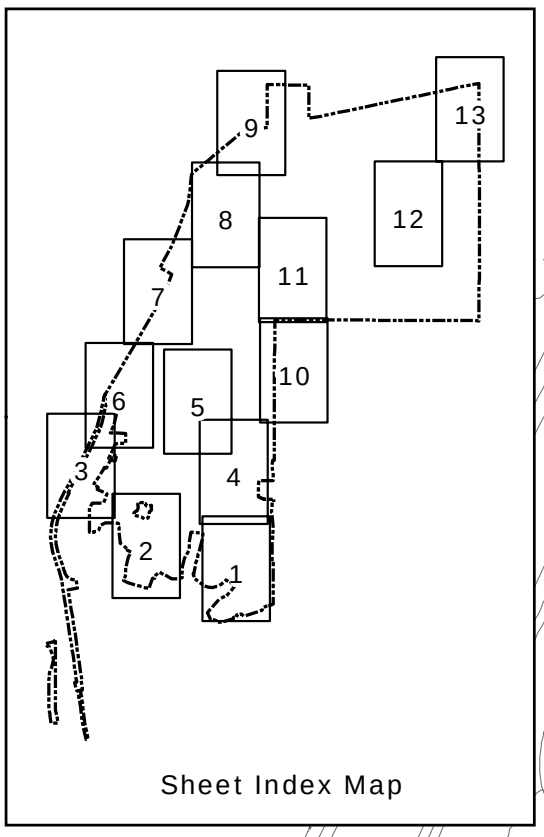
FIGURE 3a



Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 02

FIGURE 3b



Sheet Index Map

Seasonal Basins (with Unique ID's):

- SDFS Present 2005
- SDFS Present 2004
- SDFS Absent 2004 & 2005

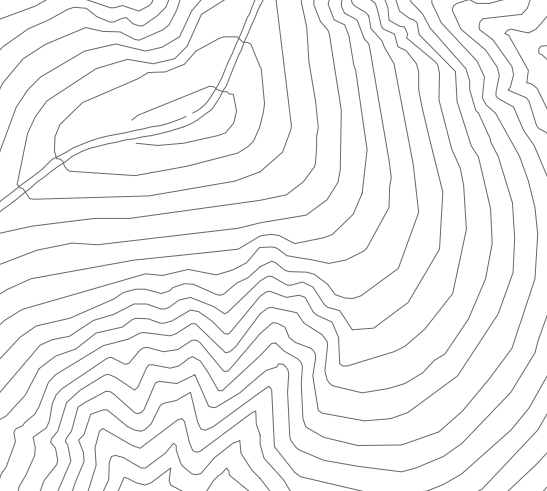
Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 03

FIGURE
3c

180

182



Sheet Index Map

Seasonal Basins (with Unique ID's):

- SDFS Present 2005
- SDFS Present 2004
- SDFS Absent 2004 & 2005

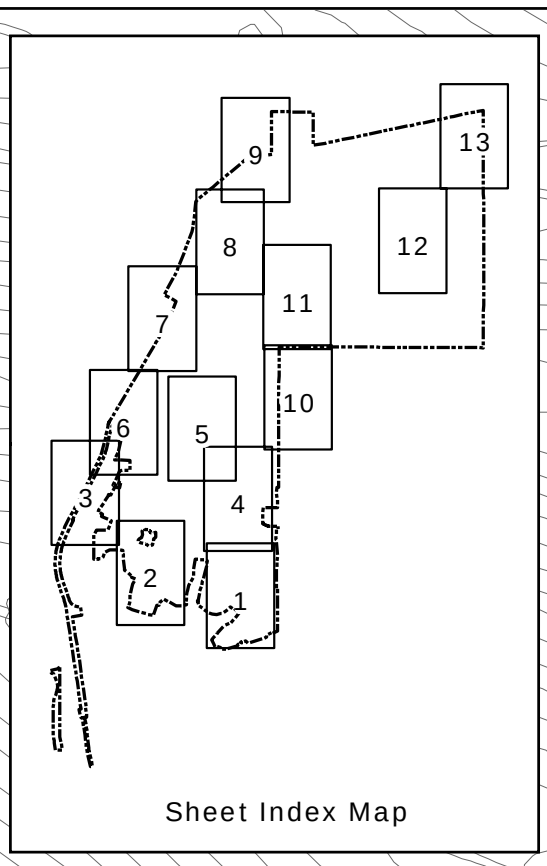
N

0 225 Feet

Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 04

FIGURE 3d



Sheet Index Map

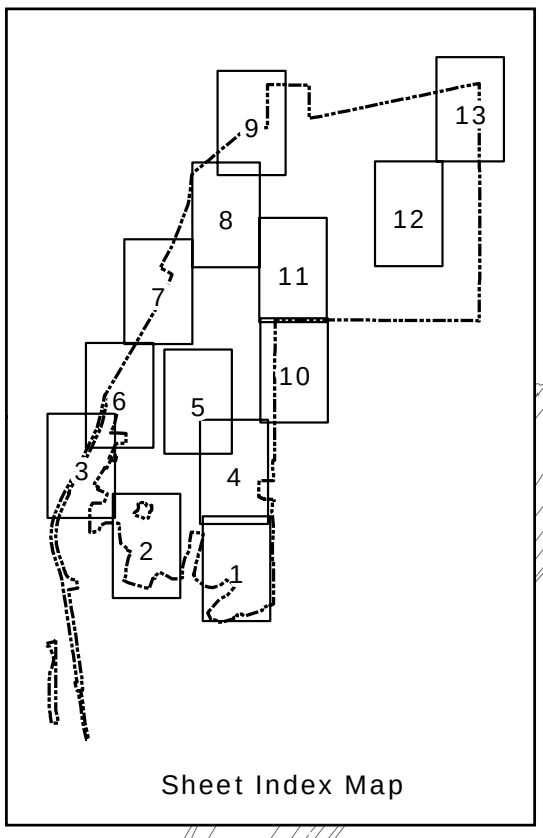
Seasonal Basins (with Unique ID's):

- SDFS Present 2005
- SDFS Present 2004
- SDFS Absent 2004 & 2005

Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 05

FIGURE
3e



Sheet Index Map

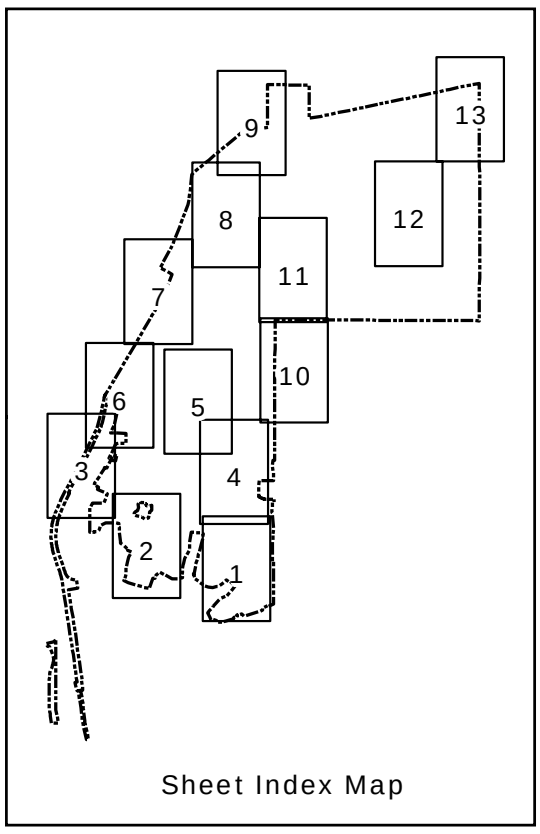
Seasonal Basins (with Unique ID's):

- SDFS Present 2005
- SDFS Present 2004
- SDFS Absent 2004 & 2005

Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 06

FIGURE
3f



Sheet Index Map

Seasonal Basins (with Unique ID's):

- SDFS Present 2005
- SDFS Present 2004
- SDFS Absent 2004 & 2005

122
14
197
21
196
146
147
165
148
149
155
150
13
225
151
152
153
154
20
224
223
166
219
218
121

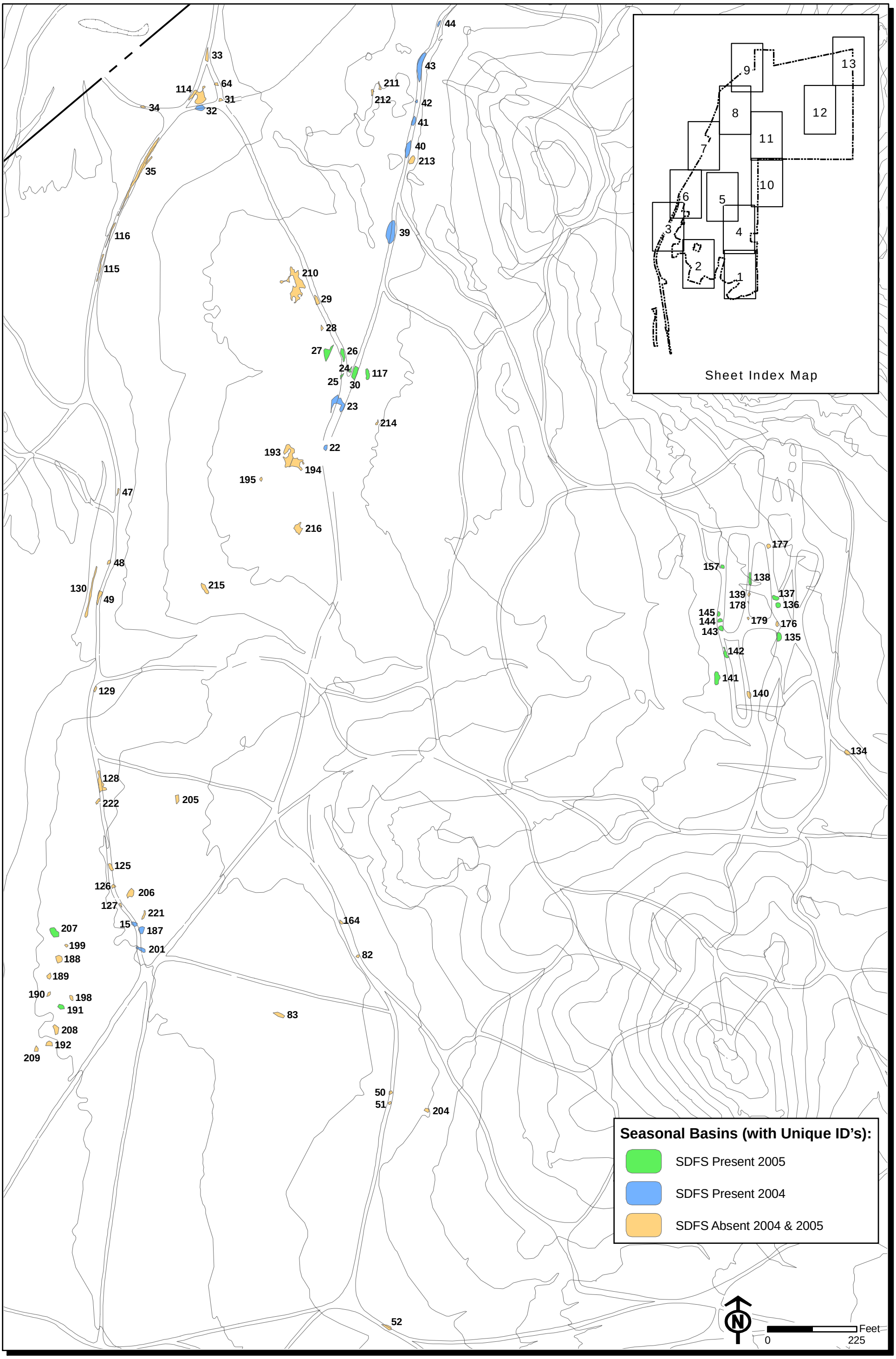
N

0 225 Feet

Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 07

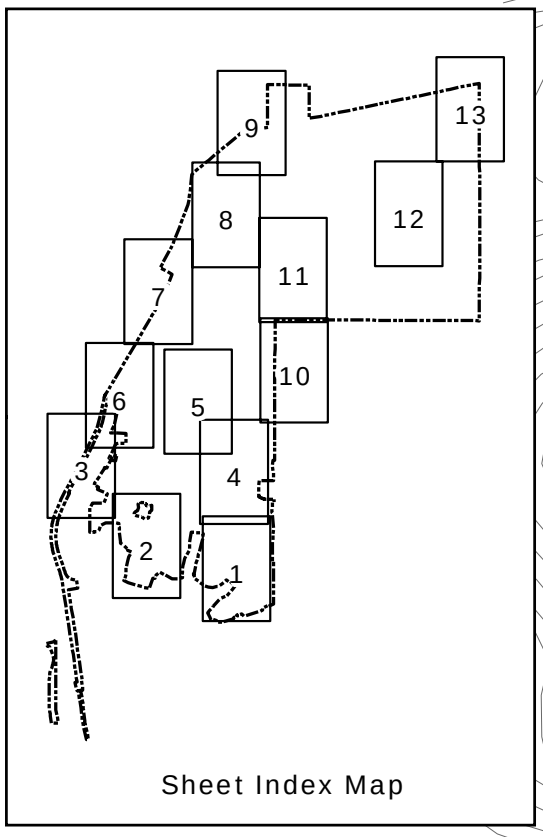
FIGURE 3g



Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 08

FIGURE
3h



Sheet Index Map

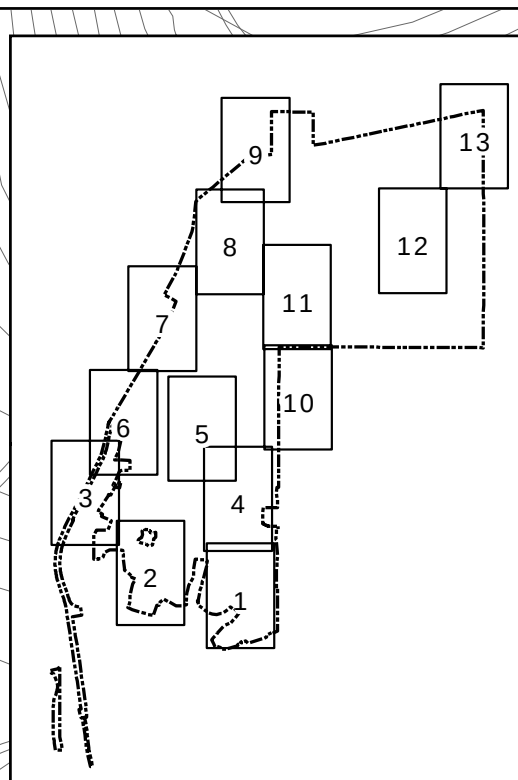
Seasonal Basins (with Unique ID's):

- SDFS Present 2005
- SDFS Present 2004
- SDFS Absent 2004 & 2005

Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 09

FIGURE
3i



Sheet Index Map

Seasonal Basins (with Unique ID's):

- SDFS Present 2005
- SDFS Present 2004
- SDFS Absent 2004 & 2005

55
220
124
62
80
79

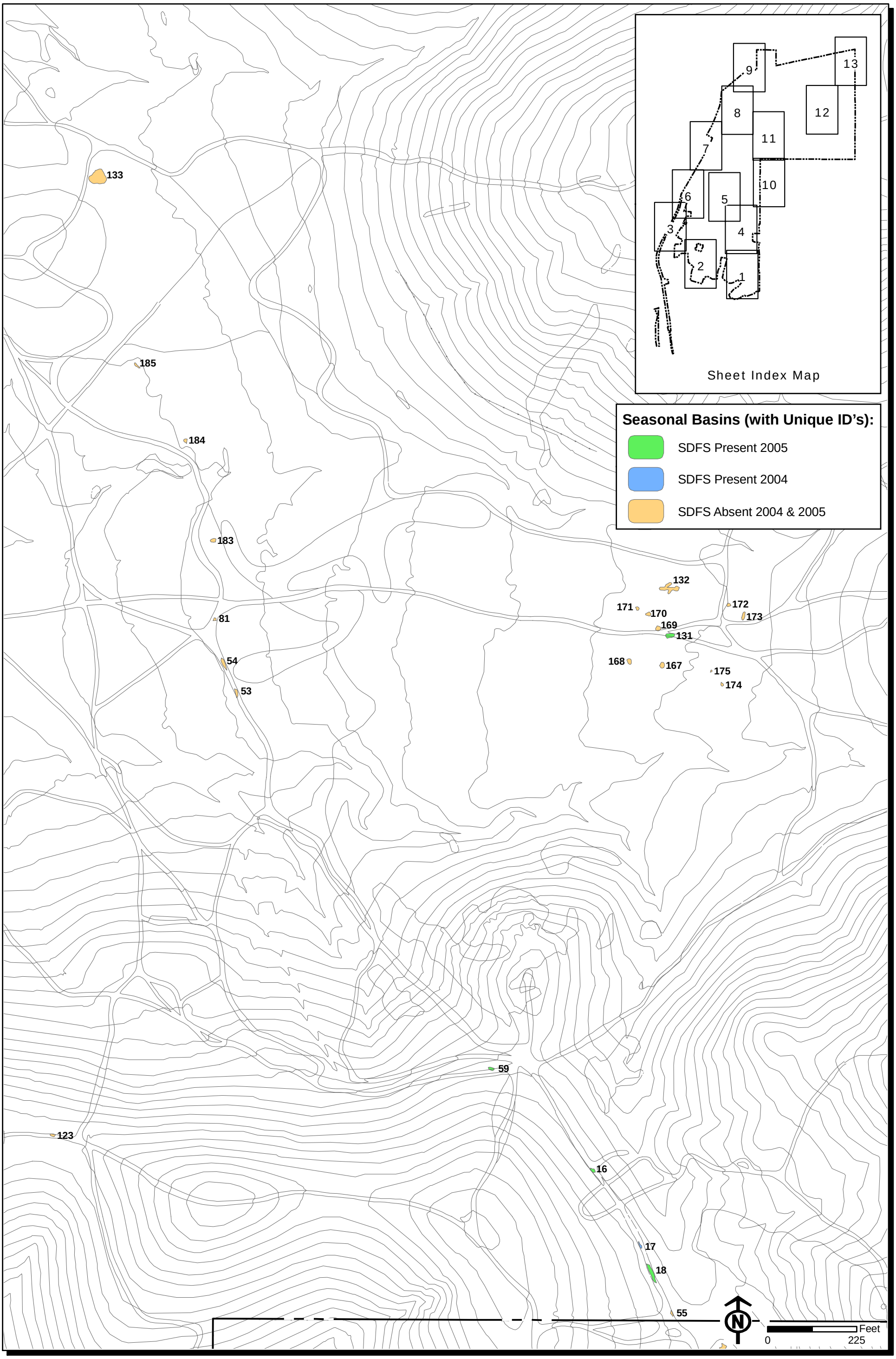
N

0 225 Feet

Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 10

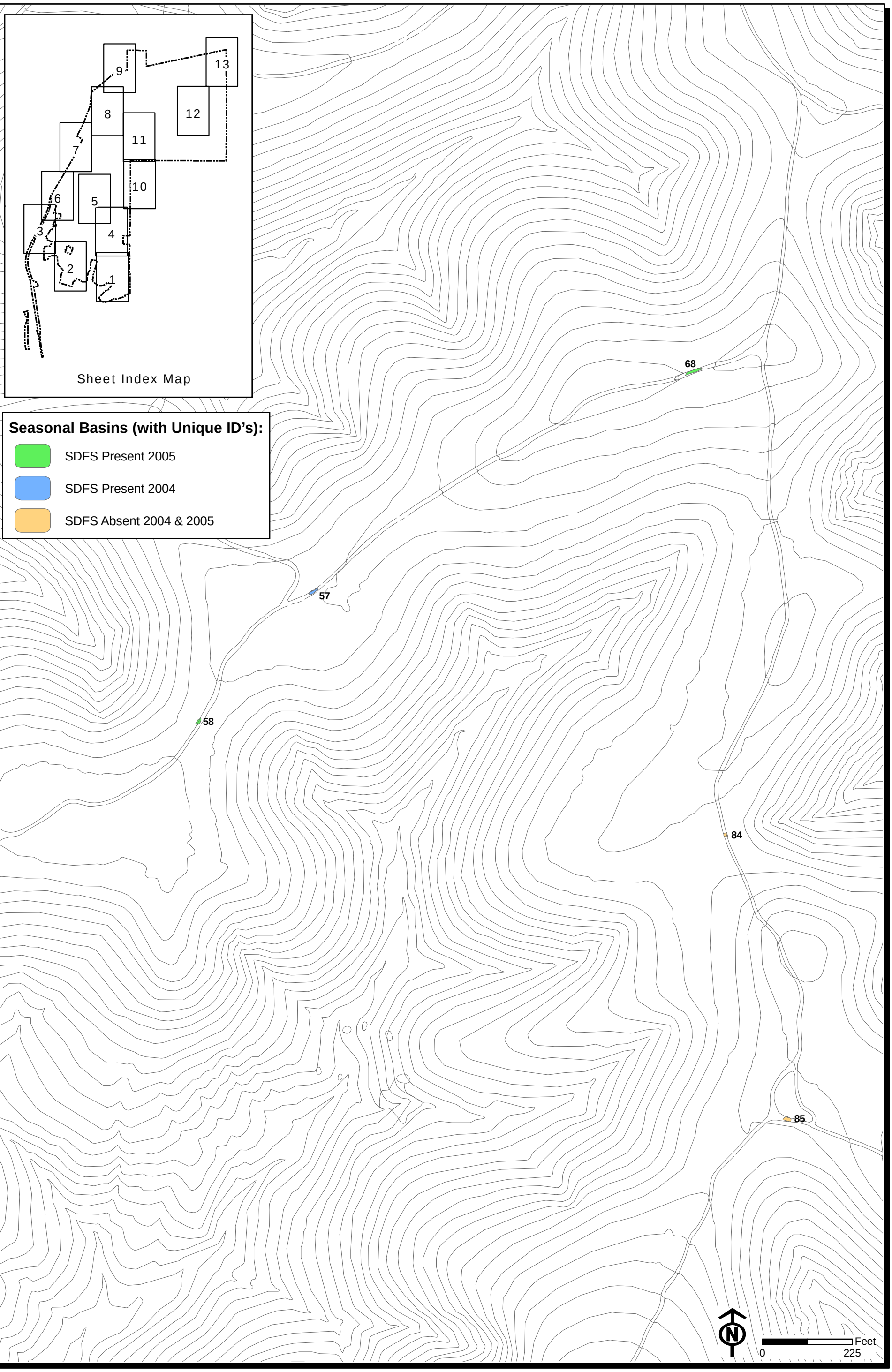
FIGURE 3j



Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 11

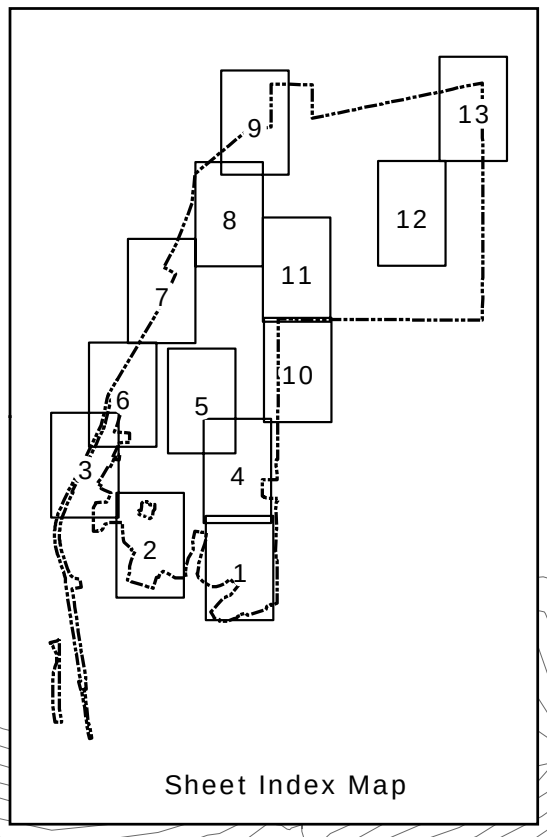
FIGURE
3k



Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 12

FIGURE 3I



Sheet Index Map

Seasonal Basins (with Unique ID's):

- SDFS Present 2005
- SDFS Present 2004
- SDFS Absent 2004 & 2005

Fanita - 2005 Branchiopod Survey Report

Seasonal Basins Map - Sheet 13

FIGURE
3m

APPENDIX I

2015/2016 Focused Fairy Shrimp Survey Report

DUDEK

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July 15, 2016 7490

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Subject: 2015/16 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Fanita Ranch Project, Santee, California

The 2015/16 wet season survey for the presence or absence of two federally listed endangered vernal pool branchiopod species, Riverside fairy shrimp (*Streptocephalus woottoni*) and San Diego fairy shrimp (*Branchinecta sandiegonensis*), was conducted between November 17, 2015, and May 8, 2016. Dudek biologists Danielle Mullen (Permit No. TE-31221B-0) and Paul Lemons (TE-051248-5) conducted the surveys according to the *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2015). This report summarizes the results of the 2015/2016 wet season survey in order to fulfill the report requirements in accordance with the Section 10(a)(1)(A) Recovery Permit for the Fanita Ranch Project, located in the City of Santee, San Diego County, California.

A total of 35 features were identified as suitable habitat for vernal pool branchiopods and were surveyed during the 2015/2016 wet survey season. Of the 35 features that were surveyed in 2015/16, 21 features were identified during previous surveys conducted in 2004 and 2005, and 14 features were identified as new in 2015/16. As directed by the U.S. Fish Wildlife Service (USFWS) Recovery Permit Coordinator Stacey Love, all features identified during previous surveys that were found to be occupied with San Diego fairy shrimp were not surveyed during the 2015/16 wet season.

Twelve features (2a, 3a, 4a, 5a, 7a, 8a, 10a, 49, 62, 65, 111, and 140) were found to support San Diego fairy shrimp and two features (9a and 161) were found with immature or female branchiopod individuals that were unidentifiable to species (*Branchinecta* sp.). Feature 161 had both immature (e.g., 10s of individuals) and one female, neither of which allow for identification to species. During multiple visits, feature 9a had only one female and was not collected so as not to disrupt potential reproduction from occurring in the feature. Surveys were continued in these two features to try and obtain a male sample; however, features dried before immatures reached maturity, and no males occurred in feature 9a. Of the 14 features supporting branchiopods, 8 were new features identified in 2015/16 (features 2a, 3a, 4a, 5a, 7a, 8a, 9a, 10a), and six features

were previously identified during surveys conducted in 2004 and 2005 (features 49, 62, 65, 111, 140, and 161).

PROJECT LOCATION AND EXISTING CONDITIONS

The project site is located in the northwestern portion of the City of Santee in San Diego County, California (Figure 1). The site is bordered by the Sycamore Canyon County Park and other protected open space to the north and east, by residential development to the south and east, and by vacant land on MCAS Miramar to the west. The property lies approximately 3 miles northeast of State Route 52. The site occupies portions of Township 15 South, Range 1 West, projected Sections 2, 3, 4, 8, 9, 10, 16, 17, 20, and 21 on the San Vicente Reservoir, El Cajon, La Mesa, and Poway West U.S. Geological Survey 7.5 minute quadrangle maps (Figure 2). The approximate center of the project site is located at a latitude and longitude of 32°53'61" north and 116°59'78" west.

Elevations range from about 320 feet above mean sea level in the southern end of Fanita Parkway to approximately 1,204 feet above mean sea level peaks in the northeastern corner of the site. The project site contains a series of northeast- to southwest-trending hills and valleys that form a transition between the relatively low, flat Sycamore Canyon on the western end of the site and the foothills of the Peninsular Range to the east. Numerous large rock outcrops also are present on site, particularly in the northern and northeastern portions of the property. The project site is dominated by native upland vegetation (chaparral, oak woodland and sage scrub communities), with substantial areas of native and non-native grasslands. Various wetland plant communities also occur in the site.

VEGETATION COMMUNITIES, LAND COVERS, AND VERNAL POOL FEATURES

The project site supports 30 vegetation communities and land cover types and was mapped by Dudek in 2004 and was updated by Dudek in Spring 2014 to reflect biological character changes due to environmental factors such as fire recovery. Some of the mapping was slightly revised as part of the jurisdictional delineation in 2016. Vegetation community classifications used in this report follow Holland (1986) where feasible, with modifications from Oberbauer et al. (2008) to accommodate the lack of conformity of the observed communities. General vegetation communities within the study area include herbaceous wetland, open water, riparian woodlands, oak woodland, native grassland, non-native grassland, chaparral, sage scrub, and disturbed/ruderal. Land cover types in the study area include ornamental plantings, disturbed habitat, and developed land.

Potentially suitable habitat (i.e., ephemerally wet/ponded features) for vernal pool branchiopods was identified on site and consists of depressions (natural and man-made) located mainly in the lower-elevation areas of the project site; however, a couple of features occur at higher-elevations within flat areas of dirt roads. Clusters/complexes of these features occur in multiple areas in the study area. The majority of the features are road-rut-type depressions, lack vegetation, and are located adjacent to or within frequently traveled access roads. All of the features recorded are considered potentially suitable habitat for vernal pool branchiopods. Within the survey area, the features were found in areas mapped as disturbed coastal sage scrub, annual non-native grassland, valley needle grassland (including disturbed), and disturbed habitat. Descriptions of these vegetation and land cover types are provided in the following paragraphs.

Annual Non-Native Grassland

Non-native grassland consists of dense to sparse cover of annual grasses with flowering culms between 0.5 and 3 feet in height (Oberbauer et al. 2008). Most of the existing annual grassland on site evidently is the result of farming, other mechanical disturbances, or repeated fires. Where the disturbance has been frequent and/or intensive, the native vegetation community often does not recover. These areas are characterized by weedy, introduced annuals, primarily grasses, including especially slender wild oat (*Avena barbata*), bromes (*Bromus* spp.), mustards (*Brassica* and *Sisymbrium* spp.), fennel (*Foeniculum vulgare*), and Russian-thistle (*Salsola tragus*).

Disturbed Coastal Sage Scrub

Coastal sage scrub vegetation ons ite is dominated by California sagebrush and California buckwheat, with laurel sumac (*Malosma laurina*), redberry (*Rhamnus crocea*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), San Diego County viguiera (*Viguiera laciniata*), toyon (*Heteromeles arbutifolia*), and bush monkeyflower (*Mimulus aurantiacus*) as lesser components. In the southern portion of the site, some patches are dominated by white sage; in the north, redberry is the dominant shrub in some areas. This community supports a diverse understory of native herbs and forbs, including virgate tarplant (*Holocarpha virgata*), deerweed (*Acmispon scoparius*), blue dicks (*Dichelostemma capitata*), Cleveland's shooting-star (*Dodecatheon clevelandii*), blue-eyed grass (*Sisyrinchium bellum*), canchalagua (*Centaurium venustum*), and several species of grasses, both native and introduced. The primary introduced grass is slender wild oat (*Avena barbata*). Disturbed coastal sage scrub is similar in species composition to coastal sage scrub but has higher cover of bare ground or non-native shrubs, forbs, and grasses. Disturbed coastal sage scrub intergrades with annual grassland and disturbed habitat depending on the abundance of annual grasses or non-native forbs.

Disturbed Habitat

Disturbed habitats are areas that have been physically disturbed and are no longer recognizable as native or naturalized vegetation associations (Oberbauer et al. 2008). These areas may continue to retail soil substrate. If vegetation is present, it is almost entirely composed of non-native vegetation, such as ornamentals or ruderal exotic species. Examples of these areas may include graded landscapes or areas, graded firebreaks, graded construction pads, construction staging areas, off-highway vehicle (OHV) trails, areas repeatedly cleared for fuel management, or repeatedly used areas that prevent revegetation (e.g., parking lots, trails that have persisted for years). On site, the dirt roads, dirt trails, and OHV areas are mapped as disturbed habitat.

Valley Needle Grassland (including Disturbed)

The valley needle grassland mapped on site is dominated by non-native grasses, such as red brome (*Bromus madritensis* ssp. *rubens*), soft-chess (*Bromus hordeaceus*), and ripgut grass (*Bromus diandrus*), with tussocks of purple needlegrass (*Nassella pulchra*) and deergrass (*Muhlenbergia rigens*) scattered throughout. Native herbs that occur in the valley needlegrass grassland are blue-eyed grass, morning-glory (*Calystegia macrostegia*), blue dicks, wild onion (*Allium* sp.), Cleveland's shooting-star, purple sanicle (*Sanicula arguta*), dot-seed plantain (*Plantago erecta*), purple owl's-clover (*Castilleja exserta*), and common goldenstar (*Bloomeria crocea*).

PREVIOUS BRACHIOPOD STUDIES

Previous protocol-level surveys were conducted on the Fanita Ranch project site by Dudek in January through March 2004 (2004 survey) (Dudek 2004) and November 2004 to May 2005 (2005 survey) (Dudek 2005). The surveys were conducted according to the April 19, 1996, *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS 1996). Over the two consecutive wet season surveys, 229 features were identified and sampled for the presence or absence of vernal pool branchiopod species. Over the course of the two surveys, the San Diego fairy shrimp is the only species of branchiopod identified from the project site. The 2004 survey determined that 27 features were occupied by San Diego fairy shrimp. These features were not surveyed in 2005. During the 2005 survey, San Diego fairy shrimp were observed and collected from 32 features. As directed by Stacey Love (USFWS), only pools that had not been occupied or were never previously documented were sampled during the 2015/16 survey.

SURVEY METHODS

The surveys methods follow the current USFWS survey guidelines protocol (USFWS 2015). The onset of the 2015/16 wet season survey at the project site began with a significant rain event occurring between November 2 and November 5, 2015 (approximately 0.50 inches recorded). Protocol-level sampling would have commenced on November 10, 2015, however only one feature (14) was inundated and this feature was previously known to be occupied with San Diego fairy shrimp and therefore was not surveyed. In accordance with the survey protocol, the next rain event occurring between December 10 and December 13, 2015 (approximately 0.52 inch recorded) initiated the first survey of the 2015/16 wet season. The survey was conducted on December 18, 2015. The protocol states that sampling must be initiated within 7 days of inundation. All suitable habitat features on site that met the USFWS inundation criteria (i.e., depth of 3 centimeters (1.2 inches) or greater 24 hours after a rain event) to initiate protocol-level surveys were sampled, and USFWS survey forms were completed.

After initial inundation (i.e., at least 3 centimeters (1.2 inches) deep), all wet features were surveyed at approximately 1-week intervals, according to the survey protocol, until dried up. Features that dried up and then refilled were surveyed within 7 days of refilling and surveys were reinitiated at the 1-week interval. During the 2015/16 wet season survey, the project site was surveyed on 13 occasions. Due to significant rainfall (4.37 inches) in early January (4–8), the January 9, 2016, visit was terminated due to safety concerns from flooding. A schedule of the 2015/16 survey season is presented in Table 1.

The surveys were conducted by Dudek biologists holding 10(a)(1)(A) recovery permits for vernal pool branchiopods: Danielle Mullen (Permit No. TE-31221B-0) and Paul Lemons (TE-051248-5). During each site visit, surveyors evaluated all features to document inundation levels and performed sampling when appropriate. Throughout the 2015/16 season, daily precipitation was monitored from weather station KCASANTE18 in Santee, California (Weather Underground Inc. 2015–2016) and is included in Appendix B.

Table 1
2015/16 Schedule of Surveys

Survey Number	Biologist	Date	Survey Type	Survey Conditions
1	PML	November 5, 2015	Ponding check	1100–1500; 65°F–70°F; 0% cc; 3-7 mph wind
2	DAM	November 10, 2015	Survey	1330–1530; 66°F–63°F; 70% cc; 3–5 mph wind

Table 1
2015/16 Schedule of Surveys

Survey Number	Biologist	Date	Survey Type	Survey Conditions
3	DAM	December 1, 2015	Ponding check	1000–1300; 60°F; 0% cc; 0–2 mph wind
4	DAM	December 14, 2015	Ponding check	1200–1530; 57°F; 40% cc; 3–6 mph wind
5	DAM	December 18, 2015	Survey	0803–1526; 37°F–70°F; 0% cc; 0 mph wind
6	PML	December 25, 2015	Survey	1130–1530; 61°F–64°F; 0% cc; 4–8 mph wind
7	DAM	January 4, 2016	Survey	1121–1302; 62–66F; 90%–80% cc; 1 mph wind
8	DAM	January 9, 2016	Survey attempted but not conducted due to flooding	0930–1530; 50°F–59°F; 5%–100% cc; 0–2 mph wind
9	DAM, PML	January 15, 2016	Survey	0700–1420; 46°F–62°F; 80–100% cc; 0–2mph wind
10	DAM	January 22, 2016	Survey	0800–1250; 48°F–65°F; 90–40% cc; 1 mph wind
11	DAM	January 29, 2016	Survey	0849–1100; 54°F–64°F; 20–0% cc; 1 mph
12	DAM	February 5, 2016	Survey	0932–1410; 52°F–70°F; 0% cc; 1–0 mph wind
13	DAM	February 12, 2016	Survey	0900–1207; 56°F–65°F; 0% cc; 1 mph wind
14	DAM	February 19, 2016	Survey	0811–1312; 45°F–72°F; 20–10% cc; 0–5 mph wind
15	DAM	March 8, 2016	Ponding check	0800–1000; 46°F–58°F; 100% cc; 2–4 mph wind
16	DAM	March 14, 2016	Survey	1104–1803; 64°F–66°F; 100–50% cc; 3–4 mph wind
17	DAM	March 21, 2016	Survey	1121–1456; 64°F–73°F; 0% cc; 2 mph wind
18	DAM	April 11, 2016	Ponding check	1000–1230; 68°F–74°F; 60–30% cc; 2 mph wind
19	DAM	April 17, 2016	Survey	1102–1206; 84°F–90°F ; 0% cc; 5–10 mph wind
20	DAM	May 8, 2016	Ponding check: All pools dry, wet season concluded	1206–1333; 70°F–75°F; 90% cc; 2–3 mph wind

Surveyors: DAM = Danielle Mullen (Permit No. TE-31221B-0), PML = Paul Lemons (TE-051248-5)
Survey Conditions: °F = degrees Fahrenheit, cc = cloud cover, mph = miles per hour

Protocol-level sampling was performed within all features that were considered potential listed branchiopod habitat by vernal pool branchiopods and any depressions meeting the USFWS 3-centimeter (1.2-inch) inundation requirement. The location of each feature sampled was recorded using a Global Positioning System (GPS) unit with sub-meter accuracy. GPS data were downloaded into an ArcGIS file by Dudek geographic information systems (GIS) specialist Randy Deodat.

During each survey, surveyors inspected the individual features for depth, surface area of water, air and water temperature, level of disturbance, and presence of aquatic wildlife. An aquarium dip net was passed through every feature that met the USFWS inundation requirement. All portions of ponded water were surveyed from the bottom to the surface by moving the dip net in a mild zigzag pattern through the feature as directed by the sampling protocol (USFWS 2015). Dip net contents were frequently viewed and discarded of algae, plants, and other debris material when occurring at high concentrations (USFWS 2015). Samples were collected, when needed, using the aquarium net and a 40-milliliter (1.4-ounce) glass vial. Specimens were stored in the vial with water collected where the specimen was found. Specimens were taken to the laboratory within 24 hours of collection and placed in a non-denatured ethyl alcohol (200 proof) solution for preservation. Each specimen was inspected thoroughly using a dissecting microscope and soft-tip forceps. Eriksen and Belk (1999) was used to verify the species of each specimen collected. The USFWS was notified within 10 days of occupied features as stated in the protocol.

All information was recorded in the field on an electronic data sheet as provided in the survey protocol, with the most pertinent information (e.g., inundation, fairy shrimp presence/absence, and species identification) recorded on a spreadsheet survey log (Appendix A). The recorded daily weather monitored for the project area is provided in Appendix B. Survey data sheets were completed for every feature that met the minimum USFWS inundation requirement at the time of sampling (Appendix C). Photographs of the features are included at the end of each data form in Appendix C.

SURVEY RESULTS

Feature Descriptions

A total of 35 features were identified as suitable habitat for vernal pool branchiopods and were surveyed during the 2015/16 wet survey season. The features were distributed randomly throughout the site located alongside or within existing dirt roads on site and are moderately disturbed in character. Many of the features detected show evidence of historical and current OHV disturbance (i.e., shaped like tire tracks). The features detected on site were either: (1) road ruts: depressions that are typically formed by vehicular traffic within or immediately adjacent to roadways, generally lack aquatic vegetation, and are heavily disturbed by

vehicular traffic; or (2) ephemeral basins: surface depressions that retain sufficient water level, support aquatic vegetation, and generally lack vehicle disturbance. No vernal pools were detected on site. Vernal pools are depressions that retain sufficient water level, support vernal pool indicator plant species, and likely support vernal pool branchiopods.

Fairy Shrimp Presence/Absence

During the 9 survey sampling visits, 12 features (2a, 3a, 4a, 5a, 7a, 8a, 10a, 49, 62, 65, 111, 140) were found occupied by San Diego fairy shrimp, and 2 features (9a and 161) were occupied by either immature or female branchiopods that were unidentifiable to species level (*Branchinecta* sp.). A summary of the survey results is provided in Table 2, and the full survey log is included in this report as Appendix A. The distribution of features sampled in the study area is presented in Figure 3 attached to this report.

Table 2
2015/16 Vernal Pool Branchiopods Survey Results*

Feature ID	Branchiopod Species Observed
2a	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*
3a	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*
4a	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*
5a	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*
6a	None
7a	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*
8a	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*
9a	Fairy shrimp present; unknown species (one female; *Branchinecta* sp.)
10a	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*
12a	None
13a	None
14a	None
15a	None
16a	None
13	None
20	None
45	None
49	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*
52	None
62	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*

Table 2
2015/16 Vernal Pool Branchiopods Survey Results*

Feature ID	Branchiopod Species Observed
65	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*
95	None
99	None
111	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*
122	None
128	None
139	None
140	Fairy shrimp present; San Diego fairy shrimp *(Branchinecta sandiegonensis)*
149	None
150	None
161	Fairy shrimp present; unknown species (immature and one female; *Branchinecta* sp.)
163	None
183	None
185	None
218	None

* See Appendix A for more detail.

I certify that the information presented in this survey report and attached exhibits fully and accurately represents my work. Please contact Brock Ortega at bortega@dudek.com, Paul Lemons at plemons@dudek.com, or Danielle Mullen at dmullen@dudek.com if you have any questions regarding the contents of this report.

Sincerely,

Danielle Mullen
TE-31221B-0

Paul Lemons
TE051248

Att: Figure 1, Regional Map
Figure 2, Vicinity Map
Figures 3, 2015/16 Feature Locations and Species Observed
Appendix A, Survey Log
Appendix B, Weather Data
Appendix C, Survey Data Forms and Photographs

cc: Brock Ortega, Dudek
Jeff O'Connor, HomeFed

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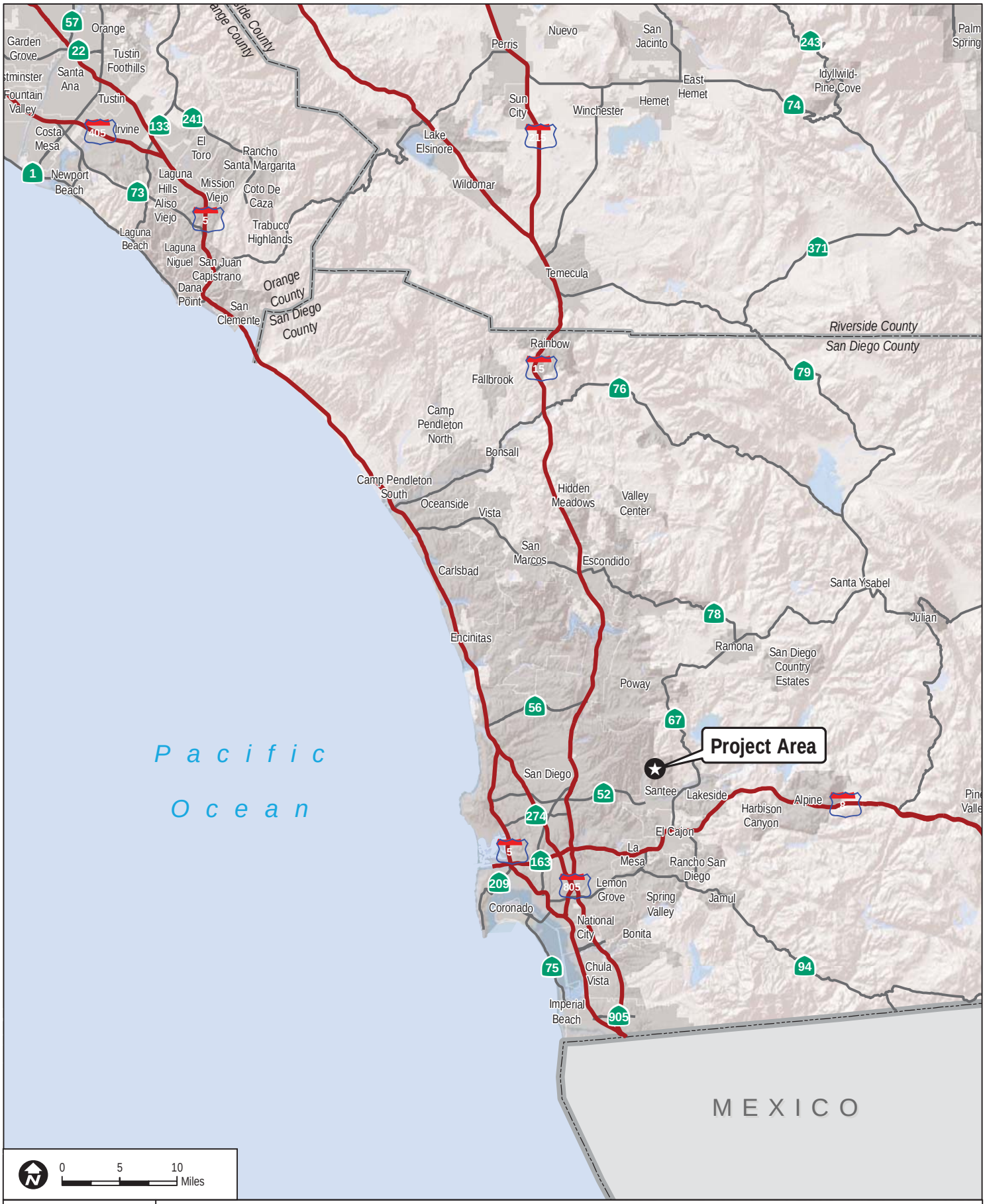
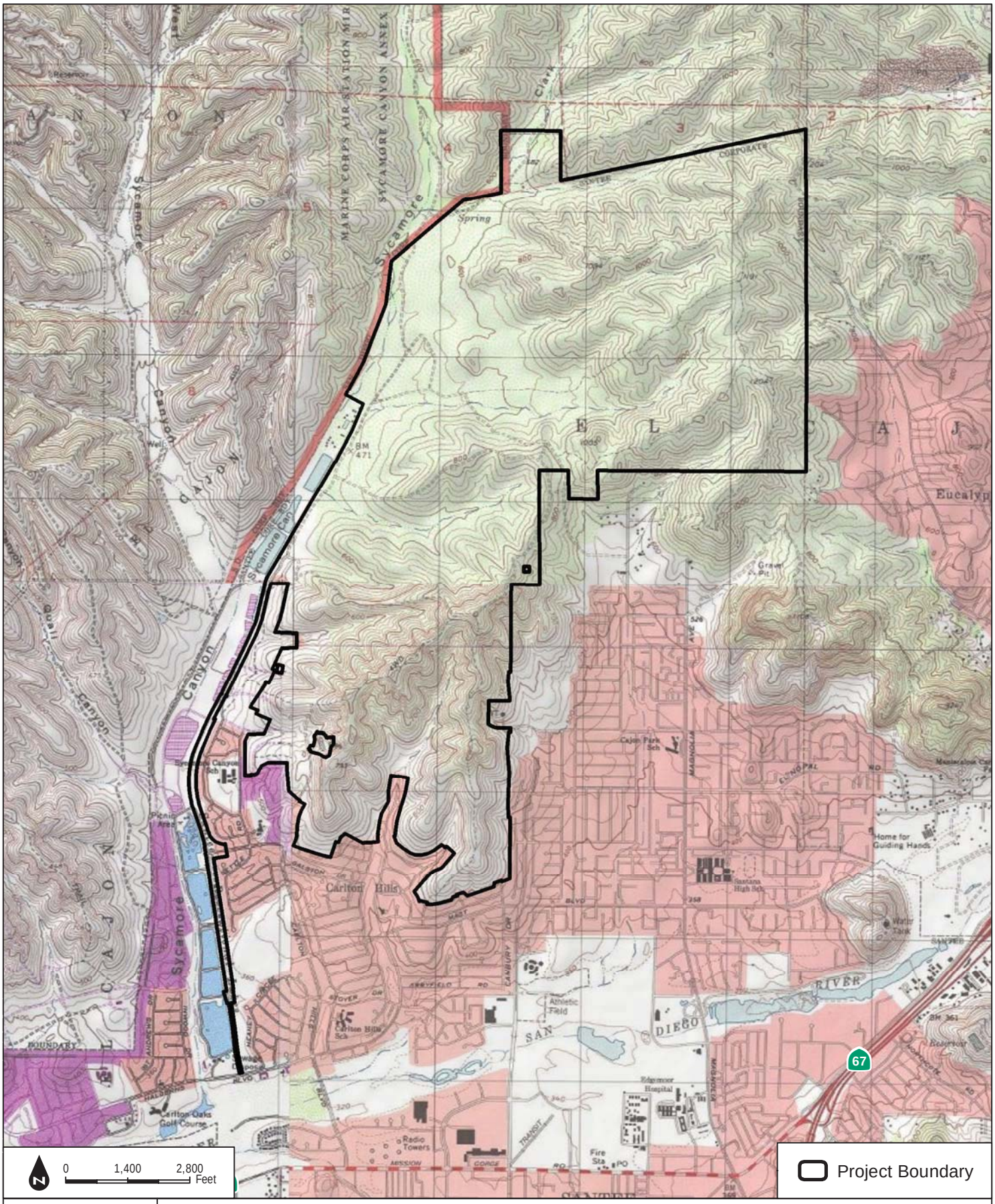


FIGURE 1

Regional Map

DUDEK



SOURCE: USGS 7.5-Minute Series Jamul Mountains Quadrangle; Hunsaker 2015

FIGURE 2

Vicinity Map

DUDEK



SOURCE: Bing Maps, 2016

FIGURE 3

2015/16 Feature Locations and Species Observed

DUDEK

2015/16 Wet Season Presence/Absence Survey for Vernal Pool Branchiopods, Fanita Ranch Project, Santee, California

Date: 7/13/2016 Last saved by: mfeeder Path: Z:\Projects\TAN00104\MAPPROC\MAPS\Fan\Shrimp\Figure3_2015_16 Feature Locations and Species Observed.mxd

APPENDIX A

Survey Log

Pass #	1		2		3		4		5		6		7		8		9		10		11		12		13		
Survey Date	12/18/2016		12/25/2015		1/4/2016		1/15/2016		1/22/2016		1/29/2016		2/5/2016		2/12/2016		2/19/2016		3/14/2016		3/21/2016		4/17/2016		5/8/2016		
Feature ID	Wet/Dry	FS	Wet/Dry	FS	Wet/Dry	FS	Wet/Dry	FS	Wet/Dry	FS	Wet/Dry	FS	Wet/Dry	FS	Wet/Dry	FS	Wet/Dry	FS	Wet/Dry	FS	Wet/Dry	FS	Wet/Dry	Wet/Dry	Wet/Dry	FS	Notes
2a	Wet	None	Wet	FS: Immature, did not collect	Wet	FS: *B. Sandiegonensis*																					SDFS
3a	Wet	None	Wet	FS: Immature, did not collect	Wet	FS: *B. Sandiegonensis*																					SDFS
4a	Wet	None	Wet	None	Wet	FS: *B. Sandiegonensis*																					SDFS
5a	Wet	None	Wet	None	Wet	FS: *B. Sandiegonensis*																					SDFS
6a	Dry	None	Dry	None	Dry	None	Wet	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
7a	Dry	None	Dry	None	Dry	None	Wet	FS: *B. Sandiegonensis*																			SDFS
8a	Dry	None	Dry	None	Dry	None	Wet	None	Wet	FS: *B. Sandiegonensis*																	SDFS
9a	Dry	None	Dry	None	Dry	None	Wet	FS: one female, did not collect	Wet	FS: one female, did not collect	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	Dry	Dry	None	Dry	None	Unknown FS
10a	Dry	None	Dry	None	Dry	None	Wet	FS: immature did not collect	Wet	FS: *B. Sandiegonensis*																	SDFS
12a	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
13a	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
14a	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
15a	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
16a	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	
13	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
20	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
45	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	
49	Dry	None	Dry	None	Dry	None	Wet	FS: immature did not collect	Wet	FS: *B. Sandiegonensis*																	SDFS
52	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	
62	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Wet	FS: *B. Sandiegonensis*							SDFS
65	Wet	None	Wet	FS: *B. Sandiegonensis*																							SDFS
95	Dry	None	Dry	None	Dry	None	Wet	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
99	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	
111	Dry	None	Dry	None	Dry	None	Wet	FS: females only	Wet	FS: *B. Sandiegonensis*																	SDFS
122	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	
128	Dry	None	Dry	None	Dry	None	Wet	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
139	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
140	Wet	None	Wet	FS: *B. Sandiegonensis*																							SDFS
149	Dry	None	Dry	None	Dry	None	Wet	None	Wet	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
150	Dry	None	Dry	None	Dry	None	Wet	None	Wet	None	Wet	None	Wet	None	Wet	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	
161	Wet	None	Wet	None	Wet	FS: immature, did not collect	Wet	None	Wet	FS: one female, did not collect	Dry	None	Wet	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Unknown FS
163	Dry	None	Dry	None	Dry	None	Wet	None	Wet	None	Dry	None	Wet	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	
183	Wet	None	Wet	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
185	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	
218	Dry	None	Dry	None	Dry	None	Wet	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	Dry	None	

APPENDIX B

Weather Data

2015	Temperature (F)			Wind Speed			Precipitation Accumulation
November	High	Avg	Low	High	Avg	Gust	Sum
1	93.4 °	64.8 °	47.5 °	6 mph	1 mph	0 mph	0 in
2	79.7 °	61.1 °	44.4 °	9 mph	2 mph	0 mph	0.08 in
3	71.6 °	57.7 °	48.7 °	9 mph	2 mph	0 mph	0.25 in
4	68.9 °	56.2 °	46.4 °	14 mph	2 mph	0 mph	0.16 in
5	79.3 °	54.8 °	41 °	8 mph	1 mph	0 mph	0.01 in
6	79.7 °	55.8 °	38.3 °	6 mph	1 mph	0 mph	0 in
7	86.5 °	57.2 °	37.9 °	7 mph	1 mph	0 mph	0 in
8	82.8 °	56.4 °	38.7 °	7 mph	1 mph	0 mph	0 in
9	73.2 °	55.4 °	44.2 °	8 mph	1 mph	0 mph	0.01 in
10	68.5 °	55.1 °	42.6 °	9 mph	2 mph	0 mph	0.08 in
11	80.4 °	54.1 °	37.8 °	9 mph	2 mph	0 mph	0 in
12	81 °	52.5 °	33.1 °	6 mph	1 mph	0 mph	0 in
13	84.6 °	54.2 °	33.3 °	7 mph	1 mph	0 mph	0 in
14	84 °	54.2 °	34.9 °	8 mph	1 mph	0 mph	0 in
15	71.4 °	56.4 °	41.4 °	8 mph	2 mph	0 mph	0.16 in
16	67.1 °	54.4 °	38.1 °	9 mph	3 mph	0 mph	0 in
17	72.5 °	41.4 °	33.4 °	3 mph	1 mph	0 mph	0 in
18	83.5 °	48.7 °	37 °	5 mph	1 mph	0 mph	0 in
19	87.6 °	59.6 °	39.7 °	5 mph	1 mph	0 mph	0 in
20	88.3 °	56.3 °	40.8 °	4 mph	1 mph	0 mph	0 in
21	94.8 °	64.4 °	44.2 °	4 mph	1 mph	0 mph	0 in
22	91.9 °	66.3 °	45.9 °	5 mph	2 mph	0 mph	0 in
23	85.1 °	59.4 °	42.8 °	6 mph	1 mph	0 mph	0 in
24	58.6 °	45.4 °	38.5 °	3 mph	0 mph	0 mph	0 in
25	56.3 °	54 °	49.5 °	3 mph	1 mph	0 mph	0.08 in
26	66.7 °	53.6 °	44.2 °	7 mph	2 mph	0 mph	0.08 in
27	63.1 °	51.1 °	41.2 °	6 mph	1 mph	0 mph	0.08 in
28	70.2 °	49.4 °	36.9 °	6 mph	1 mph	0 mph	0 in
29	70 °	49.1 °	35.2 °	7 mph	1 mph	0 mph	0 in
30	72.3 °	47.4 °	31.6 °	6 mph	1 mph	0 mph	0 in
2015	Temperature (F)			Wind Speed			Precip. Accum.
December	High	Avg	Low	High	Avg	Gust	Sum
1	76.1 °	49.2 °	32.7 °	6 mph	1 mph	0 mph	0 in
2	83.8 °	53.8 °	33.4 °	4 mph	1 mph	0 mph	0 in
3	84.2 °	54.3 °	38.3 °	6 mph	1 mph	0 mph	0 in
4	73.2 °	51.6 °	36 °	5 mph	1 mph	0 mph	0 in
5	83.7 °	55 °	37.8 °	4 mph	1 mph	0 mph	0 in
6	84.6 °	56 °	39.2 °	4 mph	1 mph	0 mph	0 in
7	85.3 °	56.3 °	38.7 °	5 mph	1 mph	0 mph	0 in
8	87.8 °	58.8 °	42.1 °	6 mph	1 mph	0 mph	0 in
9	83.5 °	57.9 °	42.6 °	4 mph	1 mph	0 mph	0 in
10	74.3 °	55.8 °	40.1 °	5 mph	1 mph	0 mph	0.01 in
11	63 °	55.1 °	41.2 °	11 mph	2 mph	0 mph	0.34 in
12	67.5 °	46.7 °	34.3 °	4 mph	1 mph	0 mph	0.01 in
13	69.3 °	51.4 °	34.9 °	9 mph	2 mph	0 mph	0.16 in

14	60.4 °	48.6 °	33.4 °	8 mph	2 mph	0 mph	0 in
15	63.1 °	43.4 °	29.8 °	6 mph	1 mph	0 mph	0 in
16	65.7 °	44.2 °	30.4 °	8 mph	1 mph	0 mph	0 in
17	71.1 °	45.8 °	28.9 °	3 mph	1 mph	0 mph	0 in
18	78.4 °	49.1 °	32.2 °	6 mph	1 mph	0 mph	0 in
19	67.6 °	50.4 °	34.2 °	6 mph	2 mph	0 mph	0.08 in
20	65.1 °	49.9 °	39.4 °	5 mph	1 mph	0 mph	0 in
21	67.3 °	48.8 °	35.6 °	5 mph	1 mph	0 mph	0 in
22	59.5 °	56.8 °	51.6 °	10 mph	4 mph	0 mph	0.77 in
23	64.4 °	55.4 °	46.6 °	6 mph	2 mph	0 mph	0.19 in
24	66.9 °	51.4 °	44.2 °	7 mph	1 mph	0 mph	0 in
25	60.4 °	49.7 °	40.3 °	10 mph	2 mph	0 mph	0.05 in
26	65.3 °	52.8 °	35.4 °	12 mph	4 mph	0 mph	0 in
27	65.5 °	42.9 °	29.7 °	6 mph	1 mph	0 mph	0 in
28	61.5 °	43.8 °	30 °	7 mph	1 mph	0 mph	0.21 in
29	61.9 °	44.5 °	33.6 °	4 mph	1 mph	0 mph	0.01 in
30	67.3 °	44.5 °	30.7 °	5 mph	1 mph	0 mph	0 in
31	70 °	44.9 °	30.9 °	7 mph	1 mph	0 mph	0 in

2016	Temperature (F)			Wind Speed			Precip. Accum.
January	High	Avg	Low	High	Avg	Gust	Sum
1	70.5 °	44.8 °	29.1 °	6 mph	1 mph	0 mph	0 in
2	68.4 °	46.2 °	31.8 °	4 mph	1 mph	0 mph	0 in
3	65.3 °	49 °	36.1 °	6 mph	1 mph	0 mph	0 in
4	67.6 °	56.2 °	49.6 °	4 mph	1 mph	0 mph	0.1 in
5	57 °	54.4 °	49.1 °	8 mph	2 mph	0 mph	1.68 in
6	59.5 °	50.4 °	45.9 °	8 mph	2 mph	0 mph	1.21 in
7	58.5 °	50.6 °	46.6 °	8 mph	2 mph	0 mph	1.38 in
8	65.7 °	49 °	39.2 °	5 mph	1 mph	0 mph	0.1 in
9	65.5 °	48.9 °	36 °	4 mph	1 mph	0 mph	0 in
10	62.8 °	54.3 °	48.4 °	4 mph	1 mph	0 mph	0 in
11	68.7 °	51.3 °	37.8 °	3 mph	1 mph	0 mph	0 in
12	72.5 °	47 °	30.6 °	7 mph	1 mph	0 mph	0 in
13	69.4 °	47.5 °	32.9 °	5 mph	1 mph	0 mph	0 in
14	68.5 °	50 °	37.6 °	6 mph	1 mph	0 mph	0 in
15	59.2 °	52 °	43.3 °	4 mph	0 mph	0 mph	0 in
16	71.4 °	53.9 °	41.9 °	6 mph	1 mph	0 mph	0 in
17	80.1 °	56.6 °	42.8 °	9 mph	1 mph	0 mph	0 in
18	69.1 °	58.2 °	51.6 °	7 mph	1 mph	0 mph	0 in
19	72.7 °	57 °	44.8 °	7 mph	1 mph	0 mph	0 in
20	73.6 °	60 °	51.3 °	4 mph	1 mph	0 mph	0 in
21	79.3 °	57.9 °	43.5 °	5 mph	1 mph	0 mph	0 in
22	77.7 °	54.3 °	39.4 °	4 mph	1 mph	0 mph	0 in
23	70.7 °	54.2 °	41.7 °	5 mph	1 mph	0 mph	0 in
24	70.2 °	52.3 °	41.7 °	5 mph	1 mph	0 mph	0.01 in
25	74.5 °	52.7 °	39.4 °	5 mph	1 mph	0 mph	0 in
26	77.9 °	52.8 °	37.2 °	7 mph	2 mph	0 mph	0 in
27	77.7 °	51.3 °	35.1 °	3 mph	1 mph	0 mph	0 in

28	78.6 °	53.8 °	40.5 °	5 mph	2 mph	0 mph	0 in
29	78.3 °	53.9 °	39.2 °	6 mph	1 mph	0 mph	0 in
30	69.6 °	53.9 °	39.7 °	5 mph	1 mph	0 mph	0 in
31	57.6 °	55.7 °	50.9 °	18 mph	4 mph	0 mph	0.51 in

2016	Temperature (F)			Wind Speed			Precip. Accum.
February	High	Avg	Low	High	Avg	Gust	Sum
1	59.4 °	51.3 °	35.1 °	11 mph	4 mph	0 mph	0 in
2	62.6 °	39.2 °	29.1 °	5 mph	1 mph	0 mph	0 in
3	68.5 °	43.7 °	32 °	3 mph	1 mph	0 mph	0 in
4	74.5 °	50.2 °	30.7 °	6 mph	1 mph	0 mph	0 in
5	77 °	55.2 °	34.7 °	7 mph	2 mph	0 mph	0 in
6	82 °	49.1 °	35.4 °	5 mph	1 mph	0 mph	0 in
7	88.7 °	68.8 °	41.5 °	5 mph	2 mph	0 mph	0 in
8	89.6 °	70.6 °	41.7 °	6 mph	2 mph	0 mph	0 in
9	91.6 °	74.3 °	40.5 °	4 mph	2 mph	0 mph	0 in
10	92.7 °	72.8 °	40.8 °	4 mph	2 mph	0 mph	0 in
11	90.3 °	66.5 °	39.9 °	4 mph	1 mph	0 mph	0 in
12	86.7 °	51.1 °	40.3 °	3 mph	0 mph	0 mph	0 in
13	84.9 °	57.8 °	39.7 °	6 mph	1 mph	0 mph	0 in
14	89.2 °	61.2 °	40.8 °	3 mph	1 mph	0 mph	0 in
15	91.9 °	62.2 °	45 °	6 mph	1 mph	0 mph	0 in
16	96.1 °	64 °	43.9 °	6 mph	1 mph	0 mph	0 in
17	82.4 °	59.4 °	42.4 °	7 mph	1 mph	0 mph	0 in
18	72.9 °	59.9 °	47.8 °	4 mph	1 mph	0 mph	0.05 in
19	72.7 °	55.5 °	43.9 °	7 mph	1 mph	0 mph	0 in
20	79.2 °	55.6 °	39 °	6 mph	1 mph	0 mph	0 in
21	79.2 °	56.7 °	41 °	6 mph	1 mph	0 mph	0 in
22	85.6 °	58 °	41.2 °	7 mph	1 mph	0 mph	0 in
23	89.8 °	61.4 °	41.7 °	6 mph	1 mph	0 mph	0 in
24	88.3 °	61.9 °	43.5 °	6 mph	2 mph	0 mph	0 in
25	89.1 °	58.3 °	37 °	6 mph	1 mph	0 mph	0 in
26	84.6 °	57.8 °	38.7 °	5 mph	1 mph	0 mph	0 in
27	84 °	58.9 °	40.5 °	8 mph	1 mph	0 mph	0 in
28	82.8 °	59.3 °	42.8 °	5 mph	1 mph	0 mph	0 in
29	84.2 °	61.7 °	45.7 °	5 mph	1 mph	0 mph	0 in

2016	Temperature (F)			Wind Speed			Precip. Accum.
March	High	Avg	Low	High	Avg	Gust	Sum
1	84.9 °	61.2 °	44.4 °	6 mph	1 mph	0 mph	0 in
2	82.8 °	58.8 °	43.9 °	6 mph	1 mph	0 mph	0 in
3	79 °	56.8 °	42.4 °	5 mph	1 mph	0 mph	0 in
4	78.4 °	59.4 °	45.5 °	5 mph	1 mph	0 mph	0 in
5	79.9 °	62.5 °	47.8 °	7 mph	1 mph	0 mph	0 in
6	69.8 °	58.3 °	48.6 °	9 mph	2 mph	0 mph	0.3 in
7	62.4 °	49.9 °	42.4 °	14 mph	2 mph	0 mph	0.6 in
8	72.5 °	54.3 °	37.6 °	6 mph	1 mph	0 mph	0.01 in
9	78.6 °	56.3 °	39 °	5 mph	1 mph	0 mph	0 in
10	84.2 °	61.2 °	45.7 °	7 mph	1 mph	0 mph	0 in

	11	71.6 °	59.7 °	50 °	8 mph	2 mph	0 mph	0.23 in
	12	67.8 °	55.6 °	45.1 °	5 mph	1 mph	0 mph	0 in
	13	71.4 °	55.9 °	42.1 °	7 mph	1 mph	0 mph	0 in
	14	74.1 °	59.6 °	51.1 °	6 mph	1 mph	0 mph	0 in
	15	81.5 °	61.3 °	44.4 °	5 mph	1 mph	0 mph	0 in
	16	90.3 °	63.7 °	46.8 °	7 mph	1 mph	0 mph	0 in
	17	85.8 °	61.8 °	45.7 °	6 mph	2 mph	0 mph	0 in
	18	82.4 °	61.6 °	50.2 °	6 mph	1 mph	0 mph	0 in
	19	79.7 °	62.7 °	49.1 °	5 mph	1 mph	0 mph	0 in
	20	82.6 °	61.4 °	47.1 °	6 mph	1 mph	0 mph	0 in
	21	79.3 °	63.2 °	49.8 °	6 mph	2 mph	0 mph	0 in
	22	72.9 °	57.1 °	44.6 °	8 mph	2 mph	0 mph	0.01 in
	23	84.2 °	56.2 °	39.2 °	8 mph	1 mph	0 mph	0 in
	24	87.1 °	59.1 °	37.2 °	8 mph	2 mph	0 mph	0 in
	25	84 °	58.7 °	38.1 °	6 mph	2 mph	0 mph	0 in
	26	81.7 °	63.2 °	49.5 °	6 mph	2 mph	0 mph	0 in
	27	77.7 °	59.8 °	45.1 °	6 mph	2 mph	0 mph	0 in
	28	67.5 °	59.2 °	51.4 °	8 mph	4 mph	0 mph	0 in
	29	67.5 °	56.5 °	43 °	9 mph	3 mph	0 mph	0.09 in
	30	66.2 °	51.6 °	43 °	5 mph	1 mph	0 mph	0.01 in
	31	76.1 °	52.3 °	37.6 °	9 mph	2 mph	0 mph	0 in
	2016	Temperature (F)			Wind Speed			Precip. Accum.
April		High	Avg	Low	High	Avg	Gust	Sum
	1	79.9 °	59.7 °	43.7 °	6 mph	1 mph	0 mph	0 in
	2	85.8 °	62.4 °	44.1 °	9 mph	2 mph	0 mph	0 in
	3	87.3 °	64.2 °	44.4 °	6 mph	2 mph	0 mph	0 in
	4	87.8 °	69.1 °	46.4 °	6 mph	2 mph	0 mph	0 in
	5	89.8 °	66.3 °	41.9 °	6 mph	1 mph	0 mph	0 in
	6	92.1 °	63.3 °	46.4 °	9 mph	1 mph	0 mph	0 in
	7	68.9 °	60.3 °	57.2 °	3 mph	1 mph	0 mph	0.36 in
	8	71.6 °	61.4 °	55.8 °	5 mph	1 mph	0 mph	0.15 in
	9	70.5 °	58.7 °	51.6 °	4 mph	1 mph	0 mph	0 in
	10	73.2 °	62.1 °	52 °	6 mph	2 mph	0 mph	0.26 in
	11	76.1 °	61 °	48.2 °	6 mph	1 mph	0 mph	0 in
	12	79.3 °	63.9 °	50.9 °	8 mph	2 mph	0 mph	0 in
	13	80.1 °	62 °	51.3 °	6 mph	1 mph	0 mph	0 in
	14	79.7 °	69.4 °	57 °	7 mph	3 mph	0 mph	0 in
	15	79.5 °	66.9 °	48.6 °	8 mph	3 mph	0 mph	0 in
	16	88.3 °	68.6 °	41 °	7 mph	2 mph	0 mph	0 in
	17	93.9 °	58.4 °	43.5 °	6 mph	1 mph	0 mph	0 in
	18	95.7 °	78.3 °	43.3 °	8 mph	2 mph	0 mph	0 in
	19	96.4 °	75.9 °	46 °	8 mph	2 mph	0 mph	0 in
	20	95.7 °	69.8 °	44.2 °	8 mph	2 mph	0 mph	0 in
	21	88.2 °	64.8 °	42.4 °	6 mph	2 mph	0 mph	0 in
	22	74.5 °	57.4 °	50.2 °	7 mph	1 mph	0 mph	0 in
	23	78.6 °	63.4 °	50.4 °	7 mph	2 mph	0 mph	0 in
	24	78.1 °	66.4 °	48.4 °	9 mph	3 mph	0 mph	0 in

	25	69.6 °	62.1 °	55.4 °	9 mph	4 mph	0 mph	0 in
	26	77.4 °	67.4 °	50.9 °	6 mph	3 mph	0 mph	0 in
	27	74.5 °	64.8 °	44.2 °	9 mph	3 mph	0 mph	0 in
	28	69.6 °	58.1 °	50.7 °	7 mph	3 mph	0 mph	0 in
	29	78.6 °	60.7 °	43 °	7 mph	2 mph	0 mph	0 in
	30	75.6 °	60.8 °	49.6 °	7 mph	3 mph	0 mph	0 in
	2016	Temperature (F)			Wind Speed			Precip. Accum.
May		High	Avg	Low	High	Avg	Gust	Sum
	1	78.1 °	60.5 °	45.7 °	6 mph	2 mph	0 mph	0 in
	2	86 °	64.5 °	46.6 °	8 mph	2 mph	0 mph	0 in
	3	84.9 °	66.7 °	49.1 °	8 mph	2 mph	0 mph	0 in
	4	81 °	65.8 °	56.3 °	8 mph	2 mph	0 mph	0 in
	5	71.1 °	63.1 °	57.9 °	5 mph	2 mph	0 mph	0 in
	6	72 °	60.3 °	54.5 °	7 mph	2 mph	0 mph	0.66 in
	7	75.2 °	62.5 °	50.7 °	7 mph	2 mph	0 mph	0 in
	8	75.4 °	61.3 °	47.8 °	7 mph	2 mph	0 mph	0 in
	9	77.9 °	65.2 °	52 °	6 mph	2 mph	0 mph	0 in
	10	81.5 °	68.8 °	56.8 °	8 mph	3 mph	0 mph	0 in
	11	84.2 °	71.3 °	57.7 °	7 mph	2 mph	0 mph	0 in
	12	86.5 °	68.8 °	54.1 °	5 mph	2 mph	0 mph	0 in
	13	84.2 °	62.8 °	53.4 °	6 mph	1 mph	0 mph	0 in
	14	67.1 °	63 °	59.7 °	6 mph	2 mph	0 mph	0 in
	15	74.5 °	64.9 °	58.8 °	7 mph	2 mph	0 mph	0 in
	16	71.1 °	63.5 °	58.1 °	6 mph	2 mph	0 mph	0 in
	17	74.1 °	63.8 °	59.4 °	4 mph	1 mph	0 mph	0 in
	18	85.5 °	69.1 °	57.4 °	7 mph	2 mph	0 mph	0 in
	19	84.2 °	68.5 °	60.6 °	7 mph	2 mph	0 mph	0 in
	20	75.2 °	64.3 °	58.3 °	11 mph	3 mph	0 mph	0 in
	21	74.7 °	59.8 °	49.1 °	10 mph	2 mph	0 mph	0 in
	22	80.8 °	58.9 °	45 °	10 mph	2 mph	0 mph	0 in
	23	76.1 °	65.3 °	48.2 °	7 mph	2 mph	0 mph	0 in
	24	76.8 °	64.5 °	55.9 °	8 mph	2 mph	0 mph	0 in
	25	77.2 °	62.4 °	49.3 °	10 mph	2 mph	0 mph	1 in
	26	80.2 °	63.5 °	47.8 °	9 mph	2 mph	0 mph	0 in
	27	82.9 °	67.4 °	54.1 °	8 mph	2 mph	0 mph	0 in
	28	81 °	64.3 °	53.6 °	7 mph	2 mph	0 mph	0 in
	29	70.7 °	63 °	57.9 °	5 mph	2 mph	0 mph	0.01 in
	30	82.8 °	68.2 °	59 °	8 mph	2 mph	0 mph	0 in
	31	80.4 °	71.9 °	63.1 °	7 mph	3 mph	0 mph	0 in

APPENDIX C

Survey Data Forms and Photographs

DUDEK
CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Bio Field Data

Record: 413	
Date	*2015-12-18*
Biologist	*Danielle Mullen*
Project	*Fanita*
Job Number	*7490*
Region	*San Diego*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*

Survey Conditions	
Status	
Time	*08:03:00*
TEMPERATURE	*°F*
Air Temp	*37*
Cloud Cover	*0%*
WIND	*mph*
Wind	*0*

Survey Conditions	
Status	*End*
Time	*15:26:00*
TEMPERATURE	*°F*
Air Temp	*70*
Cloud Cover	*0%*
WIND	*mph*
Wind	*1*

Vernal Pool (Wet Season)	
Feature ID #	*65*
Feature Latitude,Longitude	*32.877973,-116.999821*
Air Temp (°C)	*3.3*
Water Temp (°C)	*2*
Average Depth (cm)	*17*
Estimated Maximum Depth (cm)	*18*
Present Surface Area (m x m)	*1.5 x 1.2*
Estimated Maximum Surface Area (m x m)	*11 x 2.1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

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Photo(s)	
Type	*Photo*
Photo	

Photo(s)	
Description	*Facing north*

Vernal Pool (Wet Season)	
Feature ID #	*161*
Feature Latitude,Longitude	*32.879811,-116.998646*
Air Temp (°C)	*3.3*
Water Temp (°C)	*2*
Average Depth (cm)	*9*
Estimated Maximum Depth (cm)	*15*
Present Surface Area (m x m)	*4 x 0.4*
Estimated Maximum Surface Area (m x m)	*10 x 1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Undisturbed*
Disturbance Type	*N/A*
Level of Grazing	*N/A*

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Photo(s)	
Type	*Photo*
Photo	
Description	*Facing south*

Vernal Pool (Wet Season)	
Feature ID #	*1a*
Feature Latitude,Longitude	*32.885638,-116.994920*
Air Temp (°C)	*3.3*
Water Temp (°C)	*2*
Average Depth (cm)	*10*
Estimated Maximum Depth (cm)	*12.5*
Present Surface Area (m x m)	*10.5 x 2*
Estimated Maximum Surface Area (m x m)	*13 x 3*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing north*

Vernal Pool (Wet Season)	
Feature ID #	*183*
Feature Latitude,Longitude	*32.887589,-116.984047*
Air Temp (°C)	*6.5*
Water Temp (°C)	*6*
Average Depth (cm)	*7.5*
Estimated Maximum Depth (cm)	*7.5*
Present Surface Area (m x m)	*0.5 x 0.3*
Estimated Maximum Surface Area (m x m)	*1.2 x 0.8*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing southeast*

Vernal Pool (Wet Season)	
Feature ID #	*2a*
Feature Latitude,Longitude	*32.891602,-116.986880*
Air Temp (°C)	*12*
Water Temp (°C)	*9*
Average Depth (cm)	*7.5*
Estimated Maximum Depth (cm)	*10*
Present Surface Area (m x m)	*2 x 2*
Estimated Maximum Surface Area (m x m)	*4 x 4*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing southeast*

Vernal Pool (Wet Season)	
Feature ID #	*140*
Feature Latitude,Longitude	*32.891373,-116.986827*
Air Temp (°C)	*12*
Water Temp (°C)	*9*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*7.5*
Present Surface Area (m x m)	*3 x 1.5*
Estimated Maximum Surface Area (m x m)	*5 x 3*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing south*

Vernal Pool (Wet Season)	
Feature ID #	*3a*
Feature Latitude,Longitude	*32.893124,-116.989227*
Air Temp (°C)	*12*
Water Temp (°C)	*2*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*7*
Present Surface Area (m x m)	*6 x 2*
Estimated Maximum Surface Area (m x m)	*8 x 2.5*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing north*

Vernal Pool (Wet Season)	
Feature ID #	*4a*
Feature Latitude,Longitude	*32.894781,-116.989719*
Air Temp (°C)	*12*
Water Temp (°C)	*9*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*7.4*
Present Surface Area (m x m)	*2.8 x 1.6*
Estimated Maximum Surface Area (m x m)	*5 x 2.3*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Northeast*

Vernal Pool (Wet Season)	
Feature ID #	*5a*
Feature Latitude,Longitude	*32.896784,-116.989332*
Air Temp (°C)	*13*
Water Temp (°C)	*9*
Average Depth (cm)	*4*
Estimated Maximum Depth (cm)	*5*
Present Surface Area (m x m)	*4 x 2.8*
Estimated Maximum Surface Area (m x m)	*6 x 3.5*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing southwest*

Wildlife List	
Code	*B-SAPH*
Common Name	*Say's phoebe*
Scientific Name	*Sayornis saya*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-MODO*
Common Name	*mourning dove*
Scientific Name	*Zenaida macroura*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WEME*
Common Name	*western meadowlark*
Scientific Name	*Sturnella neglecta*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-CORA*
Common Name	*common raven*
Scientific Name	*Corvus corax*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAGN*
Common Name	*coastal California gnatcatcher*
Scientific Name	*Polioptila californica californica*
Federal and State Status	*FT/ SSC*

Wildlife List	
Code	*B-YRWA*
Common Name	*yellow-rumped warbler*
Scientific Name	*Setophaga coronata*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WCSP*
Common Name	*white-crowned sparrow*
Scientific Name	*Zonotrichia leucophrys*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-RTHA*
Common Name	*red-tailed hawk*
Scientific Name	*Buteo jamaicensis*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-LOSH*
Common Name	*loggerhead shrike*
Scientific Name	*Lanius ludovicianus*
Federal and State Status	*BCC/ SSC*

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Wildlife List	
Code	*B-WESJ*
Common Name	*western scrub-jay*
Scientific Name	*Aphelocoma californica*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-RSFL*
Common Name	*northern flicker*
Scientific Name	*Colaptes auratus*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NOMO*
Common Name	*northern mockingbird*
Scientific Name	*Mimus polyglottos*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-ACWO*
Common Name	*Acorn woodpecker*
Scientific Name	*Melanerpes formicivorus*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CAKI*
Common Name	*Cassin's kingbird*
Scientific Name	*Tyrannus vociferans*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CALT*
Common Name	*California towhee*
Scientific Name	*Melozone crissalis*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-TUVU*
Common Name	*turkey vulture*
Scientific Name	*Cathartes aura*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-GRRO*
Common Name	*greater roadrunner*
Scientific Name	*Geococcyx californianus*
Federal and State Status	*None/ None*

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FIELD DATA REPORT

Bio Field Data

Record: 446	
Date	*2015-12-25*
Biologist	*Paul Lemons*
Project	*Fanita*
Region	*San Diego*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Wildlife Species Count Summary	*N/A*

Survey Conditions	
Status	*Start*
Time	*11:30:00*
TEMPERATURE	*°F*
Cloud Cover	*0%*
WIND	*mph*
Wind	*4-8*

Survey Conditions	
Status	*End*
Time	*15:30:00*
TEMPERATURE	*°F*
Cloud Cover	*0%*
WIND	*mph*
Wind	*4-8*

Vernal Pool (Wet Season)	
Feature ID #	*65*
Air Temp (°C)	*17*
Water Temp (°C)	*14*
Average Depth (cm)	*8*
Estimated Maximum Depth (cm)	*12*
Present Surface Area (m x m)	*1.5 x 7*
Estimated Maximum Surface Area (m x m)	*2 x 10*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta sp.*
Estimated Number of Individuals	*10s*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*050024, 3637774. 2 male and 2 female Branchinecta sp. collected.*

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Vernal Pool (Wet Season)	
Feature ID #	*161*
Air Temp (°C)	*17*
Water Temp (°C)	*17*
Average Depth (cm)	*8*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*0.5 x 10*
Estimated Maximum Surface Area (m x m)	*1 x 15*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0500118, 3637951. No fairy shrimp.*

Vernal Pool (Wet Season)	
Feature ID #	*2a*
Air Temp (°C)	*17*
Water Temp (°C)	*15*
Average Depth (cm)	*8*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*2 x 2*
Estimated Maximum Surface Area (m x m)	*4 x 4*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta sp.*
Estimated Number of Individuals	*10s*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0501231, 3639259. One fairy shrimp. Too young. Did not collect.*

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Vernal Pool (Wet Season)	
Feature ID #	*140*
Air Temp (°C)	*17*
Water Temp (°C)	*16*
Average Depth (cm)	*8*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*2 x 3*
Estimated Maximum Surface Area (m x m)	*5 x 4*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta sp.*
Estimated Number of Individuals	*10s*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0501234, 3639250. 3 male collected.*

Vernal Pool (Wet Season)	
Feature ID #	*3a*
Air Temp (°C)	*16*
Water Temp (°C)	*14*
Average Depth (cm)	*7*
Estimated Maximum Depth (cm)	*15*
Present Surface Area (m x m)	*1 x 8*
Estimated Maximum Surface Area (m x m)	*2 x 12*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta sp.*
Estimated Number of Individuals	*10s*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0501007, 3639431. One fairy shrimp. Too young. Did not collect.*

Vernal Pool (Wet Season)	
Feature ID #	*4a*
Air Temp (°C)	*16*
Water Temp (°C)	*14*
Average Depth (cm)	*8*
Estimated Maximum Depth (cm)	*15*
Present Surface Area (m x m)	*1 x 4*
Estimated Maximum Surface Area (m x m)	*1.5 x 7*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0500957, 3639634. No fairy shrimp.*

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FIELD DATA REPORT

Vernal Pool (Wet Season)	
Feature ID #	*5a*
Air Temp (°C)	*16*
Water Temp (°C)	*14*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*12*
Present Surface Area (m x m)	*2 x 4*
Estimated Maximum Surface Area (m x m)	*3 x 10*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0501004, 3639831. No fairy shrimp.*

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FIELD DATA REPORT

Bio Field Data

Record: 431	
Date	*2016-01-04*
Biologist	*Danielle Mullen*
Project	*Fanita*
Region	*San Diego*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Wildlife Species Count Summary	*N/A*

Survey Conditions	
Status	*Start*
Time	*11:21:00*
TEMPERATURE	*°F*
Air Temp	*62*
Cloud Cover	*90%*
WIND	*Beaufort*
Wind	*0 Calm; smoke rises vertically.*
Wind (Beaufort)	*0 Calm; smoke rises vertically.*

Survey Conditions	
Status	*End*
Time	*13:02:00*
TEMPERATURE	*°F*
Air Temp	*66*
Cloud Cover	*80%*
WIND	*Beaufort*
Wind	*1 Direction of wind shown by smoke drift, but not*
Wind (Beaufort)	*1 Direction of wind shown by smoke drift, but not by wind vane.*

Vernal Pool (Wet Season)	
Feature ID #	*183*
Feature Latitude,Longitude	*32.887589,-116.984047*
Air Temp (°C)	*19*
Water Temp (°C)	*16*
Average Depth (cm)	*2*
Estimated Maximum Depth (cm)	*7.5*
Present Surface Area (m x m)	*1 x 0.5*
Estimated Maximum Surface Area (m x m)	*1.2 x 0.8*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

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Photo(s)	
Type	*Photo*
Photo	
Description	*Facing east*

Vernal Pool (Wet Season)	
Feature ID #	*2a*
Feature Latitude,Longitude	
Air Temp (°C)	*18*
Water Temp (°C)	*17*
Average Depth (cm)	*9*
Estimated Maximum Depth (cm)	*10*
Present Surface Area (m x m)	*2 x 2*
Estimated Maximum Surface Area (m x m)	*4 x 4*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta spp.Branchinecta sandiegonensis*
Estimated Number of Individuals	*100*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	
Disturbance	
Disturbance Type	
Level of Grazing	
Notes / Voucher information	

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing west*

Vernal Pool (Wet Season)	
Feature ID #	*3a*
Feature Latitude,Longitude	
Air Temp (°C)	*18*
Water Temp (°C)	*16*
Average Depth (cm)	*6*
Estimated Maximum Depth (cm)	*7*
Present Surface Area (m x m)	*7 x 2*
Estimated Maximum Surface Area (m x m)	*8 x 2.5*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta spp.Branchinecta sandiegonensis*
Estimated Number of Individuals	*1000*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	
Disturbance	
Disturbance Type	
Level of Grazing	

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing south*

Vernal Pool (Wet Season)	
Feature ID #	*4a*
Feature Latitude,Longitude	
Air Temp (°C)	*18*
Water Temp (°C)	*18*
Average Depth (cm)	*4*
Estimated Maximum Depth (cm)	*7.4*
Present Surface Area (m x m)	*2 x 1.5*
Estimated Maximum Surface Area (m x m)	*5 x 2.3*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta spp.Branchinecta sandiegonensis*
Estimated Number of Individuals	*10*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	
Disturbance	
Disturbance Type	
Level of Grazing	

Photo(s)	
Type	*Photo*

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Photo	
	

Photo(s)	
Description	*Facing north*

Vernal Pool (Wet Season)	
Feature ID #	*5a*
Feature Latitude,Longitude	
Air Temp (°C)	*18*
Water Temp (°C)	*17*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*8*
Present Surface Area (m x m)	*4.5 x 3*
Estimated Maximum Surface Area (m x m)	*6 x 3.5*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta spp.Branchinecta sandiegonensis*
Estimated Number of Individuals	*10s*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	
Disturbance	
Disturbance Type	
Level of Grazing	

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Photo(s)	
Type	*Photo*
Photo	
Description	*Facing east*

Vernal Pool (Wet Season)	
Feature ID #	*161*
Feature Latitude,Longitude	*32.879811,-116.998646*
Air Temp (°C)	*16*
Water Temp (°C)	*16*
Average Depth (cm)	*4*
Estimated Maximum Depth (cm)	*15*
Present Surface Area (m x m)	*5.5 x 1*
Estimated Maximum Surface Area (m x m)	*10 x 1*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta*
Estimated Number of Individuals	*10*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Undisturbed*
Disturbance Type	*N/A*
Level of Grazing	*N/A*
Notes / Voucher information	*Fairy shrimp present, too immature to collect*

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FIELD DATA REPORT

Bio Field Data

Record: 440	
Date	*2016-01-15*
Biologist	*Danielle Mullen*
Project	*Fanita*
Region	*San Diego*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Wildlife Species Count Summary	*N/A*

Survey Conditions	
Status	*Start*
Time	*07:16:00*
TEMPERATURE	*°F*
Air Temp	*48*
Cloud Cover	*100%*
WIND	*mph*
Wind	*1*

Survey Conditions	
Status	*End*
Time	*12:03:00*
TEMPERATURE	*°F*
Air Temp	*48*
Cloud Cover	*100%*
WIND	*mph*
Wind	*1*

Vernal Pool (Wet Season)	
Feature ID #	*122*
Feature Latitude,Longitude	*32.887188,-116.993536*
Air Temp (°C)	*9*
Water Temp (°C)	*5*
Average Depth (cm)	*4*
Estimated Maximum Depth (cm)	*8*
Present Surface Area (m x m)	*6 x 1*
Estimated Maximum Surface Area (m x m)	*10 x 2*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

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Photo(s)	
Type	*Photo*
Photo	
Description	*122*

Vernal Pool (Wet Season)	
Feature ID #	*128*
Feature Latitude,Longitude	*32.890807,-116.992140*
Air Temp (°C)	*10*
Water Temp (°C)	*5*
Average Depth (cm)	*3*
Estimated Maximum Depth (cm)	*5*
Present Surface Area (m x m)	*10 x 3*
Estimated Maximum Surface Area (m x m)	*12 x 3*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*128*

Vernal Pool (Wet Season)	
Feature ID #	*49*
Feature Latitude,Longitude	*32.892118,-116.992137*
Air Temp (°C)	*11*
Water Temp (°C)	*5*
Average Depth (cm)	*4.5*
Estimated Maximum Depth (cm)	*8*
Present Surface Area (m x m)	*1 x 1*
Estimated Maximum Surface Area (m x m)	*3 x 2*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchi sp.Branchinecta sandiegonensis*
Estimated Number of Individuals	*100s*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*49*

Vernal Pool (Wet Season)	
Feature ID #	*111*
Feature Latitude,Longitude	*32.898154,-116.987949*
Air Temp (°C)	*11*
Water Temp (°C)	*9*
Average Depth (cm)	*15*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*10 x 3*
Estimated Maximum Surface Area (m x m)	*14 x 4*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Brachi sp.*
Estimated Number of Individuals	*10s*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*Five females observed. No males observed. A single female was collected.*

Photo(s)	
Type	*Photo*

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Photo	
Description	*111*

Vernal Pool (Wet Season)	
Feature ID #	*95*
Air Temp (°C)	*9*
Water Temp (°C)	*7*
Average Depth (cm)	*11.5*
Estimated Maximum Depth (cm)	*16*
Present Surface Area (m x m)	*4 x 1.5*
Estimated Maximum Surface Area (m x m)	*5.5 x 2.5*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Undisturbed*
Disturbance Type	*N/A*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
	

Vernal Pool (Wet Season)	
Feature ID #	*99*
Feature Latitude,Longitude	*32.897839,-116.987476*
Air Temp (°C)	*9*
Water Temp (°C)	*9*
Average Depth (cm)	*7*
Estimated Maximum Depth (cm)	*10*
Present Surface Area (m x m)	*1 x 1*
Estimated Maximum Surface Area (m x m)	*3 x 2*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	

Vernal Pool (Wet Season)	
Feature ID #	*6a*
Feature Latitude,Longitude	*32.891157,-116.987001*
Air Temp (°C)	*13*
Water Temp (°C)	*11*
Average Depth (cm)	*15*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*12 x 6*
Estimated Maximum Surface Area (m x m)	*16 x 8*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*Functioning as a stream.*

Photo(s)	
Type	*Photo*

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Photo	
Description	*6a*

Photo(s)	
Type	*Photo*
Photo	
Description	*6a*

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Vernal Pool (Wet Season)	
Feature ID #	*7a*
Feature Latitude,Longitude	*32.891691,-116.986857*
Air Temp (°C)	*13*
Water Temp (°C)	*11*
Average Depth (cm)	*8*
Estimated Maximum Depth (cm)	*12*
Present Surface Area (m x m)	*3 x 2.5*
Estimated Maximum Surface Area (m x m)	*4 x 3.5*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchi sp.Branchinecta sandiegonensis*
Estimated Number of Individuals	*1*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*One large male collected.*

Photo(s)	
Type	*Photo*
Photo	
Description	*7a*

Vernal Pool (Wet Season)	
Feature ID #	*8a*
Feature Latitude,Longitude	*32.891800,-116.986827*
Air Temp (°C)	*13*
Water Temp (°C)	*11*
Average Depth (cm)	*10*
Estimated Maximum Depth (cm)	*15*
Present Surface Area (m x m)	*3 x 2*
Estimated Maximum Surface Area (m x m)	*4 x 3*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*

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Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*
Photo	
Description	*8a*

Vernal Pool (Wet Season)	
Feature ID #	*139*
Feature Latitude,Longitude	*32.891819,-116.986797*
Air Temp (°C)	*13*
Water Temp (°C)	*11*
Average Depth (cm)	*11*
Estimated Maximum Depth (cm)	*13*
Present Surface Area (m x m)	*2.5 x 2*
Estimated Maximum Surface Area (m x m)	*3.5 x 2.5*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Algal Blooms Present, Tire Tracks*
Level of Grazing	*N/A*

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Photo(s)	
Type	*Photo*
Photo	
Description	*139*

Vernal Pool (Wet Season)	
Feature ID #	*9a*
Feature Latitude,Longitude	*32.891954,-116.986607*
Air Temp (°C)	*13*
Water Temp (°C)	*12*
Average Depth (cm)	*5.5*
Estimated Maximum Depth (cm)	*8*
Present Surface Area (m x m)	*2 x 1*
Estimated Maximum Surface Area (m x m)	*2.5 x 2*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchi sp.*
Estimated Number of Individuals	*1*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*Need to double check to make sure this isn't 139! One female observed, but not collected. No other fairy shrimp observed.*

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Photo(s)	
Type	*Photo*
Photo	
Description	*9a*

Vernal Pool (Wet Season)	
Feature ID #	*185*
Feature Latitude,Longitude	*32.888792,-116.984731*
Air Temp (°C)	*56f*
Water Temp (°C)	*54f*
Average Depth (cm)	*6*
Estimated Maximum Depth (cm)	*8*
Present Surface Area (m x m)	*3 x 0.5*
Estimated Maximum Surface Area (m x m)	*4 x 1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*185*

Wildlife List	
Code	*B-ACWO*
Common Name	*Acorn woodpecker*
Scientific Name	*Melanerpes formicivorus*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-AMKE*
Common Name	*American kestrel*
Scientific Name	*Falco sparverius*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-MODO*
Common Name	*mourning dove*
Scientific Name	*Zenaida macroura*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-SPTO*
Common Name	*spotted towhee*
Scientific Name	*Pipilo maculatus*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CORA*
Common Name	*common raven*
Scientific Name	*Corvus corax*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WESJ*
Common Name	*western scrub-jay*
Scientific Name	*Aphelocoma californica*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WEME*
Common Name	*western meadowlark*
Scientific Name	*Sturnella neglecta*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-RTHA*
Common Name	*red-tailed hawk*
Scientific Name	*Buteo jamaicensis*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-SAPH*
Common Name	*Say's phoebe*
Scientific Name	*Sayornis saya*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

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FIELD DATA REPORT

Bio Field Data

Record: 443	
Date	*2016-01-15*
Biologist	*Paul Lemons*
Project	*Fanita*
Region	*San Diego*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Wildlife Species Count Summary	*N/A*

Survey Conditions	
Status	*Start*
Time	*07:00:00*
TEMPERATURE	*°F*
Air Temp	*50*
Cloud Cover	*80%*
WIND	*mph*
Wind	*0-2*

Survey Conditions	
Status	*End*
Time	*14:20:00*
TEMPERATURE	*°F*
Air Temp	*62*
Cloud Cover	*100%*
WIND	*mph*
Wind	*0-2*

Vernal Pool (Wet Season)	
Feature ID #	*10a*
Air Temp (°C)	*10*
Water Temp (°C)	*9*
Average Depth (cm)	*7*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*2 x 10*
Estimated Maximum Surface Area (m x m)	*2.5 x 14*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta sp.*
Estimated Number of Individuals	*10s*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0499804, 3637347. Immature fairy shrimp present. No samples taken.*

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Vernal Pool (Wet Season)	
Feature ID #	*163*
Air Temp (°C)	*11*
Water Temp (°C)	*9*
Average Depth (cm)	*8*
Estimated Maximum Depth (cm)	*30*
Present Surface Area (m x m)	*1 x 8*
Estimated Maximum Surface Area (m x m)	*2 x 15*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0500091, 3637916. No fairy shrimp.*

Vernal Pool (Wet Season)	
Feature ID #	*161*
Air Temp (°C)	*11*
Water Temp (°C)	*9*
Average Depth (cm)	*7*
Estimated Maximum Depth (cm)	*35*
Present Surface Area (m x m)	*0.5 x 12*
Estimated Maximum Surface Area (m x m)	*1 x 20*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0500130, 3637963. No fairy shrimp.*

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Vernal Pool (Wet Season)	
Feature ID #	*12a*
Air Temp (°C)	*11*
Water Temp (°C)	*11*
Average Depth (cm)	*11*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*1 x 28*
Estimated Maximum Surface Area (m x m)	*1 x 50*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0500171, 3637989. No fairy shrimp.*

Vernal Pool (Wet Season)	
Feature ID #	*218*
Air Temp (°C)	*11*
Water Temp (°C)	*10*
Average Depth (cm)	*10*
Estimated Maximum Depth (cm)	*25*
Present Surface Area (m x m)	*2 x 7*
Estimated Maximum Surface Area (m x m)	*2 x 10*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Undisturbed*
Disturbance Type	*N/A*
Level of Grazing	*N/A*
Notes / Voucher information	*0500193, 3638042. No fairy shrimp.*

Vernal Pool (Wet Season)	
Feature ID #	*20*
Air Temp (°C)	*11*
Water Temp (°C)	*10*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*10*
Present Surface Area (m x m)	*0.5 x 41*
Estimated Maximum Surface Area (m x m)	*1 x 55*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0500269, 3638121. No fairy shrimp.*

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Vernal Pool (Wet Season)	
Feature ID #	*150*
Air Temp (°C)	*11*
Water Temp (°C)	*11*
Average Depth (cm)	*15*
Estimated Maximum Depth (cm)	*30*
Present Surface Area (m x m)	*1 x 6*
Estimated Maximum Surface Area (m x m)	*2 x 10*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0500512, 3638291. No fairy shrimp.*

Vernal Pool (Wet Season)	
Feature ID #	*149*
Air Temp (°C)	*11*
Water Temp (°C)	*11*
Average Depth (cm)	*12*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*2 x 8*
Estimated Maximum Surface Area (m x m)	*3 x 20*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0500521, 3638312. No fairy shrimp.*

Vernal Pool (Wet Season)	
Feature ID #	*13*
Air Temp (°C)	*12*
Water Temp (°C)	*11*
Average Depth (cm)	*6*
Estimated Maximum Depth (cm)	*12*
Present Surface Area (m x m)	*1 x 8*
Estimated Maximum Surface Area (m x m)	*1.5 x 40*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*0500299, 3658252. No fairy shrimp.*

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FIELD DATA REPORT

Bio Field Data

Record: 455	
Date	*2016-01-22*
Biologist	*Danielle Mullen*
Project	*Fanita*
Job Number	*7490*
Region	*San Diego*
Regional Plan	*None*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Wildlife Species Count Summary	*N/A*

Survey Conditions	
Status	*Start*
Time	*08:02:00*
TEMPERATURE	*°F*
Air Temp	*48*
Cloud Cover	*90%*
WIND	*mph*
Wind	*1*

Survey Conditions	
Status	*End*
Time	*12:50:00*
TEMPERATURE	*°F*
Air Temp	*65*
Cloud Cover	*40%*
WIND	*mph*
Wind	*1*

Vernal Pool (Wet Season)	
Feature ID #	*10a*
Feature Latitude,Longitude	
Air Temp (°C)	*18*
Water Temp (°C)	*16*
Average Depth (cm)	*11*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*2 x 1.5*
Estimated Maximum Surface Area (m x m)	*2.5 x 14*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta sp. Branchinecta sandiegonensis*
Estimated Number of Individuals	*10000*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*Shrimp very small* *Tadpoles present*

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Photo(s)	
Type	*Photo*
Photo	

Vernal Pool (Wet Season)	
Feature ID #	*6a*
Feature Latitude,Longitude	*32.891157,-116.987001*
Air Temp (°C)	*13*
Water Temp (°C)	*13*
Average Depth (cm)	*9cm*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*4 x 3*
Estimated Maximum Surface Area (m x m)	*16 x 8*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*Tadpole present*

Vernal Pool (Wet Season)	
Feature ID #	*8a*
Feature Latitude,Longitude	*32.891800,-116.986827*
Air Temp (°C)	*13*
Water Temp (°C)	*14*
Average Depth (cm)	*2.5*
Estimated Maximum Depth (cm)	*15*
Present Surface Area (m x m)	*1 x 1*
Estimated Maximum Surface Area (m x m)	*4 x 3*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta sandiegonensis*
Estimated Number of Individuals	*10*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*

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Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*Males and females present*

Vernal Pool (Wet Season)	
Feature ID #	*9a*
Feature Latitude,Longitude	*32.891954,-116.986607*
Air Temp (°C)	*14*
Water Temp (°C)	*14*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*8*
Present Surface Area (m x m)	*1 x 1*
Estimated Maximum Surface Area (m x m)	*2.5 x 2*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta sp.*
Estimated Number of Individuals	*1*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*One individual (female) present in pool*

Vernal Pool (Wet Season)	
Feature ID #	*49*
Feature Latitude,Longitude	*32.892118,-116.992137*
Air Temp (°C)	*13*
Water Temp (°C)	*13*
Average Depth (cm)	*0.5*
Estimated Maximum Depth (cm)	*8*
Present Surface Area (m x m)	*0.25 x 0.25*
Estimated Maximum Surface Area (m x m)	*3 x 2*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta sandiegonensis*
Estimated Number of Individuals	*100*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*Collected more because last week 1/15/16 they were immature but they don't appear to have change much in size this survey. Confirmed SDFS*

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Vernal Pool (Wet Season)	
Feature ID #	*95*
Air Temp (°C)	*14*
Water Temp (°C)	*14*
Average Depth (cm)	*7*
Estimated Maximum Depth (cm)	*16*
Present Surface Area (m x m)	*2 x 1*
Estimated Maximum Surface Area (m x m)	*5.5 x 2.5*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Undisturbed*
Disturbance Type	*N/A*
Level of Grazing	*N/A*

Vernal Pool (Wet Season)	
Feature ID #	*111*
Feature Latitude,Longitude	*32.898154,-116.987949*
Air Temp (°C)	*15*
Water Temp (°C)	*15*
Average Depth (cm)	*7.5*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*2 x 0.5*
Estimated Maximum Surface Area (m x m)	*14 x 4*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Branchinecta sandiegonensis*
Estimated Number of Individuals	*10*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Vernal Pool (Wet Season)	
Feature ID #	*128*
Feature Latitude,Longitude	*32.890807,-116.992140*
Air Temp (°C)	*16*
Water Temp (°C)	*16*
Average Depth (cm)	*3*
Estimated Maximum Depth (cm)	*5*
Present Surface Area (m x m)	*0.3 x 0.3*
Estimated Maximum Surface Area (m x m)	*12 x 3*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

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Vernal Pool (Wet Season)	
Feature ID #	*149*
Air Temp (°C)	*17*
Water Temp (°C)	*17*
Average Depth (cm)	*15*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*2 x 1*
Estimated Maximum Surface Area (m x m)	*3 x 20*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Vernal Pool (Wet Season)	
Feature ID #	*150*
Air Temp (°C)	*17*
Water Temp (°C)	*17*
Average Depth (cm)	*13*
Estimated Maximum Depth (cm)	*30*
Present Surface Area (m x m)	*2 x 1*
Estimated Maximum Surface Area (m x m)	*2 x 10*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Vernal Pool (Wet Season)	
Feature ID #	*161*
Feature Latitude,Longitude	*32.879811,-116.998646*
Air Temp (°C)	*17*
Water Temp (°C)	*17*
Average Depth (cm)	*4.5*
Estimated Maximum Depth (cm)	*15*
Present Surface Area (m x m)	*1.5 x 0.5*
Estimated Maximum Surface Area (m x m)	*10 x 1*
Crustaceans	*Anostracans*
Anostracans and Notostracans	*Brachinecta sp.*
Estimated Number of Individuals	*1*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Undisturbed*
Disturbance Type	*N/A*
Level of Grazing	*N/A*
Notes / Voucher information	*One individual (female) present did not collect*

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Vernal Pool (Wet Season)	
Feature ID #	*163*
Air Temp (°C)	*18*
Water Temp (°C)	*18*
Average Depth (cm)	*7*
Estimated Maximum Depth (cm)	*30*
Present Surface Area (m x m)	*2 x 1*
Estimated Maximum Surface Area (m x m)	*2 x 15*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	

Wildlife List	
Code	*B-YRWA*
Common Name	*yellow-rumped warbler*
Scientific Name	*Setophaga coronata*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WEME*
Common Name	*western meadowlark*
Scientific Name	*Sturnella neglecta*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-RSFL*
Common Name	*northern flicker*
Scientific Name	*Colaptes auratus*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-ANHU*
Common Name	*Anna's hummingbird*
Scientific Name	*Calypte anna*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-MODO*
Common Name	*mourning dove*
Scientific Name	*Zenaida macroura*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WESJ*
Common Name	*western scrub-jay*
Scientific Name	*Aphelocoma californica*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-ACWO*
Common Name	*Acorn woodpecker*
Scientific Name	*Melanerpes formicivorus*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WCSP*
Common Name	*white-crowned sparrow*
Scientific Name	*Zonotrichia leucophrys*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-*
Lat/Long	*undefined,undefined*

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FIELD DATA REPORT

Bio Field Data

Record: 470	
Date	*2016-01-29*
Biologist	*Danielle Mullen*
Project	*Fanita*
Region	*San Diego*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Wildlife Species Count Summary	*N/A*

Survey Conditions	
Status	*Start*
Time	*08:49:00*
TEMPERATURE	*°F*
Air Temp	*54*
Cloud Cover	*20%*
WIND	*mph*
Wind	*1*

Survey Conditions	
Status	*End*
Time	*11:00:00*
TEMPERATURE	*°F*
Air Temp	*64*
Cloud Cover	*0%*
WIND	*mph*
Wind	*1*

Vernal Pool (Wet Season)	
Feature ID #	*150*
Air Temp (°C)	*14*
Water Temp (°C)	*13*
Average Depth (cm)	*8*
Estimated Maximum Depth (cm)	*30*
Present Surface Area (m x m)	*1 x 0.5*
Estimated Maximum Surface Area (m x m)	*2 x 10*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*Diptera Culicidae, Diptera Chironomidae*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

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Wildlife List	
Code	*B-WCSP*
Common Name	*white-crowned sparrow*
Scientific Name	*Zonotrichia leucophrys*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-LASP*
Common Name	*lark sparrow*
Scientific Name	*Chondestes grammacus*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-MODO*
Common Name	*mourning dove*
Scientific Name	*Zenaida macroura*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-CORA*
Common Name	*common raven*
Scientific Name	*Corvus corax*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-LEGO*
Common Name	*lesser goldfinch*
Scientific Name	*Spinus psaltria*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-ANHU*
Common Name	*Anna's hummingbird*
Scientific Name	*Calypte anna*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WESJ*
Common Name	*western scrub-jay*
Scientific Name	*Aphelocoma californica*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-WREN*
Common Name	*wrentit*
Scientific Name	*Chamaea fasciata*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-GRRO*
Common Name	*greater roadrunner*
Scientific Name	*Geococcyx californianus*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-NOMO*
Common Name	*northern mockingbird*
Scientific Name	*Mimus polyglottos*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

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Wildlife List	
Code	*B-BLPH*
Common Name	*black phoebe*
Scientific Name	*Sayornis nigricans*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ None*

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FIELD DATA REPORT

Bio Field Data

Record: 485	
Date	*2016-02-05*
Biologist	*Danielle Mullen*
Project	*Fanita*
Region	*San Diego*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Wildlife Species Count Summary	*N/A*

Survey Conditions	
Status	*Start*
Time	*09:32:00*
TEMPERATURE	*°F*
Air Temp	*52*
Cloud Cover	*0%*
WIND	*mph*
Wind	*1*

Survey Conditions	
Status	*End*
Time	*14:10:00*
TEMPERATURE	*°F*
Air Temp	*70*
Cloud Cover	*0%*
WIND	*mph*
Wind	*0*

Vernal Pool (Wet Season)	
Feature ID #	*13a*
Feature Latitude,Longitude	*32.898251,-116.987633*
Air Temp (°C)	*52*
Water Temp (°C)	*42*
Average Depth (cm)	*5.5*
Estimated Maximum Depth (cm)	*7*
Present Surface Area (m x m)	*3 x 0.5*
Estimated Maximum Surface Area (m x m)	*5 x 1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

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Photo(s)	
Type	*Photo*
Photo	

Vernal Pool (Wet Season)	
Feature ID #	*99*
Feature Latitude,Longitude	*32.897839,-116.987476*
Air Temp (°C)	*12*
Water Temp (°C)	*10*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*10*
Present Surface Area (m x m)	*2 x 2*
Estimated Maximum Surface Area (m x m)	*3 x 2*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing south*

Vernal Pool (Wet Season)	
Feature ID #	*9a*
Feature Latitude,Longitude	*32.891954,-116.986607*
Air Temp (°C)	*16*
Water Temp (°C)	*13*
Average Depth (cm)	*4*
Estimated Maximum Depth (cm)	*8*
Present Surface Area (m x m)	*2 x 1.2*
Estimated Maximum Surface Area (m x m)	*2.5 x 2*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing north*

Vernal Pool (Wet Season)	
Feature ID #	*14a*
Feature Latitude,Longitude	*32.891777,-116.986976*
Air Temp (°C)	*16*
Water Temp (°C)	*12*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*7*
Present Surface Area (m x m)	*2 x 1.5*
Estimated Maximum Surface Area (m x m)	*4 x 2*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing southeast*

Vernal Pool (Wet Season)	
Feature ID #	*15a*
Feature Latitude,Longitude	*32.891563,-116.986959*
Air Temp (°C)	*16*
Water Temp (°C)	*14*
Average Depth (cm)	*3*
Estimated Maximum Depth (cm)	*4.2*
Present Surface Area (m x m)	*1.3 x 1.5*
Estimated Maximum Surface Area (m x m)	*2 x 2*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing northwest*

Vernal Pool (Wet Season)	
Feature ID #	*185*
Feature Latitude,Longitude	*32.888792,-116.984731*
Air Temp (°C)	*18*
Water Temp (°C)	*13*
Average Depth (cm)	*6*
Estimated Maximum Depth (cm)	*8*
Present Surface Area (m x m)	*4 x 1.2*
Estimated Maximum Surface Area (m x m)	*4 x 1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*Diptera Culicidae*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Constructed Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing east*

Vernal Pool (Wet Season)	
Feature ID #	*149*
Air Temp (°C)	*18*
Water Temp (°C)	*14*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*20*
Present Surface Area (m x m)	*4 x 1.4*
Estimated Maximum Surface Area (m x m)	*7 x 2.5*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing north*

Vernal Pool (Wet Season)	
Feature ID #	*150*
Air Temp (°C)	*18*
Water Temp (°C)	*13*
Average Depth (cm)	*7*
Estimated Maximum Depth (cm)	*30*
Present Surface Area (m x m)	*5.5 x 4*
Estimated Maximum Surface Area (m x m)	*10 x 10*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing south*

Vernal Pool (Wet Season)	
Feature ID #	*161*
Feature Latitude,Longitude	*32.879811,-116.998646*
Air Temp (°C)	*19*
Water Temp (°C)	*16*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*15*
Present Surface Area (m x m)	*8.5 x 1*
Estimated Maximum Surface Area (m x m)	*10 x 1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Undisturbed*
Disturbance Type	*N/A*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing north*

Vernal Pool (Wet Season)	
Feature ID #	*163*
Air Temp (°C)	*19*
Water Temp (°C)	*13*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*30*
Present Surface Area (m x m)	*7.5 x 2*
Estimated Maximum Surface Area (m x m)	*12 x 4*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing southeast*

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FIELD DATA REPORT

Bio Field Data

Record: 875	
Date	*2016-02-12*
Biologist	*Danielle Mullen*
Project	*Fanita*
Region	*San Diego*
Survey Area	
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Wildlife Species Count Summary	*N/A*
Notes	

Survey Conditions	
Status	*Start*
Time	*09:00:00*
TEMPERATURE	*°F*
Air Temp	*56*
Cloud Cover	*0%*
WIND	*mph*
Wind	*0-1*

Survey Conditions	
Status	*End*
Time	*12:07:00*
TEMPERATURE	*°F*
Air Temp	*65*
Cloud Cover	*0%*
WIND	*mph*
Wind	*1*

Vernal Pool (Wet Season)	
Feature ID #	*150*
Feature Latitude,Longitude	
Air Temp (°C)	*79*
Water Temp (°C)	*64*
Average Depth (cm)	*7*
Estimated Maximum Depth (cm)	*30*
Present Surface Area (m x m)	*2 x 1*
Estimated Maximum Surface Area (m x m)	*3 x 10*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*Diptera Culicidae*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

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Photo(s)	
Type	*Photo*
Photo	

Wildlife List	
Code	*B-COHA*
Common Name	*Cooper's hawk*
Scientific Name	*Accipiter cooperii*
Lat/Long	*undefined,undefined*
Federal and State Status	*None/ WL*

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CREATOR OF KERATA TECHNOLOGY

FIELD DATA REPORT

Bio Field Data

Record: 4010	
Date	*2016-02-19*
Biologist	*Danielle Mullen*
Project	*Fanita*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Notes	*All pools dry.*

Survey Conditions	
Status	*Start*
Time	*08:11:00*
TEMPERATURE	*°F*
Air Temp	*45*
Cloud Cover	*20%*
WIND	*mph*
Wind	*0*

Survey Conditions	
Status	*End*
Time	*13:12:00*
TEMPERATURE	*°F*
Air Temp	*72*
Cloud Cover	*10%*
WIND	*mph*
Wind	*5*

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FIELD DATA REPORT

Bio Field Data

Record: 3950	
Date	*2016-03-14*
Biologist	*Danielle Mullen*
Project	*Fanita*
Region	*San Diego*
Survey Area	
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Notes	

Survey Conditions	
Status	*Start*
Time	*11:04:00*
TEMPERATURE	*°F*
Air Temp	*64*
Cloud Cover	*100%*
WIND	*mph*
Wind	*3*

Survey Conditions	
Status	*End*
Time	*18:03:00*
TEMPERATURE	*°C*
Air Temp	*66*
Cloud Cover	*50%*
WIND	*mph*
Wind	*4*

Vernal Pool (Wet Season)	
Feature ID #	*163*
Air Temp (°C)	*18*
Water Temp (°C)	*18*
Average Depth (cm)	*4.5*
Estimated Maximum Depth (cm)	*7*
Present Surface Area (m x m)	*3 x 1*
Estimated Maximum Surface Area (m x m)	*4 x 1.5*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*

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Vernal Pool (Wet Season)	
Feature ID #	*161*
Feature Latitude,Longitude	
Air Temp (°C)	*18*
Water Temp (°C)	*18*
Average Depth (cm)	*7.5*
Estimated Maximum Depth (cm)	*15*
Present Surface Area (m x m)	*1.5 x 0.5*
Estimated Maximum Surface Area (m x m)	*4 x 1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	
Disturbance	
Disturbance Type	
Level of Grazing	

Vernal Pool (Wet Season)	
Feature ID #	*150*
Air Temp (°C)	*18*
Water Temp (°C)	*19*
Average Depth (cm)	*8*
Estimated Maximum Depth (cm)	*10*
Present Surface Area (m x m)	*1 x 0.5*
Estimated Maximum Surface Area (m x m)	*3 x 1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*

Vernal Pool (Wet Season)	
Feature ID #	*122*
Air Temp (°C)	*18*
Water Temp (°C)	*17*
Average Depth (cm)	*4*
Estimated Maximum Depth (cm)	*10*
Present Surface Area (m x m)	*1 x 0.5*
Estimated Maximum Surface Area (m x m)	*15 x 1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*

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Vernal Pool (Wet Season)	
Feature ID #	*45*
Feature Latitude,Longitude	*32.896348,-116.989200*
Air Temp (°C)	*19*
Water Temp (°C)	*20*
Average Depth (cm)	*5*
Estimated Maximum Depth (cm)	*8*
Present Surface Area (m x m)	*1.5 x 0.5*
Estimated Maximum Surface Area (m x m)	*2 x 1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Vernal Pool (Wet Season)	
Feature ID #	*99*
Feature Latitude,Longitude	*32.897881,-116.987518*
Air Temp (°C)	*17*
Water Temp (°C)	*18*
Average Depth (cm)	*3*
Estimated Maximum Depth (cm)	*6*
Present Surface Area (m x m)	*0.5 x 0.5*
Estimated Maximum Surface Area (m x m)	*1 x 1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Vernal Pool (Wet Season)	
Feature ID #	*16a*
Feature Latitude,Longitude	*32.877164,-116.982823*
Air Temp (°C)	*17*
Water Temp (°C)	*17*
Average Depth (cm)	*3.5*
Estimated Maximum Depth (cm)	*7*
Present Surface Area (m x m)	*6 x 0.5*
Estimated Maximum Surface Area (m x m)	*8 x 0.5*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

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Vernal Pool (Wet Season)	
Feature ID #	*62*
Feature Latitude,Longitude	*32.880254,-116.980205*
Air Temp (°C)	*17*
Water Temp (°C)	*19*
Average Depth (cm)	*13*
Estimated Maximum Depth (cm)	*18*
Present Surface Area (m x m)	*2 x 2.5*
Estimated Maximum Surface Area (m x m)	*3 x 3*
Crustaceans	*Notostracans*
Anostracans and Notostracans	*Branchinecta sandiegonensis*
Estimated Number of Individuals	*10000*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*
Notes / Voucher information	*Males and females. Collect 3 males and 2 females.*

Vernal Pool (Wet Season)	
Feature ID #	*52*
Feature Latitude,Longitude	*32.887048,-116.989842*
Air Temp (°C)	*17*
Water Temp (°C)	*19*
Average Depth (cm)	*4.5*
Estimated Maximum Depth (cm)	*6*
Present Surface Area (m x m)	*2 x 0.5*
Estimated Maximum Surface Area (m x m)	*6 x 1*
Crustaceans	*None*
Anostracans and Notostracans	*N/A*
Estimated Number of Individuals	*N/A*
Insects	*None*
Platyhelminths (flatworms) Present?	*No*
Natural or Contructed Pool	*Natural Pool*
Disturbance	*Disturbed*
Disturbance Type	*Tire Tracks*
Level of Grazing	*N/A*

Photo(s)	
Type	*Photo*

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Photo	
Description	*Facing northwest*

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FIELD DATA REPORT

Bio Field Data

Record: 4001	
Date	*2016-03-21*
Biologist	*Danielle Mullen*
Project	*Fanita*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Notes	*All pools dry.*

Survey Conditions	
Status	*Start*
Time	*11:21:00*
TEMPERATURE	*°F*
Air Temp	*64*
Cloud Cover	*0%*
WIND	*mph*
Wind	*2*

Survey Conditions	
Status	*End*
Time	*14:56:00*
TEMPERATURE	*°F*
Air Temp	*73*
Cloud Cover	*0%*
WIND	*mph*
Wind	*2*

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FIELD DATA REPORT

Bio Field Data

Record: 2495	
Date	*2016-04-17*
Biologist	*Danielle Mullen*
Project	*Fanita*
Region	*San Diego*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Notes	*All pools dry.*

Survey Conditions	
Status	*Start*
Time	*11:02:00*
TEMPERATURE	*°F*
Air Temp	*84*
Cloud Cover	*0%*
WIND	*mph*
Wind	*5*

Survey Conditions	
Status	*End*
Time	*12:06:00*
TEMPERATURE	*°F*
Air Temp	*90*
Cloud Cover	*0%*
WIND	*mph*
Wind	*10*

Wildlife List	
Code	*B-CLSW*
Common Name	*cliff swallow*
Scientific Name	*Petrochelidon pyrrhonota*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*I-BEME*
Common Name	*Behr's metalmark*
Scientific Name	*Apodemia mormo virgulti*
Lat/Long	
Federal and State Status	*None/ None*

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Wildlife List	
Code	*I-COBU*
Common Name	*common buckeye*
Scientific Name	*Junonia coenia*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-LEGO*
Common Name	*lesser goldfinch*
Scientific Name	*Spinus psaltria*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-AMCR*
Common Name	*American crow*
Scientific Name	*Corvus brachyrhynchos*
Lat/Long	
Federal and State Status	*None/ None*

Wildlife List	
Code	*B-RWBL*
Common Name	*red-winged blackbird*
Scientific Name	*Agelaius phoeniceus*
Lat/Long	
Federal and State Status	*None/ None*

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FIELD DATA REPORT

Bio Field Data

Record: 4004	
Date	*2016-05-08*
Biologist	*Danielle Mullen*
Project	*Fanita*
Region	*San Diego*
Survey Area	*Entire Site*
Survey Type	*Fairy Shrimp (Listed Branchiopods)*
Notes	*All pools dry.*

Survey Conditions	
Status	*Start*
Time	*12:06:00*
TEMPERATURE	*°F*
Air Temp	*70*
Cloud Cover	*90%*
WIND	*mph*
Wind	*2*

Survey Conditions	
Status	*End*
Time	*13:33:00*
TEMPERATURE	*°F*
Air Temp	*75*
Cloud Cover	*90%*
WIND	*mph*
Wind	*3*

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APPENDIX J

Plant Species Observed within the Project Area

APPENDIX J
Plant Compendium

VASCULAR SPECIES

FERNS AND FERN ALLIES

DRYOPTERIDACEAE—WOOD FERN FAMILY

Dryopteris arguta—coastal woodfern

OPHIOGLOSSACEAE—ADDER'S-TONGUE FAMILY

Ophioglossum californicum—California adder's-tongue

POLYPODIACEAE—POLYPODY FAMILY

Polypodium californicum—California polypody

PTERIDACEAE—BRAKE FAMILY

Adiantum jordanii—California maidenhair
Aspidotis californica—California lacefern
Pellaea mucronata var. *mucronata*—birdfoot cliffbrake
Pentagramma triangularis ssp. *triangularis*—goldback fern
Pentagramma triangularis ssp. *viscosa*—silverback fern
Myriopteris newberryi—Newberry's lip fern

SELAGINELLACEAE—SPIKE-MOSS FAMILY

Selaginella bigelovii—bushy spikemoss
Selaginella cinerascens—ashy spike-moss

MONOCOTS

AGAVACEAE—AGAVE FAMILY

Chlorogalum parviflorum—smallflower soap plant
Hesperoyucca whipplei—chaparral yucca

ALLIACEAE—ONION FAMILY

Allium haematochiton—redskin onion
Allium peninsulare—Mexicali onion
Allium praecox—early onion

ARECACEAE—PALM FAMILY

* *Phoenix canariensis*—Canary Island date palm
* *Washingtonia robusta*—Washington fan palm

ASPHODELACEAE—ASPHODEL FAMILY

* *Asphodelus fistulosus*—onionweed

CYPERACEAE—SEDGE FAMILY

Bolboschoenus robustus—sturdy bulrush
Carex triquetra—triangularfruit sedge
Cyperus eragrostis—tall flatsedge
Cyperus esculentus—yellow nutsedge
Schoenoplectus americanus—American bulrush
Eleocharis acicularis—needle spike rush
Eleocharis macrostachya—pale spike rush
* *Cyperus involucratus*—umbrella plant

IRIDACEAE—IRIS FAMILY

Sisyrinchium bellum—western blue-eyed grass

JUNCACEAE—RUSH FAMILY

Juncus bufonius var. *bufonius*—toad rush
Juncus dubius—questionable rush
Juncus mexicanus—Mexican rush
Juncus triformis—Yosemite dwarf rush
Juncus xiphioides—irisleaf rush
Juncus articulatus—jointleaf rush
Juncus acutus ssp. *leopoldii*—southwestern spiny rush

JUNCAGINACEAE—ARROW-GRASS FAMILY

Triglochin scilloides—awl-leaf lilaea

LILIACEAE—LILY FAMILY

Bloomeria clevelandii—San Diego goldenstar
Calochortus macrocarpus—sagebrush mariposa lily
Calochortus splendens—splendid mariposa lily
Calochortus weedii var. *weedii*—Weed's mariposa lily
Calochortus weedii—Weed's mariposa lily
Fritillaria biflora—chocolate lily

MELANTHIACEAE—FALSE HELLEBORE FAMILY

Toxicoscordion fremontii—Fremont's deathcamas
Toxicoscordion venenosum—no common name

ORCHIDACEAE—ORCHID FAMILY

Piperia unalascensis—slender-spire orchid
Piperia cooperi—chaparral rein orchid

POACEAE—GRASS FAMILY

* *Avena barbata*—slender oat
Bothriochloa barbinodis—cane bluestem
Bromus carinatus var. *carinatus*—California brome
Deschampsia danthonioides—annual hairgrass
Hordeum brachyantherum ssp. *californicum*—California barley
Leptochloa fusca ssp. *uninervia*—Mexican sprangletop
Melica frutescens—woody melicgrass
Melica imperfecta—smallflower melicgrass
Muhlenbergia microsperma—littleseed muhly
Stipa coronata—giant ricegrass
* *Arundo donax*—giant reed
* *Brachypodium distachyon*—purple false brome
* *Bromus diandrus*—ripgut brome
* *Bromus hordeaceus*—soft brome
* *Bromus madritensis*—compact brome
* *Bromus madritensis* ssp. *rubens*—red brome
* *Cortaderia selloana*—Uruguayan pampas grass
* *Cynodon dactylon*—Bermudagrass
* *Festuca myuros*—rat-tail fescue
* *Gastridium phleoides*—nit grass
* *Hordeum murinum* ssp. *leporinum*—hare barley
* *Lamarckia aurea*—goldentop grass
* *Paspalum dilatatum*—dallisgrass
* *Polypogon monspeliensis*—annual rabbitsfoot grass
* *Schismus barbatus*—common Mediterranean grass
* *Sorghum halepense*—Johnsongrass
* *Triticum aestivum*—common wheat
Elymus glaucus—blue wild rye
Muhlenbergia rigens—deer grass beds
Stipa lepida—foothill needle grass
* *Pennisetum setaceum*—fountain grass swards
Elymus condensatus—giant wild rye
* *Festuca perennis*—perennial rye grass
Stipa pulchra—purple needle grass

Distichlis spicata—salt grass
Calamagrostis muiriana—shorthair reed grass

THEMIDACEAE—BRODIAEA FAMILY

Bloomeria crocea var. *crocea*—common goldenstar
Bloomeria crocea—common goldenstar
Brodiaea jolonensis—chaparral brodiaea
Dichelostemma capitatum ssp. *capitatum*—bluedicks
Dichelostemma capitatum—bluedicks
Muilla maritima—sea muilla

TYPHACEAE—CATTAIL FAMILY

Typha angustifolia—narrowleaf cattail

EUDICOTS

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea*—blue elderberry
Sambucus nigra—blue elderberry

AMARANTHACEAE—AMARANTH FAMILY

Amaranthus palmeri—carelessweed
* *Amaranthus retroflexus*—redroot amaranth

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Malosma laurina—laurel sumac
* *Schinus molle*—Peruvian peppertree
* *Schinus terebinthifolius*—Brazilian peppertree
Rhus integrifolia—lemonade berry
Toxicodendron diversilobum—poison oak
Rhus ovata—sugarbush

APIACEAE—CARROT FAMILY

Apiastrum angustifolium—mock parsley
Daucus pusillus—American wild carrot
Lomatium dasycarpum ssp. *dasycarpum*—woollyfruit desertparsley
Lomatium lucidum—shiny biscuitroot
Sanicula arguta—sharptooth blacksnakeroot
Sanicula bipinnata—poison sanicle
Sanicula bipinnatifida—purple sanicle
* *Conium maculatum*—poison hemlock
* *Foeniculum vulgare*—fennel

APOCYNACEAE—DOGBANE FAMILY

Asclepias fascicularis—Mexican whorled milkweed
Funastrum cynanchoides var. *hartwegii*—Hartweg's twinevine

ASTERACEAE—SUNFLOWER FAMILY

* *Sonchus oleraceus*—common sowthistle
Acourtia microcephala—sacapellote
Agoseris grandiflora—bigflower agoseris
Agoseris heterophylla—annual agoseris
Agoseris retrorsa—spearleaf agoseris
Artemisia palmeri—San Diego sagewort
Baccharis sarothroides—desertbroom
Chaenactis artemisiifolia—white pincushion
Chaenactis glabriuscula—yellow pincushion
Cirsium occidentale—cobwebby thistle
Corethrogyne filaginifolia—common sandaster
Deinandra fasciculata—clustered tarweed
Erigeron canadensis—Canadian horseweed
Erigeron foliosus var. *foliosus*—leafy fleabane
Eriophyllum confertiflorum var. *confertiflorum*—golden-yarrow
Eriophyllum confertiflorum—golden-yarrow
Gnaphalium palustre—western marsh cudweed
Grindelia camporum—Great Valley gumweed
Hazardia squarrosa var. *grindelioides*—sawtooth bris*tleweed*
Heterotheca grandiflora—telegraphweed
Isocoma menziesii var. *menziesii*—Menzies' goldenbush
Lasthenia californica—California goldfields
Lasthenia coronaria—royal goldfields
Lasthenia glabrata—yellowray goldfields
Lasthenia gracilis—needle goldfields
Layia glandulosa—whitedaisy tidytips
Layia platyglossa—coastal tidytips
Lessingia glandulifera—valley lessingia
Microseris douglasii—Douglas' silverpuffs
Osmadenia tenella—false rosinweed
Pentachaeta aurea—golden chaetopappa
Porophyllum gracile—slender poreleaf
Pseudognaphalium beneolens—Wright's cudweed
Pseudognaphalium biolettii—two-color rabbit-tobacco

Pseudognaphalium californicum—ladies' tobacco
Psilocarphus brevissimus var. *brevissimus*—short woollyheads
Psilocarphus brevissimus—short woollyheads
Psilocarphus tenellus—slender woollyheads
Rafinesquia californica—California plumeseed
Stephanomeria virgata ssp. *virgata*—rod wirelettuce
Stylocline gnaphaloides—mountain neststraw
Uropappus lindleyi—Lindley's silverpuffs
Xanthisma junceum—rush-like bristleweed
Pluchea odorata—sweetscent
* *Centaurea melitensis*—Maltese star-thistle
* *Cotula australis*—Australian waterbuttons
* *Cynara cardunculus*—cardoon
* *Erigeron bonariensis*—asthmaweed
* *Gazania linearis*—treasureflower
* *Glebionis coronaria*—crowndaisy
* *Hedypnois rhagadioloides*—crete weed
* *Helminthotheca echioides*—bristly oxtongue
* *Hypochaeris glabra*—smooth cat's ear
* *Lactuca serriola*—prickly lettuce
* *Logfia gallica*—narrowleaf cottonrose
* *Matricaria discoidea*—disc mayweed
* *Pseudognaphalium luteoalbum*—Jersey cudweed
* *Senecio vulgaris*—old-man-in-the-Spring
* *Silybum marianum*—blessed milkthistle
* *Sonchus asper*—spiny sowthistle
* *Sonchus asper* ssp. *asper*—spiny sowthistle
Holocarpha virgata ssp. *elongata*—graceful tarplant
* *Cotula coronopifolia*—brass buttons
Gutierrezia sarothrae—broom snake weed
Encelia californica—California brittle bush
Gutierrezia californica—California match weed
Artemisia californica—California sagebrush
Xanthium strumarium—cocklebur
Baccharis pilularis—coyote brush
Baccharis salicifolia—mulefat
Hazardia squarrosa—sawtooth golden bush
Ambrosia psilostachya—western ragweed

BETULACEAE—BIRCH FAMILY

Alnus rhombifolia—white alder

BORAGINACEAE—BORAGE FAMILY

Amsinckia intermedia—common fiddleneck
Amsinckia menziesii—Menzies' fiddleneck
Cryptantha angustifolia—Panamint cryptantha
Cryptantha intermedia—Clearwater cryptantha
Emmenanthe penduliflora—whisperingbells
Eucrypta chrysanthemifolia—spotted hideseed
Harpagonella palmeri—Palmer's grapplinghook
Pectocarya penicillata—sleeping combseed
Phacelia cicutaria var. *hispida*—caterpillar phacelia
Phacelia cicutaria—caterpillar phacelia
Phacelia distans—distant phacelia
Plagiobothrys arizonicus—Arizona popcornflower
Plagiobothrys collinus—Cooper's popcornflower
Pectocarya linearis—sagebrush combseed
Plagiobothrys nothofulvus—popcorn flower

BRASSICACEAE—MUSTARD FAMILY

* *Sisymbrium irio*—London rocket
Caulanthus heterophyllus—San Diego wild cabbage
Lepidium nitidum—shining pepperweed
Lepidium strictum—upright pepperweed
Nasturtium officinale—watercress
Thysanocarpus curvipes—sand fringepod
* *Brassica nigra*—black mustard
* *Capsella bursa-pastoris*—shepherd's purse
* *Hirschfeldia incana*—shortpod mustard
* *Lepidium didymum*—lesser swinecress
* *Raphanus sativus*—cultivated radish
* *Sisymbrium altissimum*—tall tumblemustard

CACTACEAE—CACTUS FAMILY

Cylindropuntia prolifera—coastal cholla
Ferocactus viridescens—San Diego barrel cac*tus*
Opuntia littoralis—coast prickly pear

CAPRIFOLIACEAE—HONEYSUCKLE FAMILY

Lonicera subspicata var. *denudata*—Santa Barbara honeysuckle

CARYOPHYLLACEAE—PINK FAMILY

Silene laciniata ssp. *laciniata*—cardinal catchfly
* *Cerastium glomeratum*—sticky chickweed
* *Silene gallica*—common catchfly
* *Spergularia bocconi*—Boccone's sandspurry
* *Spergularia platensis*—La Plata sandspurry
* *Stellaria media*—common chickweed

CHENOPODIACEAE—GOOSEFOOT FAMILY

Atriplex coulteri—Coulter's saltbush
Chenopodium californicum—California goosefoot
* *Atriplex semibaccata*—Australian saltbush
* *Chenopodium album*—lambsquarters
* *Chenopodium murale*—nettleleaf goosefoot
* *Salsola australis*—Russian thistle
Atriplex lentiformis—quailbush

CISTACEAE—ROCK-ROSE FAMILY

Crocanthemum scoparium—no common name

CONVOLVULACEAE—MORNING-GLORY FAMILY

Calystegia longipes—Paiute false bindweed
Calystegia macrostegia ssp. *intermedia*—island false bindweed
Calystegia macrostegia ssp. *tenuifolia*—island false bindweed
Calystegia macrostegia—island false bindweed
Convolvulus simulans—small-flowered morning-glory
Cuscuta californica—chaparral dodder

CRASSULACEAE—STONECROP FAMILY

Crassula aquatica—water pygmyweed
Crassula connata—sand pygmyweed
Dudleya pulverulenta—chalk dudleya
Dudleya variegata—variegated dudleya

CUCURBITACEAE—GOURD FAMILY

Marah macrocarpa—Cucamonga manroot

ELATINACEAE—WATERWORT FAMILY

Elatine brachysperma—shortseed waterwort
Elatine californica—California waterwort

ERICACEAE—HEATH FAMILY

Xylococcus bicolor—mission manzanita

EUPHORBIACEAE—SPURGE FAMILY

Euphorbia albomarginata—whitemargin sandmat
Euphorbia polycarpa—smallseed sandmat
Croton setiger—dove weed
* *Euphorbia peplus*—petty spurge

FABACEAE—LEGUME FAMILY

Acmispon americanus var. *americanus*—American bird's-foot trefoil
Acmispon glaber var. *glaber*—common deerweed
Acmispon micranthus—San Diego bird's-foot trefoil
Acmispon strigosus—strigose bird's-foot trefoil
Astragalus trichopodus var. *lonchus*—Santa Barbara milkvetch
Astragalus trichopodus—Santa Barbara milkvetch
Lathyrus vestitus—Pacific pea
Lupinus bicolor—miniature lupine
Lupinus concinnus—bajada lupine
Lupinus hirsutissimus—stinging annual lupine
Lupinus microcarpus var. *densiflorus*—whitewhorl lupine
Lupinus succulentus—hollowleaf annual lupine
Lupinus truncatus—collared annual lupine
Pickeringia montana—chaparral pea
Trifolium willdenovii—tomcat clover
* *Acacia baileyana*—cootamundra wattle
* *Medicago polymorpha*—burclover
* *Melilotus albus*—yellow sweetclover
* *Melilotus indicus*—annual yellow sweetclover
Acmispon glaber—deer weed

FAGACEAE—OAK FAMILY

Quercus agrifolia var. *agrifolia*—California live oak
Quercus engelmannii—Engelmann oak
Quercus agrifolia—coast live oak

GENTIANACEAE—GENTIAN FAMILY

Zeltnera venusta—charming centaury

GERANIACEAE—GERANIUM FAMILY

* *Erodium cicutarium*—redstem stork's bill

Geranium carolinianum—Carolina geranium

* *Erodium botrys*—longbeak stork's bill

* *Erodium moschatum*—musky stork's bill

GROSSULARIACEAE—GOOSEBERRY FAMILY

Ribes indecorum—whiteflower currant

Ribes speciosum—fuchsiaflower gooseberry

LAMIACEAE—MINT FAMILY

Monardella viminea—willowy monardella

Salvia apiana—white sage

Salvia clevelandii—fragrant sage

Salvia columbariae—chia

Salvia mellifera—black sage

Trichostema lanatum—woolly bluecurls

* *Marrubium vulgare*—horehound

LYTHRACEAE—LOOSESTRIFE FAMILY

* *Lythrum hyssopifolia*—hyssop loosestrife

MALVACEAE—MALLOW FAMILY

Malacothamnus densiflorus—yellowstem bushmallow

Malacothamnus fasciculatus var. *fasciculatus*—Mendocino bushmallow

Sidalcea malviflora—dwarf checkerbloom

Sidalcea sparsifolia—dwarf checkerbloom

* *Malva parviflora*—cheeseweed mallow

Malacothamnus fasciculatus—bush mallow

MONTIACEAE—MONTIA FAMILY

Calyptridium monandrum—common pussypaws

Claytonia lanceolata—lanceleaf springbeauty

Claytonia parviflora ssp. *parviflora*—streambank springbeauty

Claytonia perfoliata ssp. *perfoliata*—miner's lettuce

Claytonia perfoliata—miner's lettuce

Calandrinia menziesii—red maids

MYRSINACEAE—MYRSINE FAMILY

* *Lysimachia arvensis*—scarlet pimpernel

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia*—California four o'clock
Mirabilis laevis var. *villosa*—wishbone-bush
Mirabilis laevis—desert wishbone-bush

ONAGRACEAE—EVENING PRIMROSE FAMILY

Camissonia strigulosa—sandysoil suncup
Camissoniopsis bistorta—southern suncup
Camissoniopsis hirtella—Santa Cruz Island suncup
Clarkia purpurea ssp. *quadrivulnera*—winecup clarkia
Epilobium canum ssp. *canum*—hummingbird trumpet
Epilobium canum—hummingbird trumpet
Epilobium ciliatum ssp. *ciliatum*—fringed willowherb
Eulobus californicus—California suncup
* *Ludwigia peploides* ssp. *peploides*—floating primrose-willow

OROBANCHACEAE—BROOM-RAPE FAMILY

Castilleja affinis ssp. *affinis*—coast Indian paintbrush
Castilleja affinis—coast Indian paintbrush
Castilleja densiflora—denseflower Indian paintbrush
Castilleja exserta ssp. *exserta*—exserted Indian paintbrush
Castilleja exserta—exserted Indian paintbrush
Castilleja foliolosa—Texas Indian paintbrush
Cordylanthus rigidus ssp. *setiger*—no common name

OXALIDACEAE—OXALIS FAMILY

Oxalis californica—California woodsorrel

PAEONIACEAE—PEONY FAMILY

Paeonia californica—California peony

PAPAVERACEAE—POPPY FAMILY

Ehrendorferia chrysantha—golden eardrops
Eschscholzia californica—California poppy
Platystemon californicus—creamcups

PHRYMACEAE—LOPSEED FAMILY

Mimulus breviflorus—shortflower monkeyflower
Mimulus brevipes—widethroat yellow monkeyflower
Mimulus cardinalis—scarlet monkeyflower
Mimulus aurantiacus—bush monkeyflower
Mimulus guttatus—common monkey flower

PLANTAGINACEAE—PLANTAIN FAMILY

Antirrhinum filipes—yellow twining snapdragon
Antirrhinum nuttallianum ssp. *nuttallianum*—violet snapdragon
Antirrhinum nuttallianum—violet snapdragon
Callitriche marginata—winged water-starwort
Collinsia concolor—Chinese houses
Collinsia heterophylla—purple Chinese houses
Keckiella antirrhinoides var. *antirrhinoides*—snapdragon penstemon
Keckiella cordifolia—heartleaf keckiella
Penstemon spectabilis—showy penstemon
Plantago elongata—prairie plantain
Plantago patagonica—woolly plantain
Veronica peregrina ssp. *xalapensis*—hairy purslane speedwell
Nuttallanthus texanus—Texas toadflax
* *Veronica anagallis-aquatica*—water speedwell
Plantago erecta—dwarf plantain

PLATANACEAE—PLANE TREE, SYCAMORE FAMILY

Platanus racemosa—California sycamores

POLEMONIACEAE—PHLOX FAMILY

Gilia angelensis—chaparral gilia
Linanthus dianthiflorus—fringed linanthus
Navarretia hamata ssp. *hamata*—hooked pincushionplant

POLYGONACEAE—BUCKWHEAT FAMILY

Chorizanthe fimbriata—fringed spineflower
Chorizanthe procumbens—prostrate spineflower
Chorizanthe staticoides—turkish rugging
Eriogonum elongatum var. *elongatum*—longstem buckwheat
Eriogonum fasciculatum var. *fasciculatum*—Eastern Mojave buckwheat
Eriogonum fasciculatum var. *foliolosum*—Eastern Mojave buckwheat
Pterostegia drymarioides—woodland pterostegia

Rumex salicifolius—willow dock
* *Polygonum aviculare* ssp. *depressum*—prostrate knotweed
* *Rumex crispus*—curly dock
Eriogonum fasciculatum—California buckwheat

PORTULACACEAE—PURSLANE FAMILY
* *Portulaca oleracea*—little hogweed

PRIMULACEAE—PRIMROSE FAMILY
Primula clevelandii var. *clevelandii*—no common name

RANUNCULACEAE—BUTTERCUP FAMILY
Clematis pauciflora—ropevine clematis
Delphinium parryi ssp. *parryi*—San Bernardino larkspur
Ranunculus californicus—California buttercup
Thalictrum fendleri var. *fendleri*—Fendler's meadow-rue

RESEDACEAE—MIGNONETTE FAMILY
* *Reseda luteola*—weld

RHAMNACEAE—BUCKTHORN FAMILY
Ceanothus tomentosus—woolyleaf ceanothus
Rhamnus crocea—redberry buckthorn

ROSACEAE—ROSE FAMILY
Adenostoma fasciculatum—chamise
Heteromeles arbutifolia—toyon
Prunus ilicifolia—holly leaf cherry

RUBIACEAE—MADDER FAMILY
Galium angustifolium—narrowleaf bedstraw

RUTACEAE—RUE FAMILT
Cneoridium dumosum—bush rue

SALICACEAE—WILLOW FAMILY
Populus fremontii ssp. *fremontii*—Fremont cottonwood
Salix laevigata—red willow
Salix lasiolepis—arroyo willow
Salix melanopsis—dusky willow
Salix gooddingii—black willow

Salix exigua—sandbar willow
Salix lasiandra—shining willow

SAURURACEAE—LIZARD'S-TAIL FAMILY
Anemopsis californica—yerba mansa

SAXIFRAGACEAE—SAXIFRAGE FAMILY
Jepsonia parryi—Parry's jepsonia

SCROPHULARIACEAE—FIGWORT FAMILY
Scrophularia californica—California figwort

SOLANACEAE—NIGHTSHADE FAMILY
Datura wrightii—sacred thorn-apple
Physalis crassifolia—yellow nightshade groundcherry
Solanum americanum—American black nightshade
Solanum douglasii—greenspot nightshade
Solanum parishii—Parish's nightshade
* *Nicotiana glauca*—tree tobacco
Lycium andersonii—Anderson's boxthorn

TAMARICACEAE—TAMARISK FAMILY
* *Tamarix chinensis*—five-stamen tamarisk
* *Tamarix ramosissima*—saltcedar

THEOPHRASTACEAE—THEOPHRASTA FAMILY
Samolus parviflorus—seaside brookweed

URTICACEAE—NETTLE FAMILY
* *Urtica urens*—dwarf nettle

VIOLACEAE—VIOLET FAMILY
Viola pedunculata—Johnny-jump-up

ZYGOPHYLLACEAE—CALTROP FAMILY
* *Tribulus terrestris*—puncturevine

* signifies introduced (non-native) species

APPENDIX K

Wildlife Species Observed within the Project Area

APPENDIX K
Wildlife Compendium

AMPHIBIAN

FROGS

RANIDAE—TONGUELESS FROGS

* *Lithobates catesbeianus*—American bullfrog

* *Xenopus laevis*—African clawed frog

HYLIDAE—TREEFROGS

Pseudacris cadaverina—California treefrog

Pseudacris hypochondriaca—Baja California treefrog

SALAMANDERS

PLETHODONTIDAE—LUNGLESS SALAMANDERS

Batrachoseps pacificus—Channel Islands slender salamander

TOADS

BUFONIDAE—TRUE TOADS

Anaxyrus boreas—western toad

PELOBATIDAE—SPADEFOOTS

Spea hammondii—western spadefoot

BIRD

BLACKBIRDS, ORIOLES AND ALLIES

ICTERIDAE—BLACKBIRDS

* *Molothrus ater*—brown-headed cowbird

Agelaius phoeniceus—red-winged blackbird

Agelaius tricolor—tricolored blackbird

Euphagus cyanocephalus—Brewer's blackbird

Icterus bullockii—Bullock's oriole

Icterus cucullatus—hooded oriole

Quiscalus mexicanus—great-tailed grackle

Sturnella neglecta—western meadowlark

Xanthocephalus xanthocephalus—yellow-headed blackbird

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

CARDINALS, GROSBEAKS AND ALLIES

CARDINALIDAE—CARDINALS AND ALLIES

Passerina amoena—lazuli bunting
Passerina caerulea—blue grosbeak
Pheucticus melanocephalus—black-headed grosbeak
Piranga ludoviciana—western tanager

EMBERIZINES

EMBERIZIDAE—EMBERIZIDS

Aimophila ruficeps canescens—Southern California rufous-crowned sparrow
Aimophila ruficeps—rufous-crowned sparrow
Ammodramus savannarum—grasshopper sparrow
Artemisiospiza belli—Bell's sparrow
Chondestes grammacus—lark sparrow
Melospiza lincolnii—Lincoln's sparrow
Melospiza melodia—song sparrow
Melozone crissalis—California towhee
Passerculus sandwichensis—savannah sparrow
Pipilo maculatus—spotted towhee
Spizella atrogularis—black-chinned sparrow
Spizella breweri—Brewer's sparrow
Zonotrichia leucophrys—white-crowned sparrow

FALCONS

FALCONIDAE—CARACARAS AND FALCONS

Falco peregrinus anatum—American peregrine falcon
Falco sparverius—American kestrel

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch
Spinus psaltria—lesser goldfinch

Spinus tristis—American goldfinch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Contopus cooperi—olive-sided flycatcher
Contopus sordidulus—western wood-pewee
Empidonax difficilis—Pacific-slope flycatcher
Empidonax hammondii—Hammond's flycatcher
Empidonax traillii—willow flycatcher
Myiarchus cinerascens—ash-throated flycatcher
Sayornis nigricans—black phoebe
Sayornis saya—Say's phoebe
Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin's kingbird

GOATSUCKERS

CAPRIMULGIDAE—GOATSUCKERS

Chordeiles acutipennis—lesser nighthawk
Phalaenoptilus nuttallii—common poorwill

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii—Cooper's hawk
Accipiter striatus—sharp-shinned hawk
Aquila chrysaetos—golden eagle
Buteo jamaicensis—red-tailed hawk
Buteo lineatus—red-shouldered hawk
Circus cyaneus—northern harrier
Elanus leucurus—white-tailed kite
Pandion haliaetus—osprey

HERONS AND BITTERNS

ARDEIDAE—HERONS, BITTERNS, AND ALLIES

Ardea alba—great egret
Ardea herodias—great blue heron
Bubulcus ibis—cattle egret
Butorides virescens—green heron

Egretta thula—snowy egret
Nycticorax nycticorax—black-crowned night-heron

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Archilochus alexandri—black-chinned hummingbird
Calypte anna—Anna's hummingbird
Calypte costae—Costa's hummingbird
Selasphorus rufus—rufous hummingbird
Selasphorus sasin—Allen's hummingbird
Selasphorus sp.—Allen's/rufous hummingbird

JAYS, MAGPIES AND CROWS

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—California scrub-jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven

KINGFISHERS

ALCEDINIDAE—KINGFISHERS

Megaceryle alcyon—belted kingfisher

KINGLETS

REGULIDAE—KINGLETS

Regulus calendula—ruby-crowned kinglet

LARKS

ALAUDIDAE—LARKS

Eremophila alpestris—horned lark

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird
Toxostoma redivivum—California thrasher

NEW WORLD QUAIL

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

NEW WORLD VULTURES

CATHARTIDAE—CARDINALS AND ALLIES

Cathartes aura—turkey vulture

OLD WORLD SPARROWS

PASSERIDAE—OLD WORLD SPARROWS

* *Passer domesticus*—house sparrow

OLD WORLD WARBLERS AND GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Polioptila caerulea—blue-gray gnatcatcher

Polioptila californica californica—coastal California gnatcatcher

OWLS

TYTONIDAE—BARN OWLS

Tyto alba—barn owl

STRIGIDAE—TYPICAL OWLS

Asio otus—long-eared owl

Athene cunicularia—burrowing owl

Bubo virginianus—great horned owl

Megascops kennicottii—western screech-owl

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

* *Columba livia*—rock pigeon (rock dove)
* *Streptopelia decaocto*—Eurasian collared-dove
Columbina passerina—common ground-dove
Streptopelia chinensis—spotted dove
Zenaida macroura—mourning dove

QUAILS, PHEASANTS AND RELATIVES

PHASIANIDAE—PARTRIGES, GROUSE, TURKEYS, AND OLD WORLD QUAIL

Meleagris gallopavo—wild turkey

RAILS, GALLINULES AND COOTS

RALLIDAE—RAILS, GALLINULES, AND COOTS

Fulica americana—American coot

ROADRUNNERS AND CUCKOOS

CUCULIDAE—CUCKOOS, ROADRUNNERS, AND ANIS

Geococcyx californianus—greater roadrunner

SHOREBIRDS

CHARADRIIDAE—LAPWINGS AND PLOVERS

Charadrius vociferus—killdeer

SHRIKES

LANIIDAE—SHRIKES

Lanius ludovicianus—loggerhead shrike

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

STARLINGS AND ALLIES

STURNIDAE—STARLINGS

* *Sturnus vulgaris*—European starling

SWALLOWS

HIRUNDINIDAE—SWALLOWS

Hirundo rustica—barn swallow
Petrochelidon pyrrhonota—cliff swallow
Stelgidopteryx serripennis—northern rough-winged swallow
Tachycineta bicolor—tree swallow
Tachycineta thalassina—violet-green swallow

SWIFTS

APODIDAE—SWIFTS

Aeronautes saxatalis—white-throated swift
Chaetura vauxi—Vaux's swift

TERNS AND GULLS

LARIDAE—GULLS, TERNS, AND SKIMMERS

Larus delawarensis—ring-billed gull
Sterna forsteri—Forster's tern
Thalasseus maximus—royal tern

THRUSHES

TURDIDAE—THRUSHES

Sialia currucoides—mountain bluebird
Sialia mexicana—western bluebird
Turdus migratorius—American robin

TITMICE

PARIDAE—CHICKADEES AND TITMICE

Baeolophus inornatus—oak titmouse

VIREOS

VIREONIDAE—VIREOS

Vireo bellii pusillus—least Bell's vireo
Vireo bellii—Bell's vireo
Vireo gilvus—warbling vireo
Vireo huttoni—Hutton's vireo

WATERFOWL

ANATIDAE—DUCKS, GEESE, AND SWANS

Aix sponsa—wood duck
Anas acuta—northern pintail
Anas clypeata—northern shoveler
Anas platyrhynchos—mallard
Anas strepera—gadwall
Aythya affinis—lesser scaup
Branta canadensis—Canada goose
Oxyura jamaicensis—ruddy duck

WOOD WARBLERS AND ALLIES

PARULIDAE—WOOD-WARBLERS

Cardellina pusilla—Wilson's warbler
Geothlypis trichas—common yellowthroat
Icteria virens—yellow-breasted chat
Oreothlypis celata—orange-crowned warbler
Setophaga coronata—yellow-rumped warbler
Setophaga petechia—yellow warbler

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Colaptes auratus—northern flicker
Melanerpes formicivorus—acorn woodpecker
Picoides nuttallii—Nuttall's woodpecker
Picoides pubescens—downy woodpecker

WRENS

TROGLODYTIDAE—WRENS

Campylorhynchus brunneicapillus sandiegensis—coastal cactus wren
Campylorhynchus brunneicapillus—cactus wren
Catherpes mexicanus—canyon wren
Salpinctes obsoletus—rock wren
Thryomanes bewickii—Bewick's wren
Troglodytes aedon—house wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

INVERTEBRATE

BUTTERFLIES

LYCAENIDAE—BLUES, HAIRSTREAKS, AND COPPERS

Atlides halesus—great purple hairstreak
Brephidium exile—western pygmy-blue
Callophrys augustinus—brown elfin
Callophrys dumetorum—bramble hairstreak
Celistrina ladon [argiolus] echo—echo blue
Euphilotes battoides bernardino—Bernardino square-spotted blue
Everes amyntula—western tailed-blue
Glaucopsyche lygdamus australis—southern blue
Hemiargus ceraunus gyas—Edward's blue
Icaricia acmon acmon—Acmon blue
Leptotes marina—marine blue
Lycaena hermes—Hermes copper
Philotes sonorensis—Sonoran blue
Strymon melinus—gray hairstreak
Callophrys perplexa—Bramble Green Hairstreak

NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

Adelpha bredowii—California sister
Agraulis vanillae—Gulf fritillary
Chlosyne californica—California patch
Chlosyne gabbii—Gabb's checkerspot
Coenonympha tullia california—common California ringlet
Danaus gilippus—queen
Danaus plexippus—monarch
Euphydryas chalcedona—variable checkerspot
Euphydryas editha quino—Quino checkerspot butterfly
Junonia coenia—common buckeye
Limenitis lorquini—Lorquin's admiral
Nymphalis antiopa—mourning cloak
Phyciodes mylitta—Mylitta crescent

Speyeria callippe comstocki—Comstock's fritillary
Speyeria coronis semiramis—Semiramis fritillary
Vanessa annabella—west coast lady
Vanessa atalanta—red admiral
Vanessa cardui—painted lady
Vanessa virginiensis—American lady
Vanessa sp.

RIODINIDAE—METALMARKS

Apodemia mormo virgulti—Behr's metalmark
Calephelis wrighti—Wright's metalmark

HESPERIIDAE—SKIPPERS

Atalopedes campestris—sachem
Erynnis funeralis—funereal duskywing
Erynnis pacuvius—Pacuvius duskywing
Erynnis propertius—Propertius duskywing
Erynnis tristis—mournful duskywing
Heliopetes ericetorum—northern white-skipper
Hylephila phyleus—fiery skipper
Lerodea eufala—Eufala skipper
Ochlodes sylvanoides—woodland skipper
Pholisora catullus—common sootywing
Pyrgus albescens—white checkered-skipper
Pyrgus scriptura—small checkered-skipper
Erynnis sp.

PAPILIONIDAE—SWALLOWTAILS

Papilio cresphontes—giant swallowtail
Papilio eurymedon—pale swallowtail
Papilio rutulus—western tiger swallowtail
Papilio zelicaon—anise swallowtail

PIERIDAE—WHITES AND SULFURS

Anthocharis cethura—desert orangetip
Anthocharis sara sara—Pacific sara orangetip
Colias eurydice—California dogface
Colias eurytheme—orange sulphur
Colias harfordii—Harford's sulphur
Eurema nicippe—sleepy orange

Nathalis iole—dainty sulphur
Phoebis sennae—cloudless sulphur
Pieris rapae—cabbage white
Pontia protodice—checkered white
Pontia sisymbrii—spring white

FAIRY SHRIMP

BRANCHINECTIDAE—FAIRY SHRIMP

Branchinecta sandiegonensis—San Diego fairy shrimp

MOTHS

SATURNIIDAE—SATURNIIDS

Hemileuca sp. *(larva)*

ARCTIIDAE—TIGER MOTHS

Arctiidae—tiger moth

TARANTULA HAWKS

POMPILIDAE—SPIDER WASPS

Pepsis sp.—tarantula hawk

MAMMAL

BATS

VESPERTILIONIDAE—EVENING BATS

Antrozous pallidus—pallid bat
Corynorhinus townsendii—Townsend's big-eared bat
Eptesicus fuscus—big brown bat
Lasiurus blossevillii—western red bat
Myotis ciliolabrum—western small-footed myotis
Myotis yumanensis—Yuma myotis
Parastrellus hesperus—canyon bat
Lasiurus xanthinus—western yellow bat

MOLOSSIDAE—FREE-TAILED BATS

Nyctinomops femorosaccus—pocketed free-tailed bat
Tadarida brasiliensis—Mexican free-tailed bat

CANIDS

CANIDAE—WOLVES AND FOXES

Canis latrans—coyote
Urocyon cinereoargenteus—gray fox

CATS

FELIDAE—CATS

Lynx rufus—bobcat
Puma concolor—cougar

DOMESTIC

CANIDAE—WOLVES AND FOXES

* *Canis lupus familiaris*—domestic dog

FELIDAE—CATS

* *Felis catus*—domestic cat

EQUIDAE—HORSES AND BURROS

* *Equus caballus*—domestic horse

HARES AND RABBITS

LEPORIDAE—HARES AND RABBITS

Lepus californicus bennettii—San Diego black-tailed jackrabbit
Lepus californicus—black-tailed jackrabbit
Sylvilagus audubonii—desert cottontail
Sylvilagus bachmani—brush rabbit

KANGAROO RATS

HETEROMYIDAE—POCKET MICE AND KANGAROO RATS

Dipodomys simulans—Dulzura kangaroo rat
Dipodomys sp.—kangaroo rat

MUSTELIDS

MUSTELIDAE—WEASELS, SKUNKS, AND OTTERS

Mustela frenata—long-tailed weasel

MEPHITIDAE—SKUNKS

Mephitis mephitis—striped skunk

OPOSSUMS

DIDELPHIDAE—NEW WORLD OPOSSUMS

* *Didelphis virginiana*—Virginia opossum

POCKET GOPHERS

GEOMYIDAE—POCKET GOPHERS

Thomomys bottae—Botta's pocket gopher

POCKET MICE

HETEROMYIDAE—POCKET MICE AND KANGAROO RATS

Chaetodipus fallax fallax—northwestern San Diego pocket mouse

RACCOONS

PROCYONIDAE—RACCOONS AND RELATIVES

Procyon lotor—raccoon

SQUIRRELS

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

RATS, MICE, AND VOLES

CRICETIDAE—RATS, MICE, AND VOLES

Microtus californicus—California vole
Neotoma lepida—desert woodrat
Peromyscus eremicus—cactus deermouse
Peromyscus maniculatus—North American deermouse
Reithrodontomys megalotis—western harvest mouse

MURIDAE—RATS, MICE, AND VOLES

* *Rattus rattus*—roof rat

REPTILE

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Phrynosoma blainvillii—Blainville's horned lizard
Phrynosoma platyrhinos—desert horned lizard
Sceloporus graciosus—common sagebrush lizard
Sceloporus occidentalis—western fence lizard
Sceloporus orcutti—granite spiny lizard
Uta stanburiana—common side-blotched lizard

ANGUIDAE—ALLIGATOR LIZARDS

Elgaria multicarinata—southern alligator lizard

SCINCIDAE—SKINKS

Plestiodon gilberti—Gilbert's skink
Plestiodon skiltonianus—western skink

TEIIDAE—WHIPTAIL LIZARDS

Aspidoscelis hyperythra beldingi—Belding's orange-throated whiptail
Aspidoscelis tigris stejnegeri—San Diegan tiger whiptail
Aspidoscelis tigris—tiger whiptail

SNAKES

COLUBRIDAE—COLUBRID SNAKES

Coluber flagellum—coachwhip
Coluber lateralis—striped racer
Hypsiglena ochrorhyncha—coast nightsnake
Lampropeltis californiae—California kingsnake
Pituophis catenifer—gophersnake
Rhinocheilus lecontei—long-nosed snake
Thamnophis hammondii—two-striped gartersnake

BOIDAE—BOAS

Lichanura trivirgata—rosy boa

VIPERIDAE—VIPERS

Crotalus atrox—western diamond-backed rattlesnake
Crotalus oreganus—western rattlesnake
Crotalus ruber—red diamondback rattlesnake

TURTLES

EMYDIDAE—BOX AND WATER TURTLES

* *Trachemys scripta*—pond slider

* signifies introduced (non-native) species

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APPENDIX L

Jurisdictional Delineation
Wetland Sampling Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fanita Ranch | City/County: Santee/San Diego | Sampling Date: 05/03/2016

Applicant/Owner: HomeFed Fanita Rancho LLC | State: CA | Sampling Point: 1a

Investigator(s): CF, MP, MO, JW, PS | Section, Township, Range: Section 17, Township 15S, Range 1W

Landform (hillslope, terrace, etc.): Drainage | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32°52'10.606"N | Long: 117°0'15.487"W | Datum: NAD83

Soil Map Unit Name: Stony land | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Sampling point located in a vegetated area within a larger stream channel. Palm trees are within the channel and willows are up along the bank.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Washingtonia robusta*	50	Yes	FACW
2.			
3.			
4.			
Total Cover:	50 %		
Sapling/Shrub Stratum			
1. *Quercus agrifolia*	1	Yes	UPL
2. *Encelia californica*	1	Yes	UPL
3.			
4.			
5.			
Total Cover:	2 %		
Herb Stratum			
1. *Ambrosia psilostachya*	20	Yes	FACU
2. *Brassica nigra*	10	No	UPL
3. *Bromus madritensis*	2	No	UPL
4. *Sonchus asper*	1	No	FAC
5. *Cyperus eragrostis*	1	No	FACW
6.			
7.			
8.			
Total Cover:	34 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum: 50 % | % Cover of Biotic Crust: %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	51	x 2 =	102
FAC species	1	x 3 =	3
FACU species	20	x 4 =	80
UPL species	14	x 5 =	70
Column Totals:	86 (A)		255 (B)

Prevalence Index = B/A = 2.97

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Plot size for the tree and sapling/shrub stratum are 30 feet while the plot size for the herb stratum is 10 feet. Note that per the National Wetland Plant List user notes, plant species not listed are considered UPL for wetland delineation purposes. This small portion of the stream channel is dominated by Washingtonia robusta. The area was previously mapped as freshwater marsh.

SOIL

Sampling Point: 1a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10 YR 3/1	100	None				Loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Rock/roots

Depth (inches): 13

Hydric Soil Present? Yes ○ No ◉

Remarks: No signs of redox features within the soils. Hydric soils not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Sampling point taken within a larger channel which supports pockets of riparian vegetation.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fanita Ranch | City/County: Santee/San Diego | Sampling Date: 05/03/2016

Applicant/Owner: HomeFed Fanita Rancho LLC | State: CA | Sampling Point: 1b

Investigator(s): CF, MP, PS, MO, JW | Section, Township, Range: Section 17, Township 15S, Range 1W

Landform (hillslope, terrace, etc.): Top of bank | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32°52'10.645"N | Long: 117°0'15.627"W | Datum: NAD83

Soil Map Unit Name: Stony land | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Sampling point taken just outside of DW to map the extent of the area.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Brassica nigra*	10	Yes	UPL
2. *Sonchus asper*	1	No	FAC
3. *Chamaesyce albamarginata*	1	No	UPL
4. *Bromus diandrus*	1	No	UPL
5.			
6.			
7.			
8.			
Total Cover:	13 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum: % | % Cover of Biotic Crust: %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	1	x 3 =	3
FACU species		x 4 =	0
UPL species	12	x 5 =	60
Column Totals:	13 (A)		63 (B)

Prevalence Index = B/A = 4.85

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Plot size for the tree and sapling/shrub stratum are 30 feet while the plot size for the herb stratum is 10 feet. Note that per the National Wetland Plant List user notes, plant species not listed are considered UPL for wetland delineation purposes. The area is mapped as disturbed habitat.

SOIL

Sampling Point: 1b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10 YR 3/2	100	None				Sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Rock

Depth (inches): 13

Hydric Soil Present? Yes ○ No ◉

Remarks: No hydric soil indicators within the soil sample.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Signs of hydrology are restricted to the channel immediately adjacent to this sampling point.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fanita Ranch | City/County: Santee/San Diego | Sampling Date: 05/03/2016

Applicant/Owner: HomeFed Fanita Rancho LLC | State: CA | Sampling Point: 2a

Investigator(s): CF, MP | Section, Township, Range: Section 09, Township 15S, Range 1W

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32°53'15.088"N | Long: 116°59'41.918"W | Datum: NAD83

Soil Map Unit Name: Stony land | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: Sampling point is located in an area dominated by mulefat scrub.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	2	Yes	FACW
2.			
3.			
4.			
Total Cover:	2 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	60	Yes	FAC
2. *Baccharis sarothroides*	1	No	FACU
3.			
4.			
5.			
Total Cover:	61 %		
Herb Stratum			
1. *Mimulus guttatus*	15	Yes	OBL
2. *Brassica nigra*	5	No	UPL
3. *Pseudognaphalium biolettii*	1	No	UPL
4. *Sonchus asper*	1	No	FAC
5. *Bromus diandrus*	1	No	UPL
6. *Juncus articulatus*	1	No	OBL
7.			
8.			
Total Cover:	24 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum: 20 % | % Cover of Biotic Crust: %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	16	x 1 =	16
FACW species	2	x 2 =	4
FAC species	61	x 3 =	183
FACU species	1	x 4 =	4
UPL species	7	x 5 =	35
Column Totals:	87 (A)		242 (B)

Prevalence Index = B/A = 2.78

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Plot size for the tree and sapling/shrub stratum are 30 feet while the plot size for the herb stratum is 10 feet. Note that per the National Wetland Plant List user notes, plant species not listed are considered UPL for wetland delineation purposes.

SOIL

Sampling Point: 2a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-8	10 YR 2/2	100					Sand	
8-10	10 YR 2/2	40					Sand	
8-10	N/A, Cobble	60					cobble	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Rock

Depth (inches): 11

Hydric Soil Present? Yes ◉ No ○

Remarks: The soil at this sampling point is very sandy. Redox features were not observed, however this sampling point is assumed to be hydric soil based on the hydrology within the channel.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water is present just upstream of the sampling point. Saturation was present in the soil.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fanita Ranch | City/County: Santee/San Diego | Sampling Date: 05/03/2016

Applicant/Owner: HomeFed Fanita Rancho LLC | State: CA | Sampling Point: 2b

Investigator(s): CF, MP | Section, Township, Range: Section 09, Township 15S, Range 1W

Landform (hillslope, terrace, etc.): Terrace outside channel | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32°53'14.223"N | Long: 116°59'42.066"W | Datum: NAD83

Soil Map Unit Name: Stony land | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Sampling point taken to determine the extent of the mulefat scrub mapped adjacent.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Platanus racemosa*	5	Yes	FAC
2.			
3.			
4.			
Total Cover:	5 %		
Sapling/Shrub Stratum			
1. *Eriogonum fasciculatum*	75	Yes	UPL
2. *Malosma laurina*	5	No	UPL
3.			
4.			
5.			
Total Cover:	80 %		
Herb Stratum			
1. *Brassica nigra*	10	Yes	UPL
2. *Bromus madritensis*	10	Yes	UPL
3. *Bromus diandrus*	10	Yes	UPL
4. *Corethrogyne filaginifolia*	1	No	UPL
5. *Sonchus asper*	1	No	FACU
6. *Centaurea melitensis*	1	No	UPL
7.			
8.			
Total Cover:	33 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 10 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	5	x 3 =	15
FACU species	1	x 4 =	4
UPL species	112	x 5 =	560
Column Totals:	118 (A)		579 (B)

Prevalence Index = B/A = 4.91

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Plot size for the tree and sapling/shrub stratum are 30 feet while the plot size for the herb stratum is 10 feet. Note that per the National Wetland Plant List user notes, plant species not listed are considered UPL for wetland delineation purposes.

SOIL

Sampling Point: 2b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-10	10 YR 3/2	100	None				Loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Rock

Depth (inches): 11

Hydric Soil Present? Yes ○ No ◉

Remarks: Restrictive layer present may be rock fill. This sampling point is located on the upland area outside of the channel. There is evidence of some riprap protection between the channel and upland area.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No signs of hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fanita Ranch | City/County: Santee/San Diego | Sampling Date: 05/03/2016

Applicant/Owner: HomeFed Fanita Rancho LLC | State: CA | Sampling Point: 2c

Investigator(s): CF, MP | Section, Township, Range: Section 09, Township 15S, Range 1W

Landform (hillslope, terrace, etc.): None | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32°53'12.937"N | Long: 116°59'42.416"W | Datum: NAD83

Soil Map Unit Name: Stony land | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: This sampling point is beneath a canopy of southern sycamore-alder riparian woodland.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Platanus racemosa*	55	Yes	FAC
2.			
3.			
4.			
Total Cover:	55 %		
Sapling/Shrub Stratum			
1. *Eriogonum fasciculatum*	20	Yes	UPL
2. *Malosma laurina*	1	No	UPL
3. *Baccharis sarothroides*	1	No	FACU
4.			
5.			
Total Cover:	22 %		
Herb Stratum			
1. *Corethrogyne filaginifolia*	1	Yes	UPL
2. *Galium angustifolium*	1	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	2 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 0 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	55	x 3 =	165
FACU species	1	x 4 =	4
UPL species	23	x 5 =	115
Column Totals:	79 (A)		284 (B)

Prevalence Index = B/A = 3.59

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Plot size for the tree and sapling/shrub stratum are 30 feet while the plot size for the herb stratum is 10 feet. Note that per the National Wetland Plant List user notes, plant species not listed are considered UPL for wetland delineation purposes.

SOIL

Sampling Point: 2c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-2	10 YR 2/2	100	None				Loamy sand	
2+	Cobble/Rock	100	None				Rock	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Cobble/Rock

Depth (inches): 2+

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No signs of hydrology present

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fanita Ranch | City/County: Santee/San Diego | Sampling Date: 05/03/2016

Applicant/Owner: HomeFed Fanita Rancho LLC | State: CA | Sampling Point: 3

Investigator(s): CF, MP | Section, Township, Range: Section 09, Township 15S, Range 1W

Landform (hillslope, terrace, etc.): None | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32°53'11.715"N | Long: 116°59'40.516"W | Datum: NAD83

Soil Map Unit Name: Visalia gravelly sandy loam, 2 to 5 percent slopes | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: Sampling point taken within an area mapped as arundo-dominated riparian.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Arundo donax*	40	Yes	FACW
2. *Centaurea melitensis*	30	Yes	UPL
3. *Rumex salicifolius*	10	No	FACW
4. *Brassica nigra*	1	No	UPL
5.			
6.			
7.			
8.			
Total Cover:	81 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	50	x 2 =	100
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	31	x 5 =	155
Column Totals:	81 (A)		255 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Plot size for the tree and sapling/shrub stratum are 30 feet while the plot size for the herb stratum is 10 feet. Note that per the National Wetland Plant List user notes, plant species not listed are considered UPL for wetland delineation purposes.

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-9	10 YR 3/4	100					Loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Rock/cobble

Depth (inches): 10

Hydric Soil Present? Yes ○ No ◉

Remarks: No signs of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No signs of hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fanita Ranch | City/County: Santee/San Diego | Sampling Date: 05/03/2016

Applicant/Owner: HomeFed Fanita Rancho LLC | State: CA | Sampling Point: 4a

Investigator(s): PS, MO, JW | Section, Township, Range: Section 09, Township 15S, Range 1W

Landform (hillslope, terrace, etc.): Channel | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32°53'16.628"N | Long: 116°59'40.192"W | Datum: NAD83

Soil Map Unit Name: Stony land | NWI classification: R4SBA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks: This sampling point was taken in the channel.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	10	Yes	FACW
2.			
3.			
4.			
Total Cover:	10 %		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	20	Yes	FAC
2. *Salix lasiolepis*	10	No	FACW
3.			
4.			
5.			
Total Cover:	30 %		
Herb Stratum			
1. *Mimulus guttatus*	30	Yes	OBL
2. *Juncus articulates*	10	No	FACW
3. *Bromus diandrus*	2	No	UPL
4. *Festuca perennis*	1	No	Not Listed
5. *Cyperus eragrostis*	1	No	FACW
6.			
7.			
8.			
Total Cover:	44 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 30 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	31	x 2 =	62
FAC species	20	x 3 =	60
FACU species		x 4 =	0
UPL species	3	x 5 =	15
Column Totals:	84 (A)		167 (B)

Prevalence Index = B/A = 1.99

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Plot size for the tree and sapling/shrub stratum are 30 feet while the plot size for the herb stratum is 10 feet. Note that per the National Wetland Plant List user notes, plant species not listed are considered UPL for wetland delineation purposes.

SOIL

Sampling Point: 4a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	7.5 YR 3/4						sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Rock/Cobble

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ○

Remarks: The soil at this sampling point is very sandy and has multiple colors with an overall value of 7.5 YR 3/4. Redox features were not observed, however this sampling point is assumed to be hydric soil based on the hydrology within the channel.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☒ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☒ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☒ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Algae mats are formed on the moist surface within the channel.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fanita Ranch | City/County: Santee/San Diego | Sampling Date: 05/03/2016

Applicant/Owner: HomeFed Fanita Rancho LLC | State: CA | Sampling Point: 4b

Investigator(s): PS, MO, JW | Section, Township, Range: Section 09, Township 15S, Range 1W

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 32°53'16.739"N | Long: 116°59'40.23"W | Datum: NAD83

Soil Map Unit Name: Stony land | NWI classification: R4SBA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks: This sampling point is located above the channel in an open sycamore woodland.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Platanus racemosa*	15	Yes	FAC
2. *Quercus agrifolia*	1	No	UPL
3.			
4.			
Total Cover:	16 %		
Sapling/Shrub Stratum			
1. *Eriogonum fasciculatum*	50	Yes	UPL
2. *Baccharis salicifolia*	1	No	UPL
3. *Malosma laurina*	1	No	UPL
4.			
5.			
Total Cover:	52 %		
Herb Stratum			
1. *Bromus diandrus*	80	Yes	UPL
2. *Ambrosia psilostachya*	5	No	FACU
3. *Centaurea melitensis*	2	No	UPL
4. *Brassica nigra*	1	No	UPL
5. *Eschscholzia californica*	1	No	UPL
6.			
7.			
8.			
Total Cover:	89 %		
Woody Vine Stratum			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 5 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	15	x 3 =	45
FACU species	5	x 4 =	20
UPL species	137	x 5 =	685
Column Totals:	157 (A)		750 (B)

Prevalence Index = B/A = 4.78

Hydrophytic Vegetation Indicators:

- (●) Dominance Test is >50%
- (●) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Plot size for the tree and sapling/shrub stratum are 30 feet while the plot size for the herb stratum is 10 feet. Note that per the National Wetland Plant List user notes, plant species not listed are considered UPL for wetland delineation purposes.The vegetation at this sampling point consists of an open sycamore woodland with an understory of Eriogonum fasciculatum.

SOIL

Sampling Point: 4b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-16	7.5 YR 2.5/2	100					Loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: No signs of hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: There are no wetland hydrology indicators found at this sampling point located upland above the main channel.

APPENDIX M

Special-Status Plant Species
Potential to Occur within the Project Area

APPENDIX M
Special-Status Plant Species Potential to Occur within the Study Area

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Abronia maritima	red sand-verbena	None/None/4.2/None/List D	Coastal dunes/perennial herb/Feb–Nov/0–328	NR	Not expected to occur. No suitable vegetation present.
Acanthomintha ilicifolia	San Diego thorn-mint	FT/CE/1B.1/Covered/List A	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay, openings/annual herb/Apr–June/33–3150	NR	Moderate potential to occur. Cryptic in understory of unburned chaparral on clay. This species is known to occur within the vicinity[3], however this species was not observed (CDFW 2017).
Acmispon prostratus	Nuttall's acmispon	None/None/1B.1/None/None	Coastal dunes, coastal scrub (sandy)/annual herb/Mar–June (July)/0–33	NR	Not expected to occur. The site is outside of the species' known elevation range.
Adolphia californica	California adolphia	None/None/2B.1/None/List B	Chaparral, coastal scrub, valley and foothill grassland; clay/perennial deciduous shrub/Dec–May/33–2428	NR	Low potential to occur. Conspicuous shrub would have been observed if present. Potential habitat in chaparral on clay soil. This species is known to occur within the vicinity[3] (CDFW 2017).
Agave shawii var. *shawii*	Shaw's agave	None/None/2B.1/None/List B	Coastal bluff scrub, coastal scrub/perennial leaf succulent/Sep–May/10–394	NR	Not expected to occur. This perennial succulent would have been observed if present and occurs along the coast (SDNHM 2017; CDFW 2017).
Ambrosia chenopodiifolia	San Diego bur-sage	None/None/2B.1/None/List B	Coastal scrub/perennial shrub/Apr–June/180–509	NR	Low potential to occur. Conspicuous shrub would have been observed if present. Surveyed during flowering period.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Ambrosia monogyra	singlewhorl burrobrush	None/None/2B.2/None/None	Chaparral, Sonoran desert scrub; sandy/perennial shrub/Aug–Nov/33–1640	NR	Low potential to occur. This perennial shrub would have been observed if present. This species is known to occur within the vicinity[3] (CDFW 2017), but occurs south of the project site (SDNHM 2017).
Ambrosia pumila	San Diego ambrosia	FE/None/1B.1/Covered/List A	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; sandy loam or clay, often in disturbed areas, sometimes alkaline/perennial rhizomatous herb/Apr–Oct/66–1362	NR	Low potential to occur. Perennial species would have been observed if present. This species is known to occur within the vicinity[3] (CDFW 2017).
Aphanisma blitoides	aphanisma	None/None/1B.2/None/List A	Coastal bluff scrub, coastal dunes, coastal scrub; sandy or gravelly/annual herb/Mar–June/3–1001	NR	Not expected to occur. This species occurs closer to the coast (SDNHM 2017).
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	FE/None/1B.1/None/List A	Chaparral (maritime, sandy)/perennial evergreen shrub/Dec–June/0–1198	NR	Not expected to occur. Habitat not present on site. This species is known to occur within the vicinity[3] (CDFW 2017); however, most records are west of I-15 (SDNHM 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Arctostaphylos otayensis	Otay manzanita	None/None/1B.2/None/List A	Chaparral, cismontane woodland; metavolcanic/perennial evergreen shrub/Jan–Apr/902–5577	NR	Not expected to occur. This species occurs south of El Cajon (SDNHM 2017).
Artemisia palmeri	San Diego sagewort	None/None/4.2/None/List D	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; sandy, mesic/perennial deciduous shrub/(Feb) May–Sep/49–3002	Observed in 2004; 250 plants in 5 sites.	Observed. This species was recorded in 2004 in and adjacent to coast live oak woodland on north-facing slope in central portion of site. This species is known to occur within the vicinity[3] (CDFW 2017).
Asplenium vespertinum	western spleenwort	None/None/4.2/None/List D	Chaparral, cismontane woodland, coastal scrub; rocky/perennial rhizomatous herb/Feb–June/591–3281	NR	Low potential to occur. This perennial species would have been observed during surveys. This species is known to occur within the vicinity[3] (CDFW 2017).
Astragalus deanei	Dean's milk-vetch	None/None/1B.1/None/List A	Chaparral, cismontane woodland, coastal scrub, riparian forest/perennial herb/Feb–May/246–2280	NR	Low potential to occur. This species is known to occur within the vicinity[3] (CDFW 2017). However, the project site is outside of known range as this species occurs east of the project site (SDNHM 2017).
Astragalus oocarpus	San Diego milk-vetch	None/None/1B.2/None/List A	Chaparral (openings), cismontane woodland/perennial herb/May–Aug/1001–5000	NR	Not expected to occur. This species would have been observed during surveys and occurs northeast of the project site (SDNHM 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/CE/1B.1/None/List A	Coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic); often vernally mesic areas/annual herb/Mar–May/3–164	NR	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Atriplex coulteri	Coulter's saltbush	None/None/1B.2/None/List A	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; alkaline or clay/perennial herb/Mar–Oct/10–1509	Observed in 2004; 65 plants in 2 sites	Observed. This species was observed in 2004 located within the central portion of site in annual grassland near road and cismontane alkali marsh. This species is known to occur within the vicinity[3] (CDFW 2017).
Atriplex pacifica	South Coast saltscale	None/None/1B.2/None/List A	Coastal bluff scrub, coastal dunes, coastal scrub, playas/annual herb/Mar–Oct/0–459	NR	Not expected to occur. This species is known to occur within the vicinity[3] (CDFW 2017). However, the project site is outside of the species' known coastal range.
Atriplex parishii	Parish's brittlescale	None/None/1B.1/None/List A	Chenopod scrub, playas, vernal pools; alkaline/annual herb/June–Oct/82–6234	NR	Not expected to occur. No suitable vegetation present and this species is recorded northeast of the project site.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Baccharis vanessae	Encinitas baccharis	FT/CE/1B.1/None/List A	Chaparral (maritime), cismontane woodland; sandstone/perennial deciduous shrub/Aug–Nov/197–2362	NR	Low potential to occur. Potential habitat in chaparral on Cieneba, Las Flores soils. Cryptic shrub. This species is extremely rare, and was not observed. This species is known to occur within the vicinity[3] (CDFW 2017).
Bergerocactus emoryi	golden-spined cereus	None/None/2B.2/None/List B	Closed-cone coniferous forest, chaparral, coastal scrub; sandy/perennial stem succulent/May–June/10–1296	NR	Not expected to occur. This species occurs closer to the coast (SDNHM 2017) and would have been observed during surveys if present.
Bloomeria clevelandii	San Diego goldenstar	None/None/1B.1/Covered/List A	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial bulbiferous herb/Apr–May/164–1526	Observed. 136 acres and 53 sites (Dudek 1997); Est. 17,600 plants in 102 acres and 75 sites (2004). Observed in 2016.	Observed on site. This species was observed in 2016 and 2017 primarily in the central portion of site in coastal sage scrub and valley needlegrass grassland. This species is known to occur within the vicinity[3] (CDFW 2017).
Brodiaea filifolia	thread-leaved brodiaea	FT/CE/1B.1/None/List A	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/perennial bulbiferous herb/Mar–June/82–3675	NR	Low potential to occur. Although known to occur within the vicinity[3] (CDFW 2017), this species occurs northwest of the project site (SDNHM 2017) and would have been observed during surveys.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Brodiaea orcuttii	Orcutt's brodiaea	None/None/1B.1/None/List A	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay, sometimes serpentinite/perennial bulbiferous herb/May–July/98–5551	NR	Low potential to occur. Focused surveys for this species were negative. This species is known to occur within the vicinity[3] (CDFW 2017).
Calandrinia breweri	Brewer's calandrinia	None/None/4.2/None/List D	Chaparral, coastal scrub; sandy or loamy, disturbed sites and burns/annual herb/Mar–June/33–4003	NR	Low potential to occur. Focused surveys for this species were negative. This species is known to occur within the vicinity[3] (CDFW 2017).
California macrophylla	round-leaved filaree	None/None/1B.2/None/None	Cismontane woodland, valley and foothill grassland; clay/annual herb/Mar–May/49–3937	NR	Low potential to occur. This species occurs southwest of the project site (SDNHM 2017).
Calochortus dunnii	Dunn's mariposa lily	None/CR/1B.2/None/List A	Closed-cone coniferous forest, chaparral, valley and foothill grassland; gabbroic or metavolcanic, rocky/perennial bulbiferous herb/(Feb) Apr–June/607–6004	NR	Not expected to occur. This species occurs south and east of the project site.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Camissoniopsis lewisii	Lewis' evening-primrose	None/None/3/None/List C	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy or clay/annual herb/Mar–May (June)/0–984	NR	Low potential to occur. Focused surveys for this species were negative. This species is known to occur within the vicinity[3] (CDFW 2017).
Carex obispoensis	San Luis Obispo sedge	None/None/1B.2/None/None	Closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland; often serpentinite seeps, sometimes gabbro; often on clay soils/perennial rhizomatous herb/Apr–June/33–2690	NR	Low potential to occur. This perennial species would have been observed during surveys. The site lacks serpentinite seeps and gabbro soils.
Caulanthus simulans	Payson's jewelflower	None/None/4.2/None/List D	Chaparral, coastal scrub; sandy, granitic/annual herb/(Feb) Mar–May (June)/295–7218	NR	Not expected to occur. This species occurs in eastern San Diego County (SDNHM 2017).
Ceanothus cyaneus	Lakeside ceanothus	None/None/1B.2/None/List A	Closed-cone coniferous forest, chaparral/perennial evergreen shrub/Apr–June/771–2477	NR	Not expected to occur. Conspicuous shrub, surveyed during flowering period. This species is known to occur within the vicinity[3] (CDFW 2017), but almost all records are east of SR-67 (SDNHM 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Ceanothus otayensis	Otay Mountain ceanothus	None/None/1B.2/None/None	Chaparral (metavolcanic or gabbroic)/perennial evergreen shrub/Jan–Apr/1969–3609	NR	Not expected to occur. The site is outside of the species' known elevation range. This species is known to occur within the vicinity[3] (CDFW 2017).
Ceanothus verrucosus	wart-stemmed ceanothus	None/None/2B.2/None	Chaparral/perennial evergreen shrub/Dec–May/3–1247	NR	Low potential to occur. Conspicuous shrub, likely to have been observed if present on site in dense chaparral. This species is known to occur within the vicinity[3] (CDFW 2017), but occurs farther west (SDNHM 2017).
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1/None/List B	Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools/annual herb/May–Nov/0–1575	NR	Low potential to occur. No suitable vernally mesic habitat on site. This subspecies has only been recorded north of the project site (SDNHM 2017).
Centromadia pungens ssp. *laevis*	smooth tarplant	None/None/1B.1/None/List A	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland; alkaline/annual herb/Apr–Sep/0–2100	NR	Low potential to occur. Focused surveys for this species were negative. This species is known to occur within the vicinity[3] (CDFW 2017).
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/1B.1/None/List A	Coastal bluff scrub (sandy), coastal dunes/annual herb/Jan–Aug/0–328	NR	Not expected to occur. No suitable vegetation present.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Chamaebatia australis	southern mountain misery	None/None/4.2/None/List D	Chaparral (gabbroic or metavolcanic)/perennial evergreen shrub/Nov–May/984–3346	NR	Low potential to occur. Conspicuous shrub would have been recorded if present. Occurs on gabbro soils, which do not occur on site (CNPS 2017). This species is known to occur within the vicinity[3] (CDFW 2017).
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	FE/CE/1B.2/None/List A	Coastal dunes, marshes and swamps (coastal salt)/annual herb (hemiparasitic)/May–Oct/0–98	NR	Not expected to occur. The site is outside of the species' known elevation range.
Chorizanthe leptotheca	Peninsular spineflower	None/None/4.2/None/List D	Chaparral, coastal scrub, lower montane coniferous forest; alluvial fan, granitic/annual herb/May–Aug/984–6234	NR	Low potential to occur. This species occurs east of the project site (SDNHM 2017). This species is known to occur within the vicinity[3] (CDFW 2017).
Chorizanthe orcuttiana	Orcutt's spineflower	FE/CE/1B.1/None/List A	Closed-cone coniferous forest, chaparral (maritime), coastal scrub; sandy openings/annual herb/Mar–May/10–410	NR	Low potential to occur. This species occurs west of the project site (SDNHM 2017).
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/1B.2/None/List A	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; often clay/annual herb/Apr–July/98–5020	NR	Low potential to occur. Focused surveys for this species were negative. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Cistanthe maritima	seaside cistanthe	None/None/4.2/None/None	Coastal bluff scrub, coastal scrub, valley and foothill grassland; sandy/annual herb/(Feb) Mar–June (Aug)/16–984	NR	Not expected to occur. This species occurs along the coast south of the project site (SDNHM 2017).
Clarkia delicata	delicate clarkia	None/None/1B.2/None/List A	Chaparral, cismontane woodland; often gabbroic/annual herb/Apr–June/771–3281	NR	Low potential to occur. Potential habitat in chaparral understory, but focused surveys for this species were negative. This species is known to occur within the vicinity[3] (CDFW 2017).
Clinopodium chandleri	San Miguel savory	None/None/1B.2/None/List A	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; rocky, gabbroic, or metavolcanic/perennial shrub/Mar–July/394–3527	NR	Low potential to occur. This perennial shrub would have been observed during surveys. This site lacks suitable gabbroic or metavolcanic soil. This species is known to occur within the vicinity[3] (CDFW 2017).
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/1B.2/None/List A	Chaparral, cismontane woodland/perennial evergreen shrub/Apr–June/98–2592	NR	Not expected to occur. Conspicuous shrub would have been observed if present on site. This species is known to occur within the vicinity[3] (CDFW 2017).
Convolvulus simulans	small-flowered morning-glory	None/None/4.2/None/List D	Chaparral (openings), coastal scrub, valley and foothill grassland; clay, serpentinite seeps/annual herb/Mar–July/98–2428	Observed in 2004; 13 sites. no counts.	Observed. This species was observed in 2004 in southern and central part of site in annual grassland and coastal sage scrub. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Cordylanthus rigidus ssp. *brevibracteatus*	short-bracted bird's-beak	None/None/4.3/None/None	Chaparral, lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest; openings, granitic/annual herb (hemiparasitic)/July–Aug (Oct)/2001–8497	NR	Not expected to occur. The site is outside of the species' known elevation range.
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	None/None/1B.1/None/List A	Coastal bluff scrub, chaparral, coastal scrub/perennial herb/June–Sep/10–377	NR	Not expected to occur. This species would have been observed during surveys and is known from the coastal area (SDNHM 2017). This species is known to occur within the vicinity[3] (CDFW 2017).
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	None/None/1B.1/None/List A	Coastal bluff scrub, chaparral (maritime, openings), coastal scrub; sandy/perennial herb/May–Sep/49–492	NR	Not expected to occur. This species would have been observed during surveys and is known from the coastal area (SDNHM 2017).
Cylindropuntia californica var. *californica*	snake cholla	None/None/1B.1/None/List A	Chaparral, coastal scrub/perennial stem succulent/Apr–May/98–492	NR	Low potential to occur. This species would have been observed during surveys and occurs south of the project site (SDNHM 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Deinandra conjugens	Otay tarplant	FT/CE/1B.1/None/List A	Coastal scrub, valley and foothill grassland; clay/annual herb/May–June/82–984	NR	Low potential to occur. This species would have been observed during surveys and occurs south of the project site (SDNHM 2017).
Deinandra floribunda	Tecate tarplant	None/None/1B.2/None/List A	Chaparral, coastal scrub/annual herb/Aug–Oct/230–4003	NR	Not expected to occur. This species occurs southeast of the project site (SDNHM 2017).
Deinandra paniculata	paniculate tarplant	None/None/4.2/None/List D	Coastal scrub, valley and foothill grassland, vernal pools; usually vernally mesic, sometimes sandy/annual herb/Apr–Nov/82–3084	NR	Not expected to occur. This species would have been observed during surveys and occurs north of the project site (SDNHM 2017).
Dichondra occidentalis	western dichondra	None/None/4.2/None/List D	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/perennial rhizomatous herb/(Jan) Mar–July/164–1640	NR	Moderate potential to occur. This cryptic perennial herb is a partial fire follower (Reiser 2001) that is known to occur within the vicinity[3] (CDFW 2017).
Dicranostegia orcuttiana	Orcutt's bird's-beak	None/None/2B.1/None/None	Coastal scrub/annual herb (hemiparasitic)/(Mar) Apr–July (Sep)/33–1148	NR	Not expected to occur. This species would have been observed during surveys and recent occurrences are all south of Chula Vista (SDNHM 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/1B.1/None/List A	Coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland; rocky, often clay or serpentinite/perennial herb/Apr–June/16–1476	NR	Not expected to occur. This species would have been observed during surveys and occurs along the coast (SDNHM 2017).
Dudleya brevifolia	short-leaved dudleya	None/CE/1B.1/None/List A	Chaparral (maritime, openings), coastal scrub; Torrey sandstone/perennial herb/Apr–May/98–820	NR	Not expected to occur. This species would have been observed during surveys and is known from coastal areas (SDNHM 2017).
Dudleya variegata	variegated dudleya	None/None/1B.2/Covered/List A	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial herb/Apr–June/10–1903	Observed. 153 (Ogden Environmental 1992); 264 (Dudek 1997); 738 (Dudek 2003); 8,300 plants in 70 sites (Dudek 2004); largest group is 2,500 (Dudek 2004).	Observed in 1992, 1997, 2003, and 2004. Populations located in southeastern portion of the site. Mostly found within coastal sage scrub. This species is known to occur within the vicinity[3] (CDFW 2017).
Dudleya viscida	sticky dudleya	None/None/1B.2/None/List A	Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub; rocky/perennial herb/May–June/33–1804	NR	Not expected to occur. This species would have been observed during surveys and occurs north of Carlsbad (SDNHM 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	None/None/1B.1/None/List B	Chaparral, coastal scrub; mesic/perennial evergreen shrub/(July) Sep–Nov/98–1969	NR	Moderate potential to occur. Habitat includes unburned chaparral and coastal scrub. Although surveys were negative, this variety blooms later than surveys were conducted in June 2006. This species is known to occur within the vicinity[3] (CDFW 2017).
Eriodictyon sessilifolium	sessile-leaved yerba stanta	None/None/2B.1/None/None	Coastal scrub, volcanic/perennial shrub/July	NR	Low potential to occur. This species would have been observed during surveys. This site lacks suitable volcanic soil. This species is known to occur within the vicinity[3] (CDFW 2017).
Eriogonum evanidum	vanishing wild buckwheat	None/None/1B.1/None/None	Chaparral, cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland; sandy or gravelly/annual herb/July–Oct/3609–7300	NR	Not expected to occur. The site is outside of the species' known elevation range.
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/CE/1B.1/Covered/List A	Coastal scrub, valley and foothill grassland, vernal pools; mesic/annual / perennial herb/Apr–June/66–2034	NR	Low potential to occur. Would have been detected in seasonal basins if present. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Euphorbia abramsiana	Abrams' spurge	None/None/2B.2/None/None	Mojavean desert scrub, Sonoran desert scrub; sandy/annual herb/Aug–Nov/-16–4298	NR	Not expected to occur. No suitable vegetation present and this species occurs east of Julian (SDNHM 2017).
Euphorbia misera	cliff spurge	None/None/2B.2/None/List B	Coastal bluff scrub, coastal scrub, Mojavean desert scrub; rocky/perennial shrub/Dec–Aug (Oct)/33–1640	NR	Low potential to occur. This species would have been observed during surveys.
Ferocactus viridescens	San Diego barrel cactus	None/None/2B.1/Covered/List B	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/perennial stem succulent/May–June/10–1476	Observed. 688 (Dudek 1997); + 32 (Dudek 2003); 334 sites, with 4,700 plants, largest with 500 (2004). Observed incidentally during QCB focused surveys in 2016.	Observed. This species was observed in 2016 and 2017 primarily in the central portion of site in coastal sage scrub and valley needlegrass grassland. Fire cleared away shrub cover revealing many new populations in southeastern part. This species is known to occur within the vicinity[3] (CDFW 2017).
Frankenia palmeri	Palmer's frankenia	None/None/2B.1/None/List B	Coastal dunes, marshes and swamps (coastal salt), playas/perennial herb/May–July/0–33	NR	Not expected to occur. The site is outside of the species' known elevation range.

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Fraxinus parryi	chaparral ash	None/None/2B.2/None/None	Chaparral/perennial shrub/Mar–May/699–2034	NR	Low potential to occur. This species would have been observed during surveys.
Fremontodendron mexicanum	Mexican flannelbush	FE/CR/1B.1/None/List A	Closed-cone coniferous forest, chaparral, cismontane woodland; gabbroic, metavolcanic, or serpentinite/perennial evergreen shrub/Mar–June/33–2349	NR	Low potential to occur. This species would have been observed during surveys. This site lacks suitable gabbroic, metavolcanic, or serpentinite soil.
Galium proliferum	desert bedstraw	None/None/2B.2/None/None	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland; rocky, carbonate/annual herb/Mar–June/3904–5348	NR	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Geothallus tuberosus	Campbell's liverwort	None/None/1B.1/None/None	Coastal scrub (mesic), vernal pools; soil/ephemeral liverwort/N.A./33–1969	NR	Low potential to occur. Reported populations more coastal (CNPS 2017). Wetter seasonal basins may provide habitat. This species is known to occur within the vicinity[3] (CDFW 2017).
Githopsis diffusa ssp. *filicaulis*	Mission Canyon bluecup	None/None/3.1/None/List C	Chaparral (mesic, disturbed areas)/annual herb/Apr–June/1476–2297	NR	Not expected to occur. The site is outside of the species' known elevation range. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Grindelia hallii	San Diego gumplant	None/None/1B.2/None/List A	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/perennial herb/May–Oct/607–5725	NR	Low potential to occur. Focused surveys were negative and most records for this species are father east (SDNHM 2017). This species is known to occur within the vicinity[3] (CDFW 2017).
Harpagonella palmeri	Palmer's grapplinghook	None/None/4.2/None/List D	Chaparral, coastal scrub, valley and foothill grassland; clay/annual herb/Mar–May/66–3133	Observed. 3 sites (Ogden Environmental 1992); Group is in 6 sites, 447 plants, largest with 250 plants (2004). Observed in 2016.	Observed in central and southern portions of site within coastal sage scrub (including disturbed), and non-native grassland. This species is known to occur within the vicinity[3] (CDFW 2017).
Hazardia orcuttii	Orcutt's hazardia	None/CT/1B.1/None/List A	Chaparral (maritime), coastal scrub; often clay/perennial evergreen shrub/Aug–Oct/262–279	NR	Not expected to occur. This species would have been observed during surveys and the only known location of this species in San Diego is in Encinitas (Reiser 2001; SDNHM 2017).
Hesperocyparis forbesii	Tecate cypress	None/None/1B.1/None/List A	Closed-cone coniferous forest, chaparral; clay, gabbroic or metavolcanic/perennial evergreen tree/N.A./262–4921	NR	Low potential to occur. This species would have been observed during surveys. This site lacks gabbroic or metavolcanic soil.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Heterotheca sessiliflora ssp. *sessiliflora*	beach goldenaster	None/None/1B.1/None/None	Chaparral (coastal), coastal dunes, coastal scrub/perennial herb/Mar–Dec/0–4019	NR	Not expected to occur. This species would have been observed during surveys and occurs on the coast (Reiser 2001).
Holocarpha virgata ssp. *elongata*	graceful tarplant	None/None/4.2/None/List D	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/annual herb/May–Nov/197–3609	Observed. Noted, but not mapped (Dudek 1997, 2003); 6 individuals (2004).	Observed in previous studies in lower elevations of site in disturbed habitat and annual grassland. This species is known to occur within the vicinity[3] (CDFW 2017).
Hordeum intercedens	vernal barley	None/None/3.2/None/List C	Coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), vernal pools/annual herb/Mar–June/16–3281	NR	Low potential to occur. Preferred alkaline habitat not present. This species is known to occur within the vicinity[3] (CDFW 2017).
Horkelia truncata	Ramona horkelia	None/None/1B.3/None/List A	Chaparral, cismontane woodland; clay, gabbroic/perennial herb/May–June/1312–4265	NR	Not expected to occur. The site is outside of the species' known elevation range. This species is known to occur within the vicinity[3] (CDFW 2017).
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2/None/List A	Chaparral, coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/33–443	NR	Low potential to occur. This perennial shrub would have been observed during surveys if present. This species is known to occur within the vicinity[3] (CDFW 2017).

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Iva hayesiana	San Diego marsh-elder	None/None/2B.2/None/List B	Marshes and swamps, playas/perennial herb/Apr–Oct/33–1640	NR	Low potential to occur. Distinctive plant would have been noted if present on site. This species is known to occur within the vicinity[3] (CDFW 2017).
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	None/None/4.2/None/List D	Coastal dunes (mesic), meadows and seeps (alkaline seeps), marshes and swamps (coastal salt)/perennial rhizomatous herb/(Mar) May–June/10–2953	NR	Low potential to occur. This conspicuous shrub would have been noted if present on site. This species is known to occur within the vicinity[3] (CDFW 2017).
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1/None/List A	Marshes and swamps (coastal salt), playas, vernal pools/annual herb/Feb–June/3–4003	NR	Low potential to occur. Focused surveys were negative and this species occurs west and south of the project site (SDNHM 2017).
Lathyrus splendens	pride-of-California	None/None/4.3/None/List D	Chaparral/perennial herb/Mar–June/656–5003	NR	Not expected to occur. This species would have been observed during surveys and occurs south of the project site (SDNHM 2017).
Lepechinia cardiophylla	heart-leaved pitcher sage	None/None/1B.2/None/List A	Closed-cone coniferous forest, chaparral, cismontane woodland/perennial shrub/Apr–July/1706–4495	NR	Not expected to occur. The site is outside of the species' known elevation range. This species is known to occur within the vicinity[3] (CDFW 2017).

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Lepechinia ganderi	Gander's pitcher sage	None/None/1B.3/None/List A	Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland; gabbroic or metavolcanic/perennial shrub/June–July/1001–3297	NR	Not expected to occur. Cryptic chaparral understory species. Not detected during focused surveys and this species occurs south of the project site (SDNHM 2017).
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3/None/List A	Chaparral, coastal scrub/annual herb/Jan–July/3–2904	NR	Low potential to occur. Focused surveys were negative. This species is known to occur within the vicinity[3] (CDFW 2017).
Leptosiphon grandiflorus	large-flowered leptosiphon	None/None/4.2/None/None	Coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal dunes, coastal prairie, coastal scrub, valley and foothill grassland; usually sandy/annual herb/Apr–Aug/16–4003	NR	Low potential to occur. This species would have been observed during surveys and occurs north of the project site (CNPS 2017; SDNHM 2017).
Leptosyne maritima	sea dahlia	None/None/2B.2/None/List B	Coastal bluff scrub, coastal scrub/perennial herb/Mar–May/16–492	NR	Not expected to occur. This species would have been observed during surveys and occurs along the coast (Reiser 2011; SDNHM 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Lycium californicum	California box-thorn	None/None/4.2/None/List D	Coastal bluff scrub, coastal scrub/perennial shrub/(Dec) Mar–Aug/16–492	NR	Low potential to occur. This species would have been observed during surveys and occurs west and south of the project site (SDNHM 2017).
Microseris douglasii ssp. *platycarpha*	small-flowered microseris	None/None/4.2/None/List D	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/annual herb/Mar–May/49–3510	NR	Low potential to occur. Not observed during surveys.
Mimulus aurantiacus var. *aridus*	low bush monkeyflower	None/None/4.3/None/None	Chaparral (rocky), Sonoran desert scrub/perennial evergreen shrub/Apr–July/2461–3937	NR	Not expected to occur. The site is outside of the species' known elevation range.
Mimulus clevelandii	Cleveland's bush monkeyflower	None/None/4.2/None/List D	Chaparral, cismontane woodland, lower montane coniferous forest; gabbroic, often in disturbed areas, openings, rocky/perennial rhizomatous herb/Apr–July/1476–6562	NR	Not expected to occur. The site is outside of the species' known elevation range.
Mimulus diffusus	Palomar monkeyflower	None/None/4.3/None/None	Chaparral, lower montane coniferous forest; sandy or gravelly/annual herb/Apr–June/4003–6004	NR	Not expected to occur. The site is outside of the species' known elevation range. This species is known to occur within the vicinity[3] (CDFW 2017).
Mobergia calculiformis	light gray lichen	None/None/3/None/None	Coastal scrub (?); on rocks/crustose lichen (saxicolous)/N.A./33–33	NR	Not expected to occur. The site is outside of the species' known elevation range.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	None/None/1B.2/None/List A	Chaparral, cismontane woodland/perennial rhizomatous herb/June–Aug/984–5167	NR	Low potential to occur. This perennial species would have been observed during surveys. This species is known to occur within the vicinity[3] (CDFW 2017).
Monardella viminea	willowy monardella	FE/CE/1B.1/Covered/List A	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; alluvial ephemeral washes/perennial herb/June–Aug/164–738	Observed. 219 plants (Ogden Environmental 1992); 297 plants (Dudek 1997); 1,063 plants in 64 sites, largest group is 80 plants (2004). Observed in 2016; recorded 17 individuals at 2 locations.	Observed on site. Recorded in Sycamore Creek and northernmost tributary within coast live oak woodland and coastal sage scrub. This species is known to occur within the vicinity[3] (CDFW 2017).
Mucronea californica	California spineflower	None/None/4.2/None/List D	Chaparral, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy/annual herb/Mar–July (Aug)/0–4593	NR	Not expected to occur. This species would have been observed during surveys and occurs along the coast (SDNHM 2017).
Myosurus minimus ssp. *apus*	little mousetail	None/None/3.1/None/List C	Valley and foothill grassland, vernal pools (alkaline)/annual herb/Mar–June/66–2100	NR	Low potential to occur. Not observed during focused seasonal basin flora inventory. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Nama stenocarpa	mud nama	None/None/2B.2/None/List B	Marshes and swamps (lake margins, riverbanks)/annual / perennial herb/Jan–July/16–1640	NR	Not expected to occur. This species would have been observed during surveys. This site lacks suitable habitat.
Navarretia fossalis	spreading navarretia	FT/None/1B.1/None/List A	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools/annual herb/Apr–June/98–2149	NR	Low potential to occur. Not observed during focused seasonal basin flora inventory.
Navarretia prostrata	prostrate vernal pool navarretia	None/None/1B.1/None/List A	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools; mesic/annual herb/Apr–July/10–3970	NR	Low potential to occur. Not observed during focused seasonal basin flora inventory.
Nemacaulis denudata var. *denudata*	coast woolly-heads	None/None/1B.2/None/List A	Coastal dunes/annual herb/Apr–Sep/0–328	NR	Not expected to occur. No suitable vegetation present.
Nemacaulis denudata var. *gracilis*	slender cottonheads	None/None/2B.2/None/List B	Coastal dunes, desert dunes, Sonoran desert scrub/annual herb/(Mar) Apr–May/-164–1312	NR	Not expected to occur. No suitable vegetation present.
Nolina interrata	Dehesa nolina	None/CE/1B.1/None/List A	Chaparral (gabbroic, metavolcanic, or serpentinite)/perennial herb/June–July/607–2805	NR	Low potential to occur. Not known from geographic area, which is southeast of the project site (SDNHM 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Ophioglossum californicum	California adder's-tongue	None/None/4.2/None/List D	Chaparral, valley and foothill grassland, vernal pools (margins); mesic/perennial rhizomatous herb/(Dec) Jan–June/197–1722	Observed in 2004. 250 plants at one location.	Observed. Recorded from central portion of site in sparse coastal sage scrub in 2004. This species was observed. This species is known to occur within the vicinity[3] (CDFW 2017).
Orcuttia californica	California Orcutt grass	FE/CE/1B.1/None/List A	Vernal pools/annual herb/Apr–Aug/49–2165	NR	Low potential to occur. Not observed during focused seasonal basin flora inventory.
Orobanche parishii ssp. *brachyloba*	short-lobed broomrape	None/None/4.2/None/List D	Coastal bluff scrub, coastal dunes, coastal scrub; sandy/perennial herb (parasitic)/Apr–Oct/10–1001	NR	Not expected to occur. This species would have been observed during surveys and this species occurs more coastally (SDNHM 2017).
Packera ganderi	Gander's ragwort	None/CR/1B.2/None/List A	Chaparral (burns, gabbroic outcrops)/perennial herb/Apr–June/1312–3937	NR	Not expected to occur. The site is outside of the species' known elevation range. This species is known to occur within the vicinity[3] (CDFW 2017).
Pentachaeta aurea ssp. *aurea*	golden-rayed pentachaeta	None/None/4.2/None/List D	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, valley and foothill grassland/annual herb/Mar–July/262–6070	NR	Low potential to occur. Species not observed during surveys. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Phacelia ramosissima var. *austrolitoralis*	south coast branching phacelia	None/None/3.2/None/None	Chaparral, coastal dunes, coastal scrub, marshes and swamps (coastal salt); sandy, sometimes rocky/perennial herb/Mar–Aug/16–984	NR	Not expected to occur. This species occurs along the coast (SDNHM 2017).
Phacelia stellaris	Brand's star phacelia	None/None/1B.1/None/List A	Coastal dunes, coastal scrub/annual herb/Mar–June/3–1312	NR	Not expected to occur. This species would have been observed during surveys and occurs along the coast (SDNHM 2017).
Pickeringia montana var. *tomentosa*	woolly chaparral-pea	None/None/4.3/None/None	Chaparral; gabbroic, granitic, clay/evergreen shrub/May–Aug/0–5577	NR	Low potential to occur. This species would have been observed during surveys. This site lacks gabbroic soil. Most records of this species occur southeast of the project site (SDNHM 2017).
Pinus torreyana ssp. *torreyana*	Torrey pine	None/None/1B.2/None/List A	Closed-cone coniferous forest, chaparral; sandstone/perennial evergreen tree/N.A./98–525	NR	Not expected to occur. This species would have been observed during surveys. This site lacks suitable sandstone soil. This species occurs along the coast (SDNHM 2017; Resier 2001).
Piperia cooperi	chaparral rein orchid	None/None/4.2/None/List D	Chaparral, cismontane woodland, valley and foothill grassland/perennial herb/Mar–June/49–5200	Observed in 2004. One individual.	Observed in southern mixed chaparral in northern part of site in 2004. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Pogogyne abramsii	San Diego mesa mint	FE/CE/1B.1/Covered/List A	Vernal pools/annual herb/Mar–July/295–656	NR	Low potential to occur. Not observed during focused seasonal basin flora inventory. This species is known to occur within the vicinity[3] (CDFW 2017).
Pogogyne nudiuscula	Otay Mesa mint	FE/CE/1B.1/None/List A	Vernal pools/annual herb/May–July/295–820	NR	Low potential to occur. Not observed during focused seasonal basin flora inventory. This species is known to occur within the vicinity[3] (CDFW 2017).
Polygala cornuta var. *fishiae*	Fish's milkwort	None/None/4.3/None/List D	Chaparral, cismontane woodland, riparian woodland/perennial deciduous shrub/May–Aug/328–3281	NR	Low potential to occur. This perennial deciduous shrub would have been observed during surveys and this species does not occur in the vicinity (SDNHM 2017; CDFW 2017).
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/None/2B.2/None/None	Chaparral, cismontane woodland, coastal scrub, riparian woodland; sandy, gravelly/perennial herb/(July) Aug–Nov (Dec)/0–6890	NR	Low potential to occur. This perennial herb would have been observed during surveys. This species is known to occur within the vicinity[3] (CDFW 2017).
Quercus cedrosensis	Cedros Island oak	None/None/2B.2/None/List B	Closed-cone coniferous forest, chaparral, coastal scrub/perennial evergreen tree/Apr–May/837–3150	NR	Low potential to occur. This perennial evergreen tree would have been observed during surveys. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1/None/List A	Closed-cone coniferous forest, chaparral, coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr (Aug)/49–1312	NR	Low potential to occur. Conspicuous shrub would have been observed if present on site. This species is known to occur within the vicinity[3] (CDFW 2017).
Quercus engelmannii	Engelmann oak	None/None/4.2/None/List D	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland/perennial deciduous tree/Mar–June/164–4265	Observed in 2004. 4 trees in 2 sites. Observed 2016; 1 individual recorded.	Observed in granitic southern mixed chaparral in northern part of site. This species is known to occur within the vicinity[3] (CDFW 2017).
Ribes canthariforme	Moreno currant	None/None/1B.3/None/List A	Chaparral, riparian scrub/perennial deciduous shrub/Feb–Apr/1115–3937	NR	Not expected to occur. This species would have been observed during surveys and this species occurs east of the project site (SDNHM 2017).
Romneya coulteri	Coulter's matilija poppy	None/None/4.2/None/List D	Chaparral, coastal scrub; often in burns/perennial rhizomatous herb/Mar–July/66–3937	NR	Low potential to occur. This perennial rhizomatous herb would have been observed during surveys.
Salvia munzii	Munz's sage	None/None/2B.2/None/List B	Chaparral, coastal scrub/perennial evergreen shrub/Feb–Apr/377–3494	NR	Low potential to occur. Conspicuous shrub would have been observed during surveys.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Selaginella cinerascens	ashy spike-moss	None/None/4.1/None/List D	Chaparral, coastal scrub/perennial rhizomatous herb/N.A./66–2100	Observed. 1 individual recorded in 1997. Observed in 2016; locations not recorded due to low sensitivity.	Observed. Recorded observations in previous studies within coastal sage scrub in the central portion of the site. This species is known to occur within the vicinity[3] (CDFW 2017).
Senecio aphanactis	chaparral ragwort	None/None/2B.2/None/List B	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/annual herb/Jan–Apr/49–2625	NR	Low potential to occur. This species was not observed during surveys. This species is known to occur within the vicinity[3] (CDFW 2017).
Sidalcea neomexicana	salt spring checkerbloom	None/None/2B.2/None/None	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas; alkaline, mesic/perennial herb/Mar–June/49–5020	NR	Low potential to occur. Focused surveys for this species were negative. This site lacks suitable soil.
Sphaerocarpos drewei	bottle liverwort	None/None/1B.1/None/None	Chaparral, coastal scrub; openings, soil/ephemeral liverwort/N.A./295–1969	NR	Low potential to occur. This species would have been observed during surveys and is recorded in coastal areas in San Diego County (CNPS 2017).
Stemodia durantifolia	purple stemodia	None/None/2B.1/None/List B	Sonoran desert scrub (often mesic, sandy)/perennial herb/Jan–Dec/591–984	NR	Not expected to occur. No suitable vegetation present. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Stipa diegoensis	San Diego County needle grass	None/None/4.2/None/List D	Chaparral, coastal scrub; rocky, often mesic/perennial herb/Feb–June/33–2625	NR	Low potential to occur. This species would have been observed during surveys. This species is known to occur within the vicinity[3] (CDFW 2017), but all occurrences are south of SR-52 (SDNHM 2017).
Streptanthus bernardinus	Laguna Mountains jewelflower	None/None/4.3/None/List D	Chaparral, lower montane coniferous forest/perennial herb/May–Aug/2198–8202	NR	Not expected to occur. The site is outside of the species' known elevation range.
Stylocline citroleum	oil neststraw	None/None/1B.1/None/List A	Chenopod scrub, coastal scrub, valley and foothill grassland; clay/annual herb/Mar–Apr/164–1312	NR	Low potential to occur. This species was not observed during surveys and is presumed extirpated from San Diego County (CNPS 2017).
Suaeda esteroa	estuary seablite	None/None/1B.2/None/List A	Marshes and swamps (coastal salt)/perennial herb/May–Oct (Jan)/0–16	NR	Not expected to occur. The site is outside of the species' known elevation range.
Suaeda taxifolia	woolly seablite	None/None/4.2/None/List D	Coastal bluff scrub, coastal dunes, marshes and swamps (margins of coastal salt)/perennial evergreen shrub/Jan–Dec/0–164	NR	Not expected to occur. The site is outside of the species' known elevation range.
Tetracoccus dioicus	Parry's tetracoccus	None/None/1B.2/None/List A	Chaparral, coastal scrub/perennial deciduous shrub/Apr–May/541–3281	NR	Low potential to occur. This shrub would have been observed during surveys. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/CRPR/City Subarea Plan/County)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Observed[2]	Potential to Occur
Texosporium sancti-jacobi	woven-spored lichen	None/None/3/None/None	Chaparral (openings); on soil, small mammal pellets, dead twigs, and on *Selaginella* spp./crustose lichen (terricolous)/N.A./951–2165	NR	Low potential to occur. This species would have been observed during surveys. This species is known to occur within the vicinity[3] (CDFW 2017).
Triquetrella californica	coastal triquetrella	None/None/1B.2/None/None	Coastal bluff scrub, coastal scrub; soil/moss/N.A./33–328	NR	Not expected to occur. This species is known in California from fewer than ten small coastal occurrences (CNPS 2017).
Viguiera laciniata	San Diego County viguiera	None/None/4.2/None/List D	Chaparral, coastal scrub/perennial shrub/Feb–June (Aug)/197–2461	Observed. 10 sites (Ogden Environmental 1992); 1,890 plants (Dudek 1997, 2003); 276 sites, >2,050 plants (Dudek 2004).	Observed on site. This species was recorded in previous studies throughout the site in coastal sage scrub. This species is known to occur within the vicinity[3] (CDFW 2017).
Xanthisma junceum	rush-like bristleweed	None/None/4.3/None/List D	Chaparral, coastal scrub/perennial herb/June–Jan/787–3281	NR	Low potential to occur. This perennial herb would have been observed during surveys. This species is known to occur within the vicinity[3] (CDFW 2017).

[1] **Status Legend:**
FE: Federally listed as endangered
FT: Federally listed as threatened
FC: Federal Candidate for listing
DL: Delisted

CE: State listed as endangered
CT: State listed as threatened
CR: State Rare
CRPR 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
CRPR 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
CRPR 2A: Plants Presumed Extirpated in California, But More Common Elsewhere
CRPR 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
CRPR 3: Plants About Which More Information is Needed - A Review List
CRPR 4: Plants of Limited Distribution - A Watch List
.1 Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

City Subarea Plan (City of Santee)
Covered: City Subarea Plan Covered Species

[2] Previous studies include Dudek Resources and Impact Analysis Reports (Dudek 1997, 2005, 2006, 2007).
[3] Vicinity refers to records within the La Mesa, El Cajon, Poway, and/or San Vicente Reservoir quadrangles, which overlap the project site (CDFW 2017).

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APPENDIX N

Special-Status Wildlife Species
Potential to Occur within the Project Area

APPENDIX N
Special-Status Wildlife Species Potential to Occur within the Project Area

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
Amphibians						
Anaxyrus californicus	arroyo toad	FE/SSC/None/None	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	NR	NR	Not expected to occur. Negative focused surveys for this species were conducted in 1997. Additionally, this project site is well isolated from known populations by inhospitable topography and lakes. This species occurs within 5 miles of the project boundary (USFWS 2017). This species is known to occur within the vicinity[3] (CDFW 2017).
Spea hammondii	western spadefoot	None/SSC/Covered/None	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Observed. 8 pools (2004); 22 pools (2005)	Observed. 12 pools (2017).	Observed. Recorded observations in 2004, 2005 and 2017 focused surveys in the lowland portions of the site adjacent to the western boundary. USGS confirmed historical observations during their site visit on XDATE. This species is known to occur within the vicinity[3] (CDFW 2017).
Reptiles						
Actinemys marmorata	western pond turtle	None/SSC/Covered/None	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	NR	NR	Low potential to occur. Not expected due to lack of appropriate habitat. Likely would have been observed if present.

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
Anniella stebbinsi	Southern California legless lizard	None/SSC/None/ None	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils	NR	NR	Moderate potential to occur. Suitable habitat is present in the vicinity of Sycamore Canyon and the surrounding lowlands. This species is known to occur within the vicinity[3] (CDFW 2017).
Arizona elegans occidentalis	California glossy snake	None/SSC/None/ None	Commonly occurs in desert regions throughout southern California. Prefers open sandy areas with scattered brush. Also found in rocky areas.	NR	NR	Moderate potential to occur. Suitable habitat is present on site, both in remaining chaparral habitat and rocky outcrops. This species is known to occur within the vicinity[3] (CDFW 2017).
Aspidoscelis hyperythra beldingi	Belding's orange-throated whiptail	None/WL/Covered/ None	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood	Observed (2007).	NR	Observed or expected to occur throughout the study area within coastal sage scrub, chaparral, and coast live oak woodland. Recorded during previous studies. Suitable habitat is present across the site. This species is known to occur within the vicinity[3] (CDFW 2017).
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC/None/ None	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Observed (2007).	Observed in 2016.	Observed within the northeastern and northwestern portion of the site within chaparral and non-native grassland. This species was observed throughout the site in coastal sage scrub and granitic southern mixed chaparral.

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
						Suitable habitat is present across the site. This species is known to occur within the vicinity[3] (CDFW 2017).
Chelonia mydas	green sea turtle	FT/None/None/None	Shallow waters of lagoons, bays, estuaries, mangroves, eelgrass, and seaweed beds	NR	NR	Not expected to occur. No suitable vegetation present.
Coluber fuliginosus	Baja California coachwhip	None/SSC/None/ None	In California restricted to southern San Diego County, where it is known from grassland and coastal sage scrub. Open areas in grassland and coastal sage scrub.	NR	NR	Low potential to occur. Suitable habitat is present on site, both in grassland and coastal sage scrub. However, this species' distribution range is restricted to southern San Diego County.
Crotalus ruber	red diamondback rattlesnake	None/SSC/None/ None	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Observed (2007).	Observed in 2016.	Observed. Individuals have been observed in the central and northwestern portion of the site where rock outcrops occur.
Diadophis punctatus similis[4]	San Diego ringneck snake	None/None/None/SS	Moist habitats including wet meadows, rocky hillsides, gardens, farmland grassland, chaparral, mixed-conifer forest, and woodland habitats	NR	NR	Moderate potential to occur. Suitable habitat is present. This species is known to occur within the vicinity[3] (CDFW 2017).
Phrynosoma blainvillii	Blainville's horned lizard	None/None/Covered/None	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–	Observed (2007).	Observed in 2016.	Observed. Few individuals have been observed on site in the northern portion of the site within coastal sage scrub, and are expected to still occur throughout the study area. This species is

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
			cypress, juniper, and annual grassland habitats			known to occur within the vicinity[3] (CDFW 2017).
Plestiodon skiltonianus interparietalis	Coronado skink	None/WL/None/None	Woodlands, grasslands, pine forests, and chaparral; rocky areas near water	NR	NR	Moderate potential to occur. Suitable habitat is present and is expected to be present particularly in Sycamore Canyon and wooded side canyons. This species is known to occur within the vicinity[3] (CDFW 2017).
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC/None/None	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites	NR	NR	Moderate potential to occur. Suitable habitat is present. This species is known to occur within the vicinity[3] (CDFW 2017).
Thamnophis hammondii	two-striped gartersnake	None/SSC/None/None	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Observed (2007).	NR	Observed. Recorded during previous studies on the western portion of the site within disturbed habitat. This species has been observed using temporary pools on site but probably also occurs in Sycamore Canyon and side channels. This species is known to occur within the vicinity[3] (CDFW 2017).
Birds						
Accipiter cooperii (nesting)	Cooper's hawk	None/WL/None/ None	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Observed (2007).	Observed in 2016.	Observed. Individuals are known to use wooded habitats on the northwestern portion of the site for foraging and breeding habitat. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/PSE, SSC/Covered/None	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	NR	NR	Low potential to occur. Not expected to occur due to very small patches of suitable habitat. This species is known to occur within the vicinity[3] (CDFW 2017).
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	None/WL/None/ None	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches	Observed (2007).	Observed in 2016.	Observed. This species was observed throughout the site within coastal sage scrub and granitic southern mixed chaparral. Uses scrub habitats on site. This species is known to occur within the vicinity[3] (CDFW 2017).
Ammodramus savannarum (nesting)	grasshopper sparrow	None/SSC/None/None	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	Observed (2007).	Observed in 2016.	Observed. This species was observed throughout the site non-native grassland. Superficially, data points appear within other chaparral and scrub habitats, however those locations were historical detections within recovering burned scrub and at the time, were grasslands. This species is known to occur within the vicinity[3] (CDFW 2017).
Aquila chrysaetos (nesting and wintering)	golden eagle	BCC/FP, WL/None/None	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous	Observed in 2004. NR nesting	NR nesting	Low potential to nest and winter. May occasionally be present as flying overhead in transit. No nesting opportunities exist on site. Over the course of these

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
			canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats			studies, a few golden eagles have been observed to fly over the site, but the level of human activity likely precludes their presence. Golden eagle is known to fly west of the site within Sycamore Canyon, however there are no known nests within the visual line of sight (USGS 2017). In addition, there are historical occurrences of golden eagle flying over the northern portion of the site, however there is no suitable habitat for nesting (USGS 2017). This species is known to occur within the vicinity[3] (CDFW 2017).
Artemisiospiza belli belli	Bell's sage sparrow	BCC/WL/None/ None	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter	Observed (2007).	NR	Observed. Recorded observations in previous studies in denser chaparral habitat in northern portions of site. This species is known to occur within the vicinity[3] (CDFW 2017).
Asio otus (nesting)	long-eared owl	None/SSC/None/ None	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats	Observed (1997).	NR	Observed. Recorded observations in previous studies in coast live oak woodland in the northern portion of the site.

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	BCC/SSC/Covered/ None	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	NR	NR	Low potential to occur. Focused surveys in 2016 were negative. This species is known to occur within the vicinity[3] (CDFW 2017).
Baeolophus inornatus (nesting)	oak titmouse	BCC/None/None/ None	Nests and forages in oak woodlands; also open pine forest, pinyon woodland, and riparian and chaparral with oak	NR	Observed in 2016.	Observed near oak woodland on the northwestern portion of the site within non-native grassland and disturbed habitat.
Buteo regalis (wintering)	ferruginous hawk	BCC/WL/None/ None	Winters and forages in open, dry country, grasslands, open fields, agriculture	NR	NR	Low potential to occur. Suitable habitat is present.
*Buteo swainsoni (*nesting)	Swainson's hawk	BCC/ST/None/None	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	NR	NR	Low potential to occur. Suitable foraging habitat is present but would be a migrant; no breeding habitat present. This species is known to occur within the vicinity[3] (CDFW 2017).
Campylorhynchus brunneicapillus sandiegensis (San Diego and Orange Counties only)	coastal cactus wren	BCC/SSC/Covered/ None	Southern cactus scrub patches	Observed (2007).	Observed during 2017 focused surveys.	Observed. This species was observed in the central portion of the site within disturbed habitat adjacent to disturbed coastal sage scrub. Acoustic and visual detections of 6 individuals and 3 nests were observed at 4 cactus patches. 2 nests and 3 acoustic detections were recorded at an additional 5 cactus patches. This

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
						species is known to occur within the vicinity[3] (CDFW 2017).
Charadrius alexandrinus nivosus (nesting)	western snowy plover	FT, BCC/SSC/None/ None	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	NR	NR	Not expected to occur. No suitable habitat for this species.
Charadrius montanus (wintering)	mountain plover	BCC/SSC/None/None	Winters in shortgrass prairies, plowed fields, open sagebrush, and sandy deserts	NR	NR	Not expected to occur. No suitable habitat for this species.
Circus cyaneus (nesting)	northern harrier	None/SSC/None/None	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats	Observed as forager (2007).	Observed in 2016.	Observed as a forager in the central portion of the site within coastal sage scrub (including disturbed). Low potential for nesting on site due to lack of preferred nesting habitat and lack of observations.
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT, BCC/SE/None/ None	Nests in dense, wide riparian woodlands and forest with well-developed understories	NR	NR	Not expected to occur. Suitable dense riparian habitat is not present.

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
Elanus leucurus (nesting)	white-tailed kite	None/FP/None/None	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	Observed as a forager (2007).	NR	Observed as a forager. Recorded during previous studies as a forager. Present on site as a forager and has low potential nest on site as well. This species is known to occur within the vicinity[3] (CDFW 2017).
Empidonax traillii (nesting)	willow flycatcher	BCC/SE/None/None	Nests in wet meadow and montane willow riparian	NR	Observed during focused least Bell's vireo/southwestern willow flycatcher surveys	Observed. Likely a migrant; low potential to nest. One willow flycatcher was observed on May 23, 2017 during focused surveys and was not observed during subsequent visits. This species was observed in 2016 on the northwestern portion of the site within coast live oak woodland.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE/Covered/None	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	NR	NR	Low potential to occur. There are a few areas of southern willow scrub and riparian habitat on site, however focused surveys for this species in 2016 were negative.
Eremophila alpestris actia	California horned lark	None/WL/None/None	Nests and forages in grasslands, disturbed lands, agriculture, and beaches; nests in alpine fell fields of the Sierra Nevada	Observed (2007).	NR	Observed. Recorded observations in previous studies during winter. Unlikely to breed on site. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
Falco columbarius (wintering)	merlin	None/WL/None/None	Forages in semi-open areas, including coastline, grassland, agriculture, savanna, woodland, lakes, and wetlands	Observed (2005).	Observed in 2016.	Observed within non-native grassland. This species is not likely to nest on site, however this species was observed likely as a forager.
Falco mexicanus (nesting)	prairie falcon	BCC/WL/None/None	Forages in grassland, savanna, rangeland, agriculture, desert scrub, alpine meadows; nests on cliffs or bluffs	NR	NR	Low potential to nest. Moderate potential to forage over site. This species is known to occur within the vicinity[3] (CDFW 2017).
Falco peregrinus anatum (nesting)	American peregrine falcon	BCC/FP/None/None	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Observed (2007).	Observed in 2016.	Observed. Suitable breeding habitat not present. This species is occasionally observed flying over the site, typically in pursuit of waterfowl at the nearby Santee Lakes and Padre Dam effluent ponds.
Haliaeetus leucocephalus (nesting and wintering)	bald eagle	BCC/SE, FP/None/None	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	NR	NR	Not expected to occur. No suitable vegetation present.
Icteria virens (nesting)	yellow-breasted chat	None/SSC/None/ None	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Observed (2007).	Observed in 2016.	Observed. This species was observed on the northwestern portion of the site within coast live oak woodland, and coastal sage scrub (including disturbed). This species is known to occur

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
						within the vicinity[3] (CDFW 2017).
Ixobrychus exilis (nesting)	least bittern	BCC/SSC/None/ None	Nests in freshwater and brackish marshes with dense, tall growth of aquatic and semi-aquatic vegetation	NR	NR	Low potential to occur. Species not present due to lack of appropriate habitat. This species is known to occur within the vicinity[3] (CDFW 2017).
Lanius ludovicianus (nesting)	loggerhead shrike	BCC/SSC/None/ None	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Observed in 1997 and 2005.	Observed in 2015.	Observed. Recorded observations in disturbed coastal sage scrub, granitic southern mixed chaparral, non-native grassland, and disturbed habitat.
Laterallus jamaicensis coturniculus	California black rail	BCC/ST, FP/None/None	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	NR	NR	Not expected to occur. Species not analyzed because the project site is outside the historical range or elevational range of the species.
Pandion haliaetus (nesting)	osprey	None/WL/None/None	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast	Observed (2007).	Observed in 2016.	Observed. Osprey are occasionally observed perched on powerline towers or tall poles eating fish captured from Santee Lakes. There are no foraging or nesting opportunities on the project site.
Passerculus sandwichensis beldingi	Belding's savannah sparrow	None/SE/None/None	Nests and forages in coastal saltmarsh dominated by pickleweed (*Salicornia* spp.)	NR	NR	Low potential to occur. Species not present due to lack of appropriate habitat.
Pelecanus occidentalis	California brown pelican	None/FP/None/None	Forages in warm coastal marine and estuarine	NR	NR	Low potential to occur. Species not present due to lack of

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
californicus (nesting colonies and communal roosts)			environments; in California, nests on dry, rocky offshore islands			appropriate habitat.
Plegadis chihi (nesting colony)	white-faced ibis	None/WL/None/None	Nests in shallow marshes with areas of emergent vegetation; winter foraging in shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries	NR	NR	Low potential to occur. Species not present due to lack of appropriate habitat.
Polioptila californica californica	coastal California gnatcatcher	FT/SSC/Covered/ None	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Observed (2007).	Observed in 2016.	Observed. Focused surveys over the years have detected varying numbers and distribution of California gnatcatcher on site in response to recovery of burned habitat. The 2003 Cedar Fire burned nearly 95% of the project site and left only small and disjunctive patches of coastal sage scrub. It was expected nearly all of the resident and relatively slow-flying species perished as a result of the fire. Furthermore, it was anticipated that it might take a number of years before gnatcatchers were able to recolonize habitat as it recovered due to the wide path of

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
						the fire. Based on the 2016 survey results, much of the habitat has recovered sufficiently to support viable populations. This species occurs within 5 miles of the project boundary (USFWS 2017). This species is known to occur within the vicinity[3] (CDFW 2017).
Rallus obsoletus levipes	Ridgway's rail	None/None/None/ None	Coastal wetlands, brackish areas, coastal saline emergent wetlands	NR	NR	Low potential to occur. Species not present due to lack of appropriate habitat.
Selasphorus rufus (nesting)	rufous hummingbird	BCC/None/None/None	Does not nest in California; migrates through a wide variety of habitats including coastal scrub, valley–foothill hardwood, and valley–foothill riparian habitats, and residential areas with feeders	NR	Observed in 2016.	Observed during 2016 coastal California gnatcatcher focused surveys. No expected to nest onsite. This species' location was not mapped due to low sensitivity.
Setophaga petechia (nesting)	yellow warbler	BCC/SSC/None/ None	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	NR	Observed in 2016.	Observed. This species was observed in the northwestern and southern portion of the site within coast live oak woodland, southern sycamore-alder riparian woodland, and non-native grassland. This species is known to occur within the vicinity[3] (CDFW 2017).
Sternula antillarum	California least	FE/SE, FP/None/None	Forages in shallow estuaries	NR	NR	Low potential to occur. Species

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
browni (nesting colony)	tern		and lagoons; nests on sandy beaches or exposed tidal flats			not present due to lack of appropriate habitat.
Spizella breweri (nesting)	Brewer's sparrow	BCC/None/None/ None	Nests in treeless shrub habitat with moderate canopy, especially sagebrush; winters in open desert scrub and croplands in southern Mojave and Colorado Deserts	NR	Observed in 2016.	Observed during focused surveys for Quino Checkerspot butterfly in 2016. Low potential to nest on site.
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE/Covered/ None	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Observed (2007).	Observed in 2016.	Observed. One least Bell's vireo was observed early in the breeding season in 1997. This bird left the project site, however, and did not breed. The willow scrub habitat recovered after the fire in 2003, and this species was observed in the northern portion of the site within coastal sage scrub and granitic southern mixed chaparral in 2016. This species occurs within 5 miles of the project boundary (USFWS 2017). This species is known to occur within the vicinity[3] (CDFW 2017).
Mammals						
Antrozous pallidus	pallid bat	None/SSC/None/ WBWG: H	Grasslands, shrublands, woodlands, forests; most common in open, dry	NR	Observed during 2016	Observed on site; low roost potential. This species is known to occur within the vicinity[3]

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
			habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees		focused bat surveys.	(CDFW 2017).
Chaetodipus californicus femoralis	Dulzura pocket mouse	None/SSC/None/ None	Open habitat, coastal scrub, chaparral, oak woodland, chamise chaparral, mixed-conifer habitats; disturbance specialist; 0 to 3,000 feet above mean sea level	NR	NR	Moderate potential to occur on site based on habitat in more dense shrub land. This species is known to occur within the vicinity[3] (CDFW 2017).
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None/SSC/None/ None	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland	Observed (1997, 2007).	NR	Observed. Documented on site during the 1997 trapping study and common in shrub habitat. This species is known to occur within the vicinity[3] (CDFW 2017).
Choeronycteris mexicana	Mexican long-tongued bat	None/SSC/None/ WBWG: H	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon–juniper woodland; roosts in caves, mines, and buildings	NR	NR	Low potential to occur. This site lacks suitable roosting and foraging habitat for this species. This species is known to occur within the vicinity[3] (CDFW 2017).
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC/None/ WBWG: H	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	NR	Observed during 2016 focused bat surveys.	Observed on site; low roost potential. This species is known to occur within the vicinity[3] (CDFW 2017).
Dipodomys	Stephens'	FE/ST/None/None	Annual and perennial	NR	NR	Not expected to occur. This site

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
stephensi	kangaroo rat		grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas			is outside of the species' known geographic range. Species was not observed during focused small mammal trapping surveys in 1997.
Euderma maculatum	spotted bat	None/SSC/None/ WBWG: H	Foothills, mountains, desert regions of southern California, including arid deserts, grasslands, and mixed-conifer forests; roosts in rock crevices and cliffs; feeds over water and along washes	NR	NR	Low potential to occur. This site lacks suitable roosting and foraging habitat for this species.
Eumops perotis californicus	western mastiff bat	None/SSC/None/ WBWG: H	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	NR	NR	Moderate potential to forage over site; low roost potential. This species is known to occur within the vicinity[3] (CDFW 2017).
Lasionycteris noctivagans	silver-haired bat	None/None/None/ WBWG: M	Old-growth forest, maternity roosts in trees, large snags 50 feet aboveground; hibernates in hollow trees, rock crevices, buildings, mines, caves, and under sloughing bark; forages in or near coniferous or mixed deciduous forest, stream or	NR	NR	Low potential to occur. This site lacks suitable roosting and foraging habitat for this species.

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
			river drainages			
Lasiurus blossevillii	western red bat	None/SSC/None/ WBWG: H	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy	NR	Observed during 2016 focused bat surveys.	Observed on site; low potential to roost. This site lacks suitable roosting and foraging habitat for this species. This species is known to occur within the vicinity[3] (CDFW 2017).
Lasiurus cinereus	hoary bat	None/None/None/ WBWG: M	Forest, woodland riparian, and wetland habitats; also juniper scrub, riparian forest, and desert scrub in arid areas; roosts in tree foliage and sometimes cavities, such as woodpecker holes	NR	NR	Low potential to occur. This site lacks suitable roosting and foraging habitat for this species. This species is known to occur within the vicinity[3] (CDFW 2017).
Lasiurus xanthinus	western yellow bat	None/SSC/None/ WBWG: H	Valley–foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet above mean sea level; roosts in riparian and palms	NR	Observed during 2016 focused bat surveys.	Observed on site; low potential to roost. This site lacks suitable roosting habitat for this species. This species is known to occur within the vicinity[3] (CDFW 2017).
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/SSC/None/None	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Observed (2007).	Observed in 2016.	Observed. Occurs across site in low numbers. This species is known to occur within the vicinity[3] (CDFW 2017).
Myotis ciliolabrum	western small-footed myotis	None/None/None/ WBWG: M	Arid woodlands and shrublands, but near water; roosts in caves, crevices, mines, abandoned buildings	NR	Observed during 2016 focused bat surveys.	Observed on site; low potential to roost. This site lacks suitable roosting and foraging habitat for this species. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
Myotis evotis	long-eared myotis	None/None/None/ WBWG: M	Brush, woodland, and forest habitats from sea level to 9,000 feet above MSL; prefers coniferous habitats; forages along habitat edges, in open habitats, and over water; roosts in buildings, crevices, under bark, and snags; uses caves as night roosts	NR	NR	Moderate potential to forage over site; low roost potential.
Myotis yumanensis	Yuma myotis	None/None/None/ WBWG: LM	Riparian, arid scrublands and deserts, and forests associated with water (streams, rivers, tinajas); roosts in bridges, buildings, cliff crevices, caves, mines, and trees	NR	Observed during 2016 focused bat surveys.	Observed on site; low roost potential. This species is known to occur within the vicinity[3] (CDFW 2017).
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC/None/ None	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Observed (1997).	Observed woodrat middens.	Observed. Recorded during previous studies. Occurs in low numbers. Observed woodrat middens in areas with dense coastal sage scrub. This species is known to occur within the vicinity[3] (CDFW 2017).
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC/None/ WBWG: M	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in	NR	Observed during 2016 focused bat surveys.	Observed on site; low potential to roost. Species not present due to unsuitable habitat. This species is known to occur within the vicinity[3] (CDFW 2017).

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
			high cliffs or rock outcrops with drop-offs, caverns, and buildings			
Nyctinomops macrotis	big free-tailed bat	None/SSC/None/ WBWG: MH	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water	NR	NR	Moderate potential to occur over site; low roost potential. This species is known to occur within the vicinity[3] (CDFW 2017).
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC/None/None	fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium	NR	NR	Not expected to occur. This site is outside of the species' geographic range; typically within 5 miles of coast.
Taxidea taxus	American badger	None/SSC/None/None	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	NR	NR	Low potential to occur. No sign (i.e. dens, or burrows) were observed during surveys. This species is known to occur within the vicinity[3] (CDFW 2017).
Invertebrates						
Bombus caliginosus	obscure bumble bee	None/None/None/SS	Open grassland coastal prairies, coast range meadows	NR	NR	Low potential to occur. There is lack of suitable habitat for this species.
Bombus crotchii	Crotch bumble bee	None/None/None/SS	Open grassland and scrub habitat	NR	NR	Low potential to occur. There is lack of suitable habitat for this species. This species is known to occur within the vicinity[3] (CDFW 2017).
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/None/Covered/ None	Vernal pools, non-vegetated ephemeral pools	Observed (2007).	Observed	Observed. Recorded during previous studies within 57 seasonal basins and absent within 171 seasonal basins on

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
						site (2007). This species was observed during the 2015/2016 focused surveys in 12 additional features, totaling 69 occupied and 166 unoccupied features. Occurs as the only branchiopod, mainly within dirt roads on site. This species occurs within 5 miles of the project boundary (USFWS 2017). This species is known to occur within the vicinity[3] (CDFW 2017).
Callophrys thornei	Thorne's hairstreak	None/None/None/SS	Interior cypress woodland dominated by host plant *Hesperocyparis forbesii* (Tecate cypress)	NR	NR	Low potential to occur. Species not present, suitable host plant not present.
Cicindela gabbii	western tidal-flat tiger beetle	None/None/None/SS	Inhabits estuaries and mudflats along the coast of Southern California	NR	NR	Low potential to occur. No suitable habitat present for this species.
Cicindela hirticollis gravida	sandy beach tiger beetle	None/None/None/SS	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico	NR	NR	Low potential to occur. No suitable habitat present for this species.
Cicindela latesignata latesignata	western beach tiger beetle	None/None/None/SS	Mudflats and beaches in coastal Southern California	NR	NR	Not expected to occur. No suitable vegetation present.
Cicindela senilis frosti	senile tiger beetle	None/None/None/SS	Inhabits marine shoreline, from Central California coast south to saltmarshes of San	NR	NR	Low potential to occur. No suitable habitat present for this species.

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
			Diego; also found at Lake Elsinore			
Cincindela latesignata obliviosa	Oblivious tiger beetle	None/None/None/SS	Inhabited the Southern California coastline, from La Jolla north to the Orange County line. Occupied saline mudflats and moist sandy spots in estuaries of small streams in the lower zone. Has not been observed in 20 years. The oblivious tiger beetle (*C. l. obliviosa*) is no longer the accepted name for this species (ITIS 2016).	NR	NR	Not expected to occur. No suitable vegetation present.
Coelus globosus	globose dune beetle	None/None/None/SS	Inhabitant of coastal sand dune habitat; erratically distributed from Ten Mile Creek in Mendocino County south to Ensenada, Mexico	NR	NR	Not expected to occur. No suitable vegetation present.
Danaus plexippus[4]	monarch	None/None/None/SS	Wind-protected tree groves with nectar sources and nearby water sources	Observed (2006).	Observed	Observed. Recorded during previous studies. Occasional individuals observed on site but over-wintering habitat not present.
Euphydryas editha quino	quino checkerspot butterfly	FE/None/Covered/ None	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include *Plantago erecta*, *Antirrhinum coulterianum*,	Observed (2007).	NR	Observed in 2005, but not observed since. Assumed moderate potential. Recorded observation in previous study. One individual was observed for a few seconds in 2005. Follow-up protocol-level surveys have been

Scientific Name	Common Name	Status[1] (Federal/State/Draft Santee MSCP Subarea Plan/Other)	Habitat	Previous Studies[2]	2015-2017 Surveys	Potential to Occur[3]
			and *Plantago patagonica* (Silverado Occurrence Complex)			negative. This species occurs within 5 miles of the project boundary (USFWS 2017). This species is known to occur within the vicinity[3] (CDFW 2017).
Euphyes vestris harbisoni	Harbison dun skipper	None/None/None/SS	Oak riparian drainages and adjacent seeps supporting host plant *Carex spissa*	NR	NR	Low potential to occur. Species not present, suitable host plant not present.
Helminthoglypta coelata	mesa shoulderband	None/None/None/SS	Known only from a few locations in coastal San Diego County	NR	NR	Low potential to occur. No suitable habitat present for this species.
Lycaena hermes	Hermes copper	FC/None/Covered/ None	Mixed woodlands, chaparral, and coastal scrub	Observed (2007).	NR	Observed. Recorded observations of individuals in 2003, 2004, and 2005 by Dudek biologists in 3 locations. This species is noted as being a poor colonizer of post-fire locations. Follow-up surveys have been negative for the species even though abundant habitat is now present. . This species was observed in the northern, central, and southern portion of the site within disturbed coastal sage scrub, and granitic southern mixed chaparral. This species is known to occur within the vicinity[3] (CDFW 2017).

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Melitta californica	California mellitid bee	None/None/None/SS	Desert regions of southwestern Arizona, southeastern California, and Baja California, Mexico; also collected from Torrey Pines, San Diego County	NR	NR	Low potential to occur. No suitable habitat present for this species.
Panoquina errans	wandering skipper	None/None/None/SS	Saltmarsh	NR	NR	Not expected to occur. Species not present, suitable habitat and host plant not present.
Streptocephalus woottoni	Riverside fairy shrimp	FE/None/Covered/ None	Vernal pools, non-vegetated ephemeral pools	NR	NR	Low potential to occur. Focused protocol-level surveys in 2004, 2005, 2015, and 2016 were negative. This species is known to occur within the vicinity[3] (CDFW 2017).
Tryonia imitator	mimic tryonia (=California brackishwater snail)	None/None/None/SS	Inhabits coastal lagoons, estuaries, and saltmarshes, from Sonoma County south to San Diego County	NR	NR	Not expected to occur. Suitable habitat and host plant not present.

[1] **Status Notes:**
FE: Federally Endangered
FT: Federally Threatened
FC: Federal Candidate
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
SSC: California Species of Special Concern
FP: California Fully Protected Species
WL: California Watch List Species
SE: State Endangered
ST: State Threatened
SS: List Special Animals List, but no other status
City Subarea Plan (City of Santee)
Covered: City Subarea Plan Covered Species
WBWG: Western Bat Working Group

H: High
HM: High-Medium
M: Medium
LM: Low-Medium
L: Low

[2] Previous studies include Dudek Resources and Impact Analysis Reports (Dudek 1997, 2005, 2006, 2007).

[3] Vicinity refers to records within the La Mesa, El Cajon, Poway, and San Vicente Reservoir quadrangles (CDFW 2017).

[4] San Diego ringneck snake and monarch are not addressed in the biological technical report given lack of special status.

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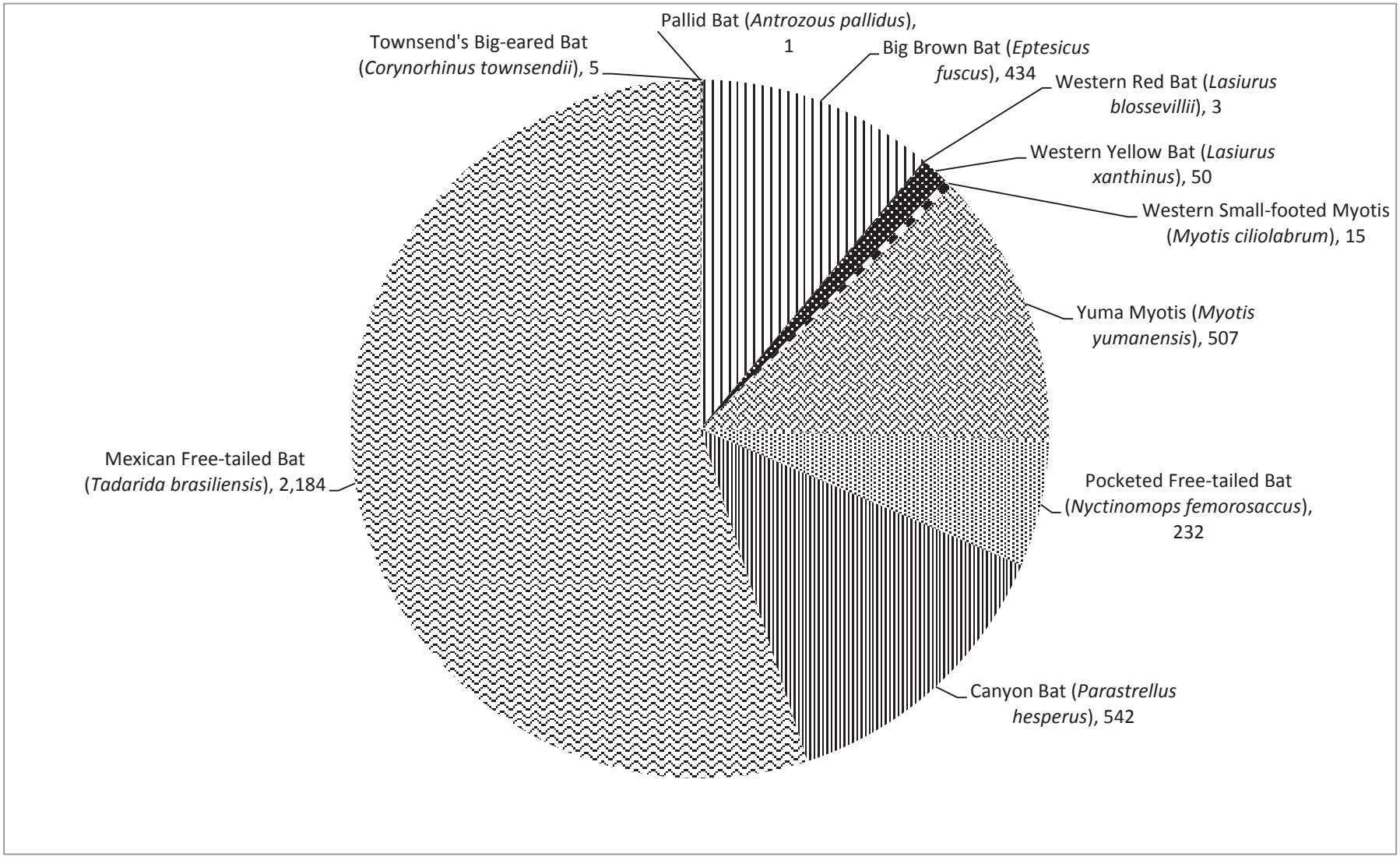
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APPENDIX O

2016 Focused Bat Survey Results at Fanita Ranch

APPENDIX O
2016 Focused Bat Survey Results at Fanita Ranch

Chart 1. Number of Minutes



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APPENDIX P

Preserve Management Plan

On-Site Preserve Management Plan for the Fanita Ranch Project

Prepared for the City of Santee

Lead Agency:

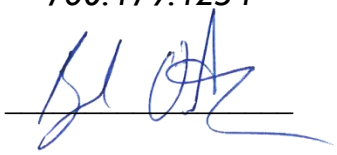
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ACRONYMS AND ABBEVIATIONS

Acronym/Abbreviation	Definition
ACOE	U.S. Army Corps of Engineers
BMP	best management practice
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
City	City of Santee
County	County of San Diego
CRPR	California Rare Plant Rank
EIR	Environmental Impact Report
EMP	Environmental Mitigation Program
Habitat Preserve	Fanita Ranch Habitat Preserve
HOA	Homeowner's Association
MCAS	Marine Corps Air Station
MM	Mitigation Measure
MSCP	Multiple Species Conservation Program
OHV	off-highway vehicle
PMP	Preserve Management Plan
RWQCB	Regional Water Quality Control Board
SDMMP	San Diego Management and Monitoring Program
USFWS	U.S. Fish and Wildlife Service

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1 INTRODUCTION

This on-site Preserve Management Plan (PMP) has been prepared for the proposed Fanita Ranch Project (project) in accordance with the mitigation requirements identified in the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a), and is intended to serve as the governing document for management of the on-site Fanita Ranch Habitat Preserve (Habitat Preserve). This PMP is consistent with the requirements of the Draft Santee Multiple Species Conservation Program (MSCP) Subarea Plan (City of Santee 2018) and the project's Environmental Impact Report (EIR). Both the Fanita Ranch EIR and the Draft Santee MSCP Subarea Plan require in-perpetuity management of the Habitat Preserve to ensure preservation of sensitive biological resources.

Approximately 1,650 acres of scrub, chaparral, grassland, riparian, oak woodland, and non-native communities are proposed for the project's on-site Habitat Preserve, which also includes the proposed trails and on-site temporary impact areas once restored. The bulk of the proposed Habitat Preserve consists of a 900-acre block of habitat located in the southern portion of the project site that is approximately 1 mile wide and 1.3 miles long. The Habitat Preserve would also include biological resource areas surrounding the two development bubbles that connect to open space areas contained within Marine Corps Air Station (MCAS) Miramar to the west, Goodan Ranch/Sycamore Canyon County Park to the north, and other open space areas to the east. This PMP includes a description of management tasks for the 1,650-acre on-site Habitat Preserve.

An off-site mitigation area is required to fulfill the project's mitigation requirements, and will provide mitigation of wetland habitat through a combination of habitat preservation, enhancement, restoration, and creation. See Section 1.1.1, Mitigation Measures that Require a PMP, for details on off-site mitigation.

1.1 Consistency with Environmental Documentation

This PMP is consistent with the requirements of the Draft Santee MSCP Subarea Plan (City of Santee 2018), the project's Biological Technical Report (Dudek 2020a), and the project's EIR. This PMP references and, when necessary, incorporates portions of all applicable mitigation plans outlined in the Biological Technical Report (Dudek 2020a).

The Draft Santee MSCP Subarea Plan provides general guidelines consistent with the MSCP Plan, and the management goals and area-specific management directives for each Preserve subunit within the City of Santee (City), including the Fanita Ranch Subunit. Within the context of the Draft Santee MSCP Subarea Plan, the current primary Habitat Preserve goals for the Fanita Ranch Subunit, of which the proposed project is the primary component, are as follows:

- Protect and enhance habitat to support Covered Species by requiring conservation of chaparral, coastal sage scrub, and vernal pools.

- Maintain a north/south wildlife movement corridor (with functional wildlife crossing) through the Fanita Ranch property.
- Maintain connectivity with the Draft Santee MSCP Subarea Plan Preserve System in the North Magnolia Subunit, open space areas on MCAS Miramar (to the west), and in San Diego County (to the north and east).
- Provide management and restoration of habitat to offset impacts to Covered Species and their habitats.
- Reduce edge effects and minimize disturbance during the nesting season.
- Implement a managing public access program that allows trail use within the Habitat Preserve area that is consistent with the goal of species and habitat protection.
- Implement fire protection measures to reduce the potential for habitat degradation due to unplanned fire.

As directed by the Draft Santee MSCP Subarea Plan, Section 7.2.2, Preparation of Preserve Management Plans, the PMP will be fully approved and fully implemented within 2 years of issuance of grading permit or within 2 years of the acquisition of the Habitat Preserve if the Habitat Preserve is acquired after City approvals. The PMP will be reviewed every 5 years and updated as necessary to prioritize management actions based on the changing Habitat Preserve needs. The PMP, including subsequent revisions, must be reviewed and approved by the City.

1.1.1 Mitigation Measures that Require an PMP

A resource analysis is provided in the Biological Technical Report for the proposed project (Dudek 2020a). The Biological Technical Report includes (1) a description of the existing biological resources on the project site, including vegetation communities and land covers, jurisdictional resources, plants, wildlife, and wildlife corridors; (2) a discussion of the potential impacts to biological resources that would result from development of the property and the biological significance of these impacts in the context of federal, state, and local laws and policies; and (3) recommended mitigation measures for reducing identified significant impacts to biological resources to less than significant. Mitigation recommendations follow federal, state, and local rules and regulations, including the California Environmental Quality Act (CEQA) and the Draft Santee MSCP Subarea Plan (City of Santee 2018). To fulfill the habitat mitigation requirements outlined in the Biological Technical Report (Dudek 2020a), Tables 1A and 1B were prepared and are included below.

Permanent impacts to 862.09 acres (including on- and off-site areas) of sensitive upland vegetation communities are anticipated with project implementation. A total of 1,303.33 acres of mitigation

would be required; however, the Habitat Preserve would conserve more than required by conserving 1,448.84 acres of sensitive upland vegetation communities (Table 1A).

Table 1A
Mitigation Requirements for Permanent Impacts to Sensitive Upland Vegetation Communities

Vegetation Community	On-Site Permanent Impacts (acres)	Off-Site Permanent Impacts[1] (acres)	Mitigation Ratio[2]	Total Mitigation Required (acres)[3]	Mitigation Credits	
					Habitat Preserve (acres)	*Restoration of On-Site Temporary Impacts[4] (acres)*
Scrub and Chaparral						
Diegan Coastal Sage Scrub	215.13	4.93	2:1	440.12	751.93	33.09
Diegan Coastal Sage Scrub (disturbed)	86.23	8.70	2:1	189.86	168.46	4.20
Diegan Coastal Sage Scrub (fire recovered)	4.72	0.17	2:1	9.78	1.29	—
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland	7.95	0.01	2:1	15.92	54.36	0.50
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (disturbed)	18.18	1.44	2:1	39.24	28.56	1.48
Diegan Coastal Sage Scrub–Non-native Grassland (disturbed)	19.18	—	2:1	38.37	8.28	—
Diegan Coastal Sage Scrub–Baccharis-dominated	15.66	—	2:1	31.33	4.74	0.62
Granitic Southern Mixed Chaparral	308.95	—	1:1	308.95	246.03	45.53
Scrub and Chaparral Subtota[5]	*676.01*	*15.25*	—	*1,073.56*	*1,263.65*	*85.43*
Grasslands, Vernal Pools, Meadows, and Other Herb Communities						
Valley Needlegrass Grassland	36.69	—	2:1	73.38	64.18	7.92
Valley Needlegrass Grassland (disturbed)	22.14	—	2:1	44.27	36.03	5.84
Non-native Grassland	109.46	2.50	1:1	111.96	81.31	11.40
Grasslands Subtotal[5]	*168.28*	*2.50*	—	*229.61*	*181.52*	*25.16*
Woodlands						
Coast Live Oak Woodland	*0.05*	—	*3:1*	*0.16*	*3.68*	—
Woodland Subtotal[5]	*0.05*	—	—	*0.16*	*3.68*	—
Total Acreage[5]	**844.34**	**17.75**	**—**	**1,303.33**	**+1,448.84**	**+110.59**

1 Off-site impacts include those associated with the Cuyamaca Street and Magnolia Avenue road extensions.
2 Mitigation ratios are based on Table 5-14 in City of Santee 2018.

[3] Mitigation for each vegetation community will be provided in-kind within the Habitat Preserve, where possible. If additional needs are still required, mitigation will be provided through out-of-kind, but biologically similar in function, communities within the Habitat Preserve or through on-site restoration of temporary impact areas.

[4] If temporary impact areas are not considered appropriate for restoration of the sensitive native plant community that originally was mapped in that area, these areas will be considered permanently impacted and mitigated in conformance with the mitigation measure for permanent impacts to sensitive upland vegetation communities, outlined in Table 1A.

[5] Totals may not sum due to rounding.

Permanent and temporary impacts to 9.81 acres (including on- and off-site areas) under U.S. Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) jurisdiction are expected with project implementation. A total of 24.07 acres of mitigation would be required; however, the Habitat Preserve would conserve more than required by conserving 32.31 acres of jurisdictional resources. See the Wetland Mitigation Plan, Appendix S of the Biological Technical Report for Fanita Ranch (Dudek 2020), for details on the on-site wetland mitigation program. Table 1B summarizes the project's impacts (including on- and off-site areas) and required mitigation ratios.

Table 1B
Mitigation Requirements for Impacts to Jurisdictional Aquatic Resources

Wetlands Vegetation Community	Permanent Impact Acreage (linear feet)	Temporary Impact Acreage (linear feet)	Total Impact Acreage (linear feet)	Mitigation Ratio[1,2]	Total Mitigation Requirement (acres)	Habitat Preserve Mitigation Credit Acreage (linear feet)
ACOE/RWQCB Wetlands and CDFW Riparian Areas						
Disturbed Wetlands	0.01 (57)	—	0.01 (57)	2:1	0.02	0.06 (89)
Coastal and Valley Freshwater Marsh	0.02 (52)	—	0.02 (52)	2:1	0.05	—
Disturbed Coastal and Valley Freshwater Marsh	0.12 (346)	—	0.12 (346)	2:1	0.24	—
Mulefat Scrub	0.11 (242)	0.34 (474)	0.45 (717)	3:1	1.35	1.13 (1,381)
Southern Arroyo Willow Riparian Forest	—	—	—	3:1	—	1.54 (1,416)
Southern Willow Scrub	0.72 (1,228)	0.03 (100)	0.74 (1,329)	3:1	2.23	0.04 (244)
Disturbed Southern Willow Scrub	0.48 (402)	—	0.48 (402)	3:1	1.45	—
ACOE/RWQCB/CDFW Subtotal	*1.46 (2,328)*	*0.37 (574)*	*1.83 (2,902)*	—	*5.33*	*2.78 (3,129)*
ACOE/RWQCB Non-Wetland Waters and CDFW Streambed						
Non-Vegetated Channel or Floodway	2.98 (46,160)	0.85 (14,389)	3.82 (60,549)	2:1	7.64	5.84 (67,011)
ACOE/RWQCB Non-Wetland Waters and CDFW Riparian Habitat						
Disturbed Wetlands	0.02 (64)	—	0.02 (64)	2:1	0.03	—

Table 1B
Mitigation Requirements for Impacts to Jurisdictional Aquatic Resources

Wetlands Vegetation Community	Permanent Impact Acreage (linear feet)	Temporary Impact Acreage (linear feet)	Total Impact Acreage (linear feet)	Mitigation Ratio[1,2]	Total Mitigation Requirement (acres)	Habitat Preserve Mitigation Credit Acreage (linear feet)
CDFW Only Riparian Habitat						
Arundo-Dominated Riparian	0.95 (1,046)	0.44 (459)	1.38 (1,505)	2:1	2.77	0.02 (66)
Coast Live Oak Woodland	2.37 (935)	0.03 (42)	2.40 (978)	3:1	7.19	22.68 (11,731)
Mulefat Scrub	0.04 (87)	0.06 (86)	0.10 (174)	3:1	0.29	0.03 (51)
Southern Sycamore–Alder Riparian Woodland	0.17 (967)	0.04 (175)	0.21 (1,142)	3:1	0.62	0.96 (978)
Southern Willow Scrub	0.07 (96)	—	0.07 (96)	3:1	0.20	—
CDFW Only Subtotal	*3.59 (3,132)*	*0.56 (726)*	*4.15 (3,895)*	—	*11.07*	*23.70 (12,827)*
Total Acreage	**8.04 (50,941)**	**1.77 (15,865)**	**9.81 (67,410)**	**—**	**24.07**	**32.31 (82,967)**

ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.
1 Mitigation ratios are based on City of Santee 2018.
2 Temporary impacts would occur from the grading buffer and manufactured slopes, which are unlikely to provide in-place restoration. Therefore, temporary impacts will be considered permanent and mitigated accordingly.

To fulfill mitigation requirements for impacts to wetlands, additional off-site mitigation will be required. The off-site mitigation will provide wetland habitat through of a combination of habitat preservation, enhancement, restoration, and creation. With this mitigation program, wetland habitat that is comparable in habitat type and quality to the impact area will be enhanced, restored, or created within the City of Santee's jurisdiction, and within the San Diego River and/or its tributaries. The off-site mitigation program will be subject to the same standards and rules as the on-site mitigation program, including management of access control, invasive species, and native vegetation cover and diversity. Off-site restoration will include these management efforts, as well as a program of revegetation of wetland species with planting and seeding. The off-site habitat creation/re-establishment will also include potential topographic alteration to expand and create bed and bank areas appropriate for the establishment of new wetland habitat. At least 7.53 acres of off-site mitigation will be habitat creation and/or re-establishment. This total is based on the current aquatic resource assessment and impacts, and the no-net-loss requirement in the Draft Santee MSCP Subarea Plan. Table 1C summarizes the location where mitigation will occur based on the current aquatic resource assessment and impacts.

Table 1C
Mitigation Requirement Summary

Type	Mitigation Required			Available Acreage On-Site			Off-Site
	Jurisdictional Aquatic Resource	*Vernal Pools*	*Total*	*Jurisdictional Aquatic Resource*	*Vernal Pools*	*Total*	
Preservation/Enhancement	14.26	0.09	14.35	9.40[1]	0.25	9.65	4.70[2]
Creation/Re-Establishment (1:1 no-net-loss)	9.81	0.41	10.22	0.02	2.67	2.69	7.53[3]
Total	**24.07**	**0.50**	**24.57**	**9.42**	**2.92**	**12.34**	**12.23**

1 This total includes 0.78 acres of ACOE/RWQCB habitat within the two internal drainages (impact neutral areas), and 8.62 acres within the Habitat Preserve. Total does not include 23.68 acres of CDFW-only riparian habitat, composed mostly of coast live oak woodland (22.68 acres), within the Habitat Preserve, or 2.07 acres of CDFW-only resources within the impact neutral areas.

2 Off-site preservation/enhancement may occur at the 11-acre parcel, owned by the project proponent, adjacent to the lower Santee Lakes to satisfy the off-site preservation/enhancement requirement.

3 This is the minimum amount required based on the current aquatic resource assessment and impacts, and the no-net-loss requirement in the Draft Santee MSCP Subarea Plan. The City of Santee has agreed to allow the off-site creation/re-establishment mitigation component to be completed within City-owned lands in the same hydrologic unit, next to the San Diego River. Based on preliminary evaluations, several opportunities have been identified to provide off-site mitigation for the remaining creation/re-establishment mitigation component, indicating that it is feasible to accomplish the off-site compensatory mitigation.

1.2 Purpose of Preserve Management Plan

Under the Draft Santee MSCP Subarea Plan, the City requires the preparation of a preserve-specific PMP to guide Habitat Preserve management activities. The purpose of this PMP is to ensure preservation and long-term management of the Habitat Preserve, and to implement the requirements of the Fanita Ranch EIR and Draft Santee MSCP Subarea Plan. The objectives of this PMP are as follows:

- Guide management of vegetation communities/habitats, MSCP Covered plant and wildlife species, nesting birds, and programs described herein to protect and, where appropriate, enhance biological values.
- Maintain and enhance existing functional wildlife movement corridors across the Habitat Preserve into adjacent MSCP Conservation Areas.
- Serve as a descriptive inventory of vegetation communities, habitats, and plant and wildlife species that occur on or use the Habitat Preserve.
- Establish the baseline conditions from which adaptive management will be determined and success will be measured.
- Monitor compatible (and incompatible) uses within and adjacent to the Habitat Preserve such that effects on biological resources are avoided or minimized.
- Provide an overview of the operation, maintenance, administrative, and personnel requirements to implement management goals and serve as the budget planning vehicle for

the preparation of the Property's Analysis Record used to calculate initial and ongoing management costs.

- Provide education and outreach to community members (e.g., residents, agencies) that emphasize the need for collective responsibility in maintaining an important public resource and implement a public access program that allows trail use within the Habitat Preserve consistent with the goal of species and habitat protection.

1.3 Agency Review and Coordination

The natural resources addressed by this PMP are within the jurisdiction of a variety of agencies in addition to the City, including CDFW, the U.S. Fish and Wildlife Service (USFWS), ACOE, and RWQCB. Generally, these agencies may not act on a project until the local land use agency, in this instance the City, has certified an environmental document pursuant to CEQA. The City and applicant will interact and coordinate with other public agencies with jurisdiction over the project during environmental review; during City consideration of the project for approval; and, if approved, during implementation of the PMP.

1.4 Implementation

The Draft Santee MSCP Subarea Plan Preserve System will be assembled from a variety of components, including lands to be set aside as on-site and off-site mitigation, as is the case for the Fanita Ranch Habitat Preserve, which is considered to be a hardline area by the Draft Santee MSCP Subarea Plan. As part of the project approval process, the City will require the hardline preserves to be managed consistent with the management and monitoring requirements set forth in Section 7.2, Preserve Management and Monitoring, of the Draft Santee MSCP Subarea Plan. Additionally, the City will work with the Preserve Manager to coordinate management and monitoring activities with outside agencies, including ACOE, USFWS, RWQCB, and CDFW, to ensure a cohesive and standardized approach for management and monitoring within the Preserve System throughout the MSCP Subarea Plan planning area.

1.4.1 Responsibilities and Responsible Parties

Preserve Manager

The primary duty of the Preserve Manager will be to manage and monitor the Habitat Preserve pursuant to the approved PMP. The Preserve Manager will also report periodically to the City-appointed Santee MSCP Subarea Plan Coordinator and/or Preserve Steward regarding the status of the Habitat Preserve, progress of active management actions, and issues that need addressing. The Preserve Manager will participate in biannual (twice a year) meetings with other Preserve Managers within the Draft Santee MSCP Subarea Plan area to facilitate regional monitoring efforts

to help reduce costs through the sharing of resources and data, ensuring access to properties within the Draft Santee MSCP Subarea Plan Preserve System. Preserve Managers will also develop a public outreach program to educate the public about land stewardship, proper trail use, edge effects, local plants and animals, and other pertinent conservation issues.

Management responsibility for the revegetation/restoration areas will remain with the restoration entity (typically up to 5 years) until restoration/revegetation has been completed. Upon City/agency acceptance of the revegetated/restored area, management responsibility for the revegetation/restoration area will be transferred to the Preserve Manager.

The Preserve Manager will be an independent third party separate from the Homeowner's Association (HOA), City, and developer. Initially, the developer will hire and fund the Preserve Manager; however, once the HOA is formed, it will gradually take over funding responsibility for the Preserve management and the Preserve Manager position. The HOA will not direct, in any way, the activities of the Preserve Manager.

Implementation of this PMP will require performing monitoring and management activities within the prescribed yearly budgets, overseeing any consultant/contractor activities, providing an annual report and updating the PMP per its requirements, maintaining ongoing documentation of resource health and management actions, enforcing Habitat Preserve restrictions through active patrols and communication with the HOA and the City of Santee, educating the public through official Habitat Preserve facilities, and overseeing and coordinating volunteer or research activities within the Habitat Preserve. The Preserve Manager will be approved in writing by the City and Resource Agencies (i.e., ACOE, RWQCB, CDFW, and USFWS). The Preserve Manager will also coordinate with local conservancy groups, such as the San Diego River Conservancy and the Endangered Habitats Conservancy. Any change in the designated Preserve Manager will be approved in writing by the City and Resource Agencies. Appropriate qualifications for the Preserve Manager include the following:

- Ability to carry out or manage habitat monitoring or mitigation activities.
- Ability to maintain fiscal stability, including preparation of an operational budget (using a Property Analysis Record or other appropriate analysis technique) for the management of this PMP.
- Have at least one staff member with a biological, ecological, or wildlife management degree from an accredited college or university, or have a Memorandum of Understanding with a qualified person with such a degree.
- If cultural sites are present, have a cultural resource professional on staff or a Memorandum of Understanding with a cultural consultant.
- Five years of experience with habitat and cultural resource management in Southern California.

Developer and Homeowner's Association

HomeFed will act as the Declarant of the HOA until more than 50% of the homes within the Development Area are occupied, as determined by HomeFed and the City of Santee. The HOA will play a critical role in the dissemination of information and the assessment of fines and other enforcement actions against those violating Habitat Preserve restrictions. There will be a direct, regular line of communication between the Preserve Manager and the HOA to quickly inform residents of issues with the Habitat Preserve.

The HOA will provide all member homeowners information, prepared by the Preserve Manager, about the Habitat Preserve; the importance of protecting its natural resources; the rights and responsibilities of HOA members in using and protecting the Habitat Preserve (i.e., compatible uses and prohibited activities); self-policing and monitoring; and who to contact if HOA members observe prohibited activities in the Habitat Preserve, either by other HOA members or by the general public. In addition, the HOA may establish voluntary member patrols and implement other activities that promote protection and management of the Habitat Preserve (e.g., designated trash clean-up and tree planting days) by investing residents in the care of the Habitat Preserve.

City of Santee

When the Draft Santee MSCP Subarea Plan is approved, the City will assume management responsibility for Habitat Preserve lands within the City limits pursuant to the Santee Subarea Plan and the Implementing Agreement for the Santee MSCP Subarea Plan. However, even without finalization and approval of the Santee MSCP Subarea Plan, all of the City's responsibilities described here for the Fanita Ranch Habitat Preserve will still apply. The City will be required to oversee implementation of the PMP through the review of annual reports and on-site inspections, and to coordinate with regional information gathering efforts. The City will support enforcement needs recommended by the Preserve Manager through appropriate law enforcement actions and adoption of appropriate City codes and ordinances that implement the Draft Santee MSCP Subarea Plan.

Resource Agencies

USFWS and CDFW will also review reports provided by the Preserve Manager, as appropriate to their respective mission, and may conduct site inspections to ensure that the approved PMP is properly implemented. Pursuant to the MSCP Plan, USFWS and CDFW, in cooperation with the San Diego Management and Monitoring Program and local jurisdictions, committed to conduct long-term species monitoring under the MSCP. These monitoring efforts include species counts that supplement the monitoring requirements outlined in this PMP. USFWS and CDFW will coordinate and share information with the Preserve Manager when conducting such monitoring.

1.4.2 Financial Responsibility and Mechanism

In accordance with Mitigation Measure (MM) BIO-1 outlined in the Biological Technical Report (Dudek 2020a), preservation of on-site open space requires recordation of a Habitat Preserve conservation easement, and a commitment to fund and manage in perpetuity in accordance with the PMP. As stated in the Draft Santee MSCP Subarea Plan, a conservation easement or equivalent land protection mechanism (e.g., Restrictive Covenant) will be recorded for the Habitat Preserve. The land protection mechanism will be recorded prior to issuance of a grading permit or first ground-disturbing activity. Conservation easements or equivalent land protection mechanisms will be held by appropriate entities, depending on the Preserve Manager and the resource agencies, which may elect to be a third-party beneficiary. The land protection mechanisms and entities will be subject to City review and approval.

The project applicant is responsible for all PMP funding requirements, including direct funding to support the PMP start-up tasks and an ongoing funding source for annual tasks that is tied to the property to fund long-term PMP implementation. HomeFed will ensure funding for long-term management through assessments from the HOA, which will be guaranteed through a dormant Community Facilities District, or comparable funding mechanism pursuant to the 2008 U.S. Environmental Protection Agency Compensatory Mitigation Rule, to be used by the Preserve Manager to implement the PMP. Start-up tasks include sign installation around the on-site Habitat Preserve (where appropriate), fencing at select locations in the Habitat Preserve, select trail closure and restoration initiation, and database compilation. Long-term tasks involve the management and maintenance of the Habitat Preserve in perpetuity, including habitat monitoring and mapping, exotic species control (as needed), and general monitoring and reporting. These habitat management tasks commence immediately upon initiation of long-term management by the Preserve Manager prior to the issuance of a grading permit.

1.4.3 Conceptual Cost Estimate

An initial Property Analysis Record will be prepared based on the biological resource management tasks identified in this PMP. Table 2 includes the biological resource management tasks that are planned for the Habitat Preserve. A final, ongoing Property Analysis Record and cost estimate will be prepared for the Habitat Preserve when a Preserve Manager has been selected and approved by the City.

Table 2
Resource Management Tasks

Check if Applies	Tasks	Frequency (Times per Year)	Hours Required Per Year
Biological Tasks			
✓	Baseline inventory of resources (if original inventory is over 5 years old)	One time	200 (initial)
✓	Update biological mapping	Once every 5 years	8 (40 hours every 5 years) (ongoing)
✓	Update aerial photography	Once every 5 years	8 (40 hours every 5 years) (ongoing)
✓	Removal of invasive botanical species	As needed	120 (ongoing)
✓	Brown-headed cowbird control	As needed	TBD (ongoing)
✓	African clawed frog and bullfrog control	As needed	TBD (ongoing)
✓	Argentine ant control	As needed	TBD (ongoing)
✓	Predator control	As needed	40 (ongoing)
✓	Habitat restoration/installation	As needed	TBD (initial)
✓	Habitat restoration/monitoring and management	As needed	TBD (ongoing)
✓	Species Surveys: 1. Focused protocol surveys for MSCP Covered wildlife species 2. Focused rare plant surveys for MSCP Covered Species	1. Once every 5 years 2. Once every 5 years	TBD (ongoing)
✓	Species management	As needed	20 (ongoing)
✓	Noise management, if required	As needed	20 (ongoing)
✓	Monitoring	Monthly	100 (ongoing)
Operations, Maintenance, and Administration Tasks			
✓	Establish and maintain database and analysis of data	Annually	8 (initial)
✓	Write and submit annual report to City	Annually	24 (ongoing)
✓	Submit review fees for City review of annual report	Annually	TBD (ongoing)
✓	Review and, if necessary, update Management Plan	Every 5 years	4 (20 hours every 5 years) (ongoing)
✓	Construct permanent signs	One time	80 (initial)
✓	Replace signs	As needed, estimate 20 signs a year	16 (ongoing)
✓	Construct permanent fencing/gates	One time	200 (initial)
✓	Maintain permanent fencing/gates	As needed, estimate 100 feet per year	8 (ongoing)
✓	Remove trash and debris	Monthly	40 (initial/ongoing)
✓	Coordinate with DEH and Sheriff	As needed	16 (ongoing)
✓	Maintain access roads	As needed	TBD (ongoing)
✓	Install stormwater BMPs (included in more detail in the stormwater management plan and will vary depending on the installation sites)	As needed	TBD (ongoing)

Table 2
Resource Management Tasks

Check if Applies	Tasks	Frequency (Times per Year)	Hours Required Per Year
✔	Maintain stormwater BMPs	As needed	TBD (ongoing)
✔	Maintain regular office hours	As needed	TBD (ongoing)
✔	Inspect and service heavy equipment and vehicles	As needed	TBD (ongoing)
✔	Inspect and maintain fuel tanks needed for mowing and other machinery.	As needed	TBD (ongoing)
✔	Coordinate with utility providers and easement holders (SDG&E and HOA)	Annually	8 (ongoing)
✔	Manage hydrology (as required)	As needed	TBD (ongoing)
✔	Coordinate with law enforcement and emergency services (e.g., fire)	Annually	Included in "Coordinate with utility providers and easement holders" task (ongoing)
✔	Coordinate with adjacent land managers	As needed	TBD (ongoing)
✔	Remove graffiti and repair vandalism	As needed	40 (ongoing)
	Public Use Tasks		
✔	Construct trail(s)	One time	TBD (initial)
✔	Monitor, maintain/repair trails (unless a trail easement has been granted to the City)	As needed	TBD (ongoing)
✔	Control public access	Quarterly	20 (ongoing)
✔	Provide ranger patrol	Quarterly	This task is combined with the "Monitoring visits" task (ongoing)
✔	Provide Neighbor Education – Community Partnership	Quarterly (based on monthly monitoring results)	TBD (ongoing)
✔	If HOA is funding management, provide annual presentation to HOA	As needed	TBD (ongoing)
✔	Coordinate volunteer services	As needed	TBD (ongoing)
✔	Provide emergency services access/response planning	As needed	TBD (ongoing)
	Fire Management Tasks		
✔	Coordinate with applicable fire agencies and access (e.g., gate keys) for these agencies	Annually	4 (ongoing)
✔	Plan fire evacuation for public use areas	Annually	40 (ongoing)
✔	Protect areas with high biological importance	Every 5 years	This will be covered with the adaptive management for special-status wildlife and plant species (ongoing).
✔	Assist HOA with fire code compliance (includes maintenance of brush management areas)	Annually	20 (ongoing)
✔	Thinning and/or dethatching of non-native grasses to maintain open habitat for species and reduce fire intensity	As needed (based on monthly monitoring results)	TBD (ongoing)

Table 2
Resource Management Tasks

Check if Applies	Tasks	Frequency (Times per Year)	Hours Required Per Year
Post-Fire Tasks			
✔	Control post-fire erosion	Every 15 years	Assumes lump sum budget of $150,000 every 15 years (ongoing)
✔	Remove post-fire sediment	Every 15 years	Included with erosion task (ongoing)
✔	Reseed after fire	Every 15 years	Assumes that there will be a fire every 15 years that will require a response that may include 3 acres of revegetation every 15 years ($75,000 lump sum) (ongoing)
✔	Replant after fire	Every 15 years	Included with reseed after fire (ongoing)

Notes: TBD = to be determined; MSCP = Multiple Species Conservation Program; DEH = Department of Environmental Health; BMP = best management practice; SDG&E = San Diego Gas & Electric; HOA = Homeowner's Association.
Hours are estimated and may fluctuate based on on-the-ground conditions.

1.4.4 Reporting Requirements

The Preserve Manager will prepare an annual report that summarizes monitoring and management activities on the Habitat Preserve, including baseline surveys, general stewardship monitoring, impacts of public use and the effectiveness of enforcement, effectiveness monitoring, and targeted monitoring. The report will document monitoring results and link results to goals and objectives. The report will identify new and ongoing management issues and threats and stressors, and provide recommendations for future monitoring, management, and research. The annual reports will be submitted to the Santee MSCP Subarea Plan Coordinator and HOA on or before November 1 of each calendar year, with the HOA or City thereafter transmitting the annual report with any comments to the Wildlife Agencies on or before November 21. The final comments will be provided to the Preserve Manager by December 15, and a final work plan, based on collective comments received, will be prepared by December 31.

The annual reports will provide, at minimum, the following information:

- A summary of activities pertinent to monitoring and management.
- Identification of monitoring and management priorities for that year.
- The sample sites and data collected in terms of personnel involved, frequency, timing, and duration.

- A description of the data analysis and results.
- Photo-documentation of monitored locations, using the same locations to mark progress over time.
- Synthesis/integration of the year's monitoring and management results with previous years, as applicable (e.g., analyzing apparent trends).
- An evaluation of the year's work plan in relation to achieving or progressing toward the monitoring and management goals of the PMP.
- Identification of significant problems or successes with the PMP that may alter the monitoring and management program approach, such as the following:
    - Whether the field protocols or analytic methods are satisfactorily addressing the monitoring/management objectives (e.g., are the measurement methods sensitive enough?), and whether sampling or analysis methods need revision.
    - Whether the data, based on the "working management thresholds," indicate that a vegetation community is declining or degrading at a rate that an immediate, possibly unanticipated action is required.
    - Whether the data indicate an earlier than expected positive response of a vegetation community to a management action such that continued testing is unnecessary or becomes a lower priority.
- Suggested changes/revisions to the work plan based on the points listed above.
- Suggested monitoring and management priorities for the coming calendar year.
- Description of habitat enhancement actions, including their location and the nature of activities, and evidence of success of enhancement actions relative to the number of years since inception of habitat treatment.
- A description of the upcoming activities under the Enhanced Habitat Management Program, including initial and follow-up treatments; plant and seed material quantity requirements and schedules for acquisition and propagation; and anticipated weed control activities and identification of treatment locations, target weed species, and intended control methods (e.g., manual, chemical, and/or grazing).
- A financial accounting of funds expended for Habitat Preserve monitoring and management in the previous calendar year.
- Suggested revisions to coming year's budget based on the above factors, if necessary.

In addition, the following information will be submitted with the annual report for inclusion in the City GIS (and other) databases.

- A digital copy of monitoring data, including metadata (e.g., Excel spreadsheet).
- Spatial data (GIS shapefiles).
- Photo-documentation.
- A comprehensive annual assessment identifying and documenting the major threats to conserved habitat and Covered Species, impacts from public use, management needs, and issues requiring focused research.

1.4.5 Preserve Management Plan Agreement

When a PMP is required for a project, the City will also require a separate agreement with the applicant who is preparing the PMP. The PMP Agreement will be executed at the time the City accepts the Final PMP. The PMP Agreement will obligate the applicant to implement the PMP and provide the source of funding to pay the cost to implement the PMP in perpetuity. The PMP Agreement will also provide a mechanism for the funds to be transferred to the City if the Preserve Manager fails to meet the goals of the PMP. The PMP Agreement will specify that PMP funding or a funding mechanism be established prior to the following milestones:

- For subdivisions, prior to the approval of grading plans.
- For permits, prior to construction or use of the property in reliance on the permit.

The PMP Agreement will be provided by the Preserve Manager once the City approves the final PMP.

1.5 Limitations and Constraints

Specific internal and external management constraints that may affect meeting PMP goals have not been identified for this PMP. Examples of potential constraints that may be applicable include the following:

- Environmental factors such as the influence of local water availability (either surface or subsurface waters), introduction or spread of non-native species, presence of threatened or endangered species, fire, flood, drought, erosion, air pollution, and hazardous waste materials.
- Legal, political, or social factors that influence or mandate certain types of management; special permitting requirements (e.g., ACOE, USFWS, archaeological sites); City Ordinances (e.g., nuisance abatement); Memorandums of Understanding; or other special pre-existing agreements with private or public entities for water, timber, or mineral rights for the area.

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2 PROPERTY DESCRIPTION

2.1 Location

The Fanita Ranch project site (project site) totals approximately 2,638 acres, with an additional 32.60 acres of off-site impacts from the road extensions of Magnolia Avenue and Cuyamaca Street. The project site is located in the northwest portion of the City of Santee in central San Diego County, California (Figure 1, Regional, and Figure 2, Vicinity). The project site is approximately 18 miles east of downtown San Diego and 22 miles north of the U.S./Mexico border.

The project site is bordered primarily by City residential neighborhoods to the south and the unincorporated residential communities of Lakeside and Eucalyptus Hills to the east. To the northeast, active mining operations occur in Slaughterhouse Canyon and are separated by a large hillside. To the north, Sycamore Canyon Open Space Preserve, owned by the County of San Diego (County), and unincorporated vacant lands border the project site. Farther north lies the Goodan Ranch Regional Park, which is jointly owned by the Cities of Santee and Poway, the County, and the State of California. West of the project site is MCAS Miramar and the Santee Lakes Recreation Preserve, owned and operated by Padre Dam Municipal Water District.

The project site lies north of State Route 52 and west of State Route 67. The project site occupies portions of Township 15 South, Range 1 West, projected Sections 2, 3, 4, 8, 9, 10, 16, 17, 20, and 21 on the San Vicente Reservoir, El Cajon, La Mesa, and Poway West U.S. Geological Survey 7.5-minute quadrangle maps.

2.2 Environmental Setting

The following is summarized from the Biological Technical Report for the proposed project (Dudek 2020a). The project site consists of open space supporting both native and non-native vegetation communities. The project site is in a dry climate with monthly average temperatures near the City ranging from approximately 49°F to 80°F. The City generally receives an average annual rainfall of 15.58 inches per year (Western Regional Climate Center 2018).

Elevations range from about 320 feet above mean sea level in the southern end of Fanita Parkway to approximately 1,204 feet above mean sea level in the northeastern corner of the project site. The project site contains a series of northeast- to southwest-trending hills and valleys that form a transition between the relatively low, flat Sycamore Canyon on the western end of the project site and the foothills of the Peninsular Range to the east. Numerous large rock outcrops are also present on site, particularly in the northern and northeastern portions of the property.

Slope gradients vary widely, ranging from 0% to 10% in the northwest to 11% to 25% near ridgetops, with occasional instances of 26% to 40% throughout the project site, and a concentration

of 41% or greater slopes in the southern and northeastern portions of the project site. Gentle and moderate slopes predominate in the valley floor in the northwest and west-central portions of the project site, with more gently sloping or relatively level terrain on the remainder of the project site.

The U.S. Department of Agriculture Soil Survey mapped most of the project site as being underlain by the following soil types: Bosanko clay (Bsc), Cieneba rocky coarse sandy loam (CmE2), Cieneba very rocky coarse sandy loam (CmrG), Diablo clay (DaE), Diablo-Olivenhain complex clay (DoE), Las Flores loamy fine sand (LeC), Las Posas stony fine sandy loam (LrE, LrG), Linne clay loam (LsE), Redding gravelly loam (RdC), Redding cobbly loam (ReE, RfF), Redding-Urban land complex (RhC), Salinas clay loam (SbA), Visalia gravelly sandy loam (VbB), and Wyman loam (WmC). Portions of the project site are also mapped as "stony land" (SvE). The following soil types were mapped only within off-site areas (including Cuyamaca Street and Magnolia Avenue): Cieneba-Fallbrook rocky sandy loams (CnE2), Greenfield sandy loam (GrC), and Ramona sandy loam (RaB) (USDA 2016). There are six soil types occurring within the project site that are known to support sensitive plants species: Bosanko clay, Diablo clay, Diablo-Olivenhain complex, Las Flores loamy fine sand, Las Posas stony fine sandy loam, and Redding gravelly loam. Overall, approximately 650.74 acres on site (24.7%) contain soils that potentially provide a substrate for sensitive plant species.

Although the Draft Santee MSCP Subarea Plan has not yet been approved or permitted, it is used as the guidance document for projects occurring within the City of Santee. The proposed project would qualify as a Covered Project under the Draft Santee MSCP Subarea Plan and would contribute to more than half of the Draft Santee MSCP Subarea Plan Preserve System.

2.3 Land Use

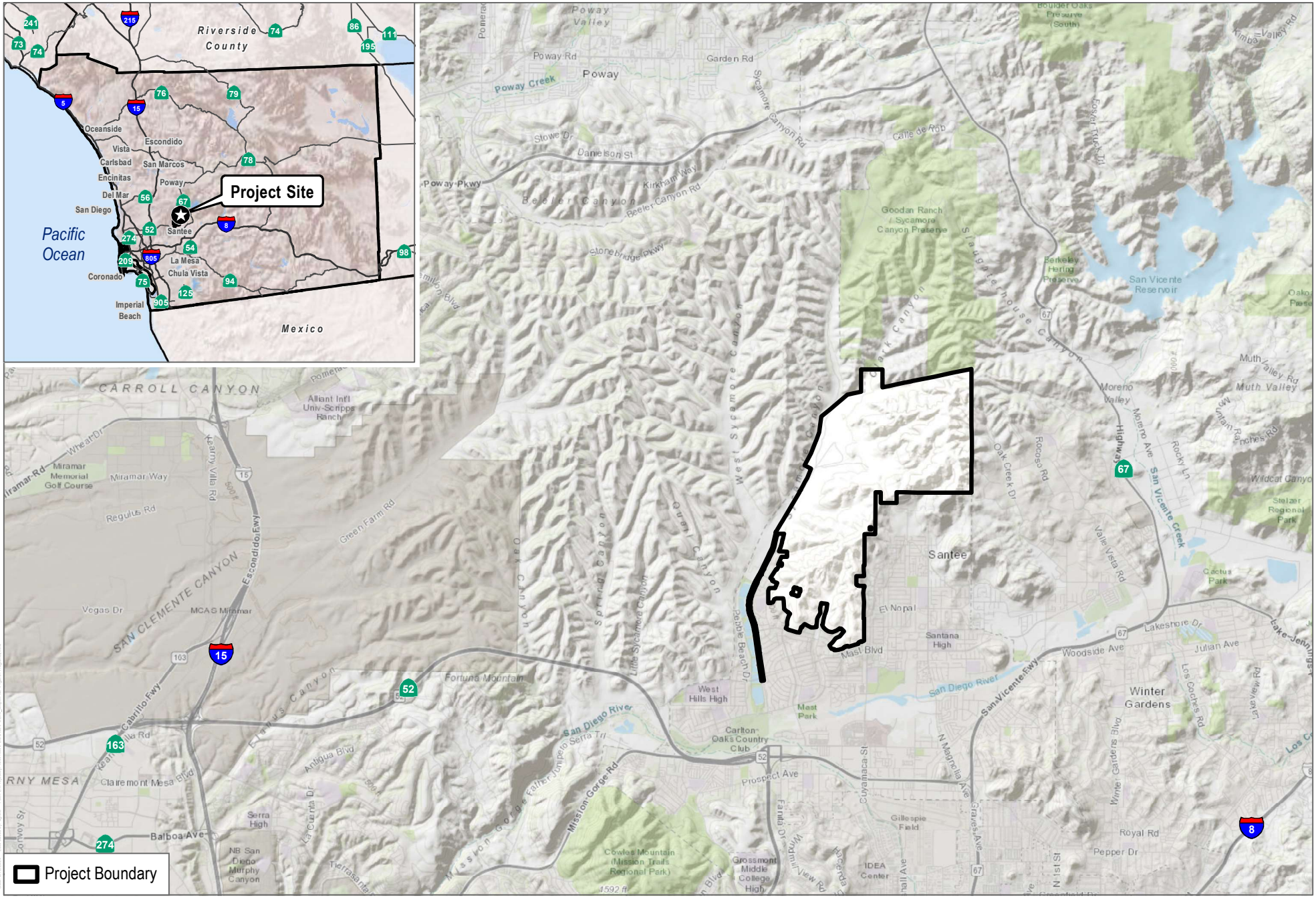
More than half of the project site (1,650 acres, or 63%) would be preserved as permanent open space, known as the Habitat Preserve. The Habitat Preserve applies to open space areas outside the limits of development, but includes specific revegetated slopes at the edge of the development area (Figure 3, Land Use). The bulk of the open space area, an approximate 900-acre block, is located in the southern portion of the project site. This area currently includes a complex, approximately 35-mile-long system of private dirt roads and trails, many of which are subject to frequent illegal off-highway-vehicle (OHV) traffic and unauthorized human activities that have been detrimental to the sensitive habitats in the Habitat Preserve. Areas between and surrounding the villages were selected to be in the Habitat Preserve based on the high-quality habitat and the opportunity to provide wildlife movement corridors in these locations.

After project buildout, parks distributed throughout the development would provide trail access and serve as the primary access point to the trail system in the Habitat Preserve. Manufactured slopes on the exterior of the development footprint would be revegetated to blend with the adjacent

landscape. Low-water-use, native, and naturalizing plant materials will make up the landscape plant palette. Fuel modification is proposed for the entire exterior perimeter of the project site, along roadways, and for interior landscaped areas adjacent to natural open space. The fuel modification zones will include low-fuel, maintained vegetation, including 65 feet of irrigated zone, resulting in high fuel moisture.

Currently, the Habitat Preserve contains a dirt road utility easement for San Diego Gas & Electric that provides access to power transmission towers. There are several other easements located on the Fanita Ranch project site. Easements are listed and described on Sheet 34 of the Vesting Tentative Map/Preliminary Grading Plan and shown on Sheets 35 and 36 of the Vesting Tentative Map/Preliminary Grading Plan. Project parcels are shown on Sheet 33 of the Vesting Tentative Map/Preliminary Grading Plan (Appendix A).

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SOURCE: SANGIS 2019; USGS Topographic World Map

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FIGURE 1

Regional

On-Site Preserve Management Plan for the Fanita Ranch Project

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Project Boundary

SOURCE: USGS 7.5-Minute Series El Cajon, La Mesa, Poway, San Vicente Reservoir Quadrangles

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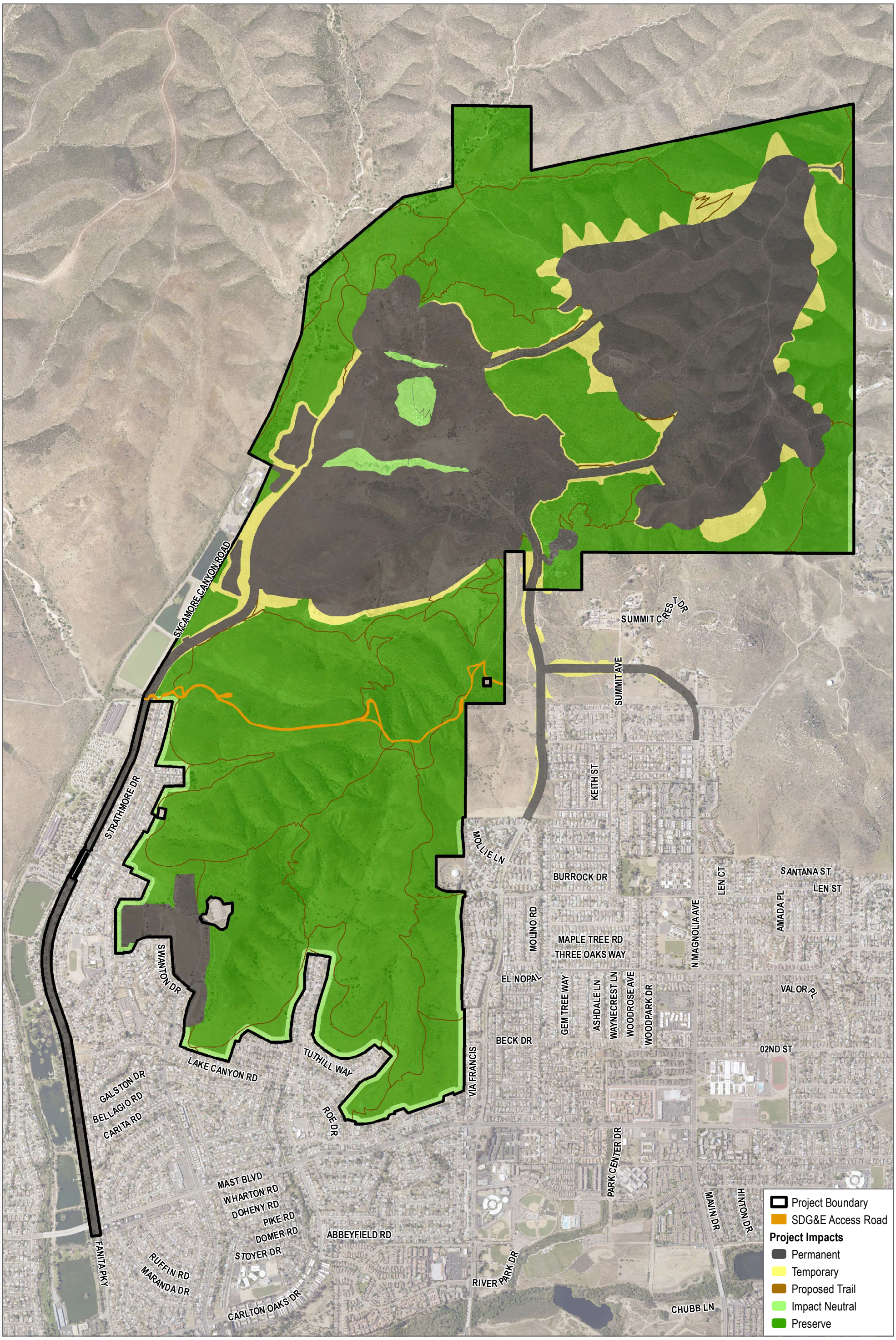
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FIGURE 2

Vicinity

On-Site Preserve Management Plan for the Fanita Ranch Project

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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0 750 1,500 Feet

FIGURE 3

Land Use

On-Site Preserve Management Plan for the Fanita Ranch Project

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3 BIOLOGICAL RESOURCES DESCRIPTION

This section is based on the biological data collected for the project site, as described in the Biological Technical Report prepared for the proposed project (Dudek 2020a). This section only discusses the areas within the proposed Habitat Preserve.

3.1 Vegetation Communities and Habitat Types

Twenty-three vegetation communities and land cover types were identified within the Habitat Preserve and include the following general vegetation communities: coastal sage scrub, chaparral, oak woodland, riparian, vernal pools, and non-native communities (Figures 4a through 4c and Table 3). The status of vegetation communities was determined using Holland (1986), as modified by Oberbauer et al. (2008), and the Draft Santee MSCP Subarea Plan (City of Santee 2018). Refer to the Biological Technical Report for the proposed project (Dudek 2020a) for a more detailed description of the biological resources on site and Section 4.5, Public Use Tasks, for details on the location and management of trails within the Habitat Preserve.

Table 3
Vegetation Communities Present within the Habitat Preserve

Vegetation Type (Holland/Oberbauer Code)	Impacts (acres)[1]			Habitat Preserve (acres)	Total Acreage
	Proposed Trail	*Temporary*	*SDG&E Access Road*		
Disturbed and Developed Areas					
Disturbed Habitat (11300)	1.94	2.11	6.70	35.54	46.29
Disturbed Wetland[2] (11200)	—	—	—	0.06	0.06
Non-native Vegetation (11000)	—	—	—	0.60	0.60
Urban/Developed (12000)	<0.01	—	—	0.81	0.81
Disturbed and Developed Areas Subtotal[3]	*1.94*	*2.11*	*6.70*	*37.01*	*47.77*
Scrub and Chaparral					
Diegan Coastal Sage Scrub[2] (32500)	3.28	33.09	0.11	751.93	788.41
Diegan Coastal Sage Scrub (disturbed)[2] (32500)	1.38	4.20	0.07	168.46	174.10
Diegan Coastal Sage Scrub (fire recovered)[2] (32500)	—	—	—	1.29	1.29
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland[2] (32500/42110)	0.15	0.50	—	54.36	55.01
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (disturbed)[2] (32500/42110)	0.22	1.48	—	28.56	30.26
Diegan Coastal Sage Scrub–Non-native Grassland (disturbed)[2] (32500/42200)	0.09	—	—	8.28	8.38
Diegan Coastal Sage Scrub–Baccharis-dominated[2] (32530)	0.01	0.62	—	4.74	5.38
Granitic Southern Mixed Chaparral[2] (37121)	0.96	45.54	—	246.03	292.53
Scrub and Chaparral Subtotal[3]	*6.09*	*85.43*	*0.18*	*1,263.65*	*1,354.06*

Table 3
Vegetation Communities Present within the Habitat Preserve

Vegetation Type (Holland/Oberbauer Code)	Impacts (acres)[1]			Habitat Preserve (acres)	Total Acreage
	Proposed Trail	*Temporary*	*SDG&E Access Road*		
Grasslands, Vernal Pools, Meadows, and Other Herb Communities					
Valley Needlegrass Grassland[2] (42110)	0.65	7.92	—	64.18	72.75
Valley Needlegrass Grassland (disturbed)[2] (42110)	0.57	5.84	—	36.03	42.45
Non-native Grassland[2] (42200)	1.15	11.40	—	81.31	93.85
Vernal Pool[2] (44000)	—	0.01	—	0.40	0.40
Grasslands, Vernal Pools, Meadows, and Other Herb Communities Subtotal[3]	*2.36*	*25.17*	—	*181.91*	*209.44*
Riparian and Bottomland Habitat					
Arundo-Dominated Riparian[4] (65100)	—	0.44	—	0.02	0.46
Mulefat Scrub[2] (63310)	—	0.40	—	1.16	1.56
Non-vegetated Channel or Floodway[2] (64200)	0.04	0.83	—	5.84	6.71
Southern Arroyo Willow Riparian Forest[2] (61320)	—	—	—	1.54	1.54
Southern Sycamore–Alder Riparian Woodland[2] (62400)	—	0.04	—	0.96	1.00
Southern Willow Scrub[2] (63320)	—	0.03	—	0.04	0.07
Riparian and Bottomland Habitat Subtotal[3]	*0.04*	*1.73*	—	*9.57*	*11.34*
Woodland					
Coast Live Oak Woodland[2] (71160)	0.09	0.03	—	26.36	26.48
Woodland Subtotal[3]	*0.09*	*0.03*	—	*26.36*	*26.48*
Sensitive Vegetation (including Wetlands) Subtotal[3]	*8.58*	*112.36*	*0.18*	*1,481.55*	*1,602.67*
Grand Total[3]	**10.52**	**114.47**	**6.88**	**1,518.50**	**1,650.38**

SDG&E = San Diego Gas & Electric.

1 This column summarizes the impact areas to be included within the final Habitat Preserve boundary. Impacts include those from the proposed trails (permanent) and temporary impacts that would be restored to pre-existing conditions.

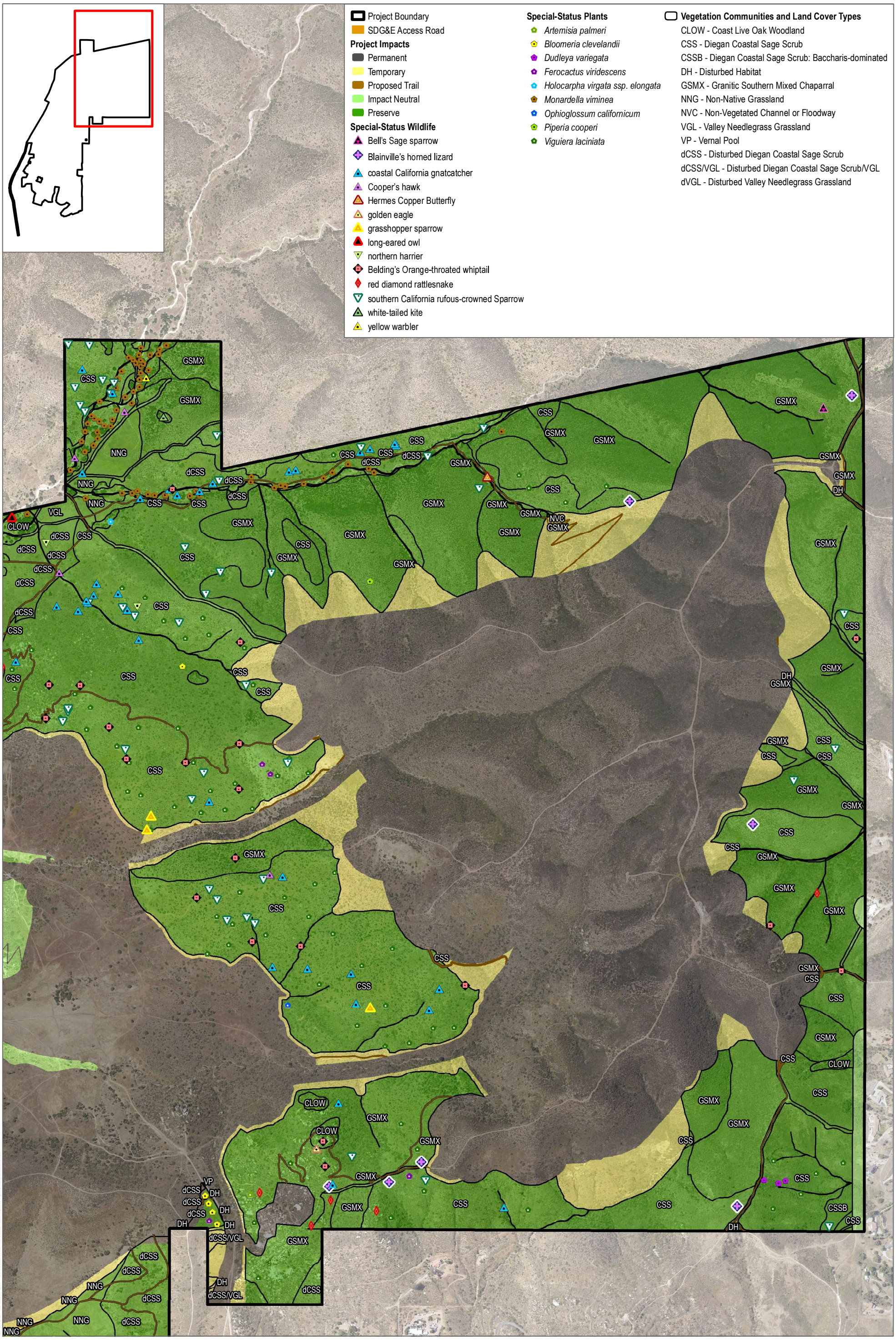
2 Sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3 Totals may not sum due to rounding.

4 This is a non-native vegetation community and only considered sensitive because it is a regulated habitat under CDFW jurisdiction.

3.1.1 Non-Native Vegetation (11000)

Non-native vegetation includes trees, shrubs, and herbs that are not native to California. Non-native vegetation within the project site largely consists of ornamental plantings along roadways or as part of fuel modification adjacent to homes that are not typically artificially irrigated and that receive water from precipitation or runoff. A total of 0.60 acres of non-native vegetation occurs on site in several locations within the Habitat Preserve (Figures 4a through 4c). Non-native vegetation is not considered a sensitive vegetation community by the Draft Santee MSCP Subarea Plan (City of Santee 2018).



SOURCE: Hunsaker 2019; SANGIS 2017, 2019

DUDEK

0 750 1,500 Feet

FIGURE 4a

Biological Resources within the Habitat Preserve

On-Site Preserve Management Plan for the Fanita Ranch Project

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Project Boundary
SDG&E Access Road

Project Impacts

Permanent
Temporary
Proposed Trail
Impact Neutral
Preserve

Special-Status Wildlife

Blainville's horned lizard
coastal California gnatcatcher
Cooper's hawk
Hermes Copper Butterfly
coastal cactus wren
grasshopper sparrow
least Bell's vireo
loggerhead shrike
long-eared owl
northern harrier
oak titmouse
Belding's Orange-throated whiptail
red diamond rattlesnake
southern California rufous-crowned Sparrow
white-tailed kite
willow flycatcher
yellow warbler
yellow-breasted chat

Special-Status Plants

Bloomeria clevelandii
Dudleya variegata
Ferocactus viridescens
Holocarpha virgata ssp. elongata
Monardella viminea
Viguiera laciniata

Vegetation Communities and Land Cover Types

ARU - Arundo-Dominated Riparian
CLOW - Coast Live Oak Woodland
CSS - Diegan Coastal Sage Scrub
CSS/VGL - Diegan Coastal Sage Scrub/VGL
CSSB - Diegan Coastal Sage Scrub: Baccharis-dominated
DH - Disturbed Habitat
DW - Disturbed Wetlands
GSMX - Granitic Southern Mixed Chaparral
MFS - Mule Fat Scrub
NNG - Non-Native Grassland
NVC - Non-Vegetated Channel or Floodway
SARW - Southern Sycamore-Alder Riparian Woodland
SWRF - Southern Arroyo Willow Riparian Forest
SWS - Southern Willow Scrub
VGL - Valley Needlegrass Grassland
VP - Vernal Pool
dCSS - Disturbed Diegan Coastal Sage Scrub
dCSS/NNG - Disturbed Diegan Coastal Sage Scrub/NNG
dCSS/VGL - Disturbed Diegan Coastal Sage Scrub/VGL
dVGL - Disturbed Valley Needlegrass Grassland

SYCAMORE CANYON ROAD
FANITA PKY
STRATHMORE DR

SOURCE: Hunsaker 2019; SANGIS 2017, 2019

DUDEK

0 750 1,500 Feet

FIGURE 4b

Biological Resources within the Habitat Preserve

On-Site Preserve Management Plan for the Fanita Ranch Project

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

DUDEK

FIGURE 4c

Biological Resources within the Habitat Preserve

On-Site Preserve Management Plan for the Fanita Ranch Project

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3.1.2 Disturbed Wetland (11200), Wetland

Disturbed wetlands are areas permanently or periodically inundated by water that have been substantially modified by human activity. Disturbed wetland is often unvegetated, but may include some scattered native or non-native vegetation. Some characteristic non-native species that may be associated with disturbed wetlands include giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.), palms (*Phoenix* spp., *Washingtonia* spp.), and pampas grass (*Cortaderia* spp.). Native wetland species, such as willows (*Salix* spp.) and cattails (*Typha* spp.), also may be present at low cover. Disturbed wetlands include portions of wetlands with obvious artificial structures, such as concrete lining, barricades, riprap, piers, or gates. Therefore, lined channels, Arizona crossings, detention basins, culverts, and ditches would be considered disturbed wetlands. Disturbed wetlands occur throughout San Diego County (Oberbauer et al. 2008). Only 0.06 acres of disturbed wetland occur within the Habitat Preserve (Figures 4a through 4c). This vegetation community is considered sensitive by the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the resource agencies.

3.1.3 Disturbed Habitat (11300)

Disturbed habitat is a land cover type characterized by a predominance of non-native species, often introduced and established through human action. Oberbauer et al. (2008) describes disturbed land as areas that have been physically disturbed (by previous legal human activity) and are no longer recognizable as a native or naturalized vegetation association, but continue to retain a soil substrate. Typically, if vegetation is present, it is nearly exclusively composed of non-native plant species such as ornamentals or ruderal exotic species (i.e., weeds). A total of 46.29 acres of disturbed habitat occurs within the Habitat Preserve and includes mainly dirt roads (Figures 4a through 4c). Disturbed habitat is not considered a sensitive vegetation community by the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3.1.4 Urban/Developed (12000)

According to Oberbauer et al. (2008), urban/developed represents areas that have been constructed upon or otherwise physically altered to an extent that native vegetation communities are not supported. This land cover type generally consists of semi-permanent structures, homes, parking lots, pavement or hardscape, and landscaped areas that require maintenance and irrigation (e.g., ornamental greenbelts). Typically, this land cover type is unvegetated or supports a variety of ornamental plants and landscaping. A total of 0.81 acres of urban/developed land occurs within the Habitat Preserve (Figures 4a through 4c). Urban/developed land is not considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3.1.5 Diegan Coastal Sage Scrub (including disturbed and fire recovered) (32500)

Diegan coastal sage scrub is a native vegetation community. According to Oberbauer et al. (2008), coastal sage scrub is composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species—such as California sagebrush (*Artemisia californica*), California buckwheat, and sages (*Salvia* spp.)—with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). Diegan coastal sage scrub occupies 788.41 acres within the Habitat Preserve (Figures 4a through 4c). Approximately 1.29 acres of fire recovered Diegan coastal sage on site is located in two southern portions of the project site: east of Settle Road and a small patch west of Hitching Post Way (Figures 4a through 4c). In addition, 174.10 acres of disturbed Diegan coastal sage scrub on site occur in several areas, with the majority located in the central and northern boundary of the Habitat Preserve (Figures 4a through 4c). Diegan coastal sage scrub (including disturbed areas) is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3.1.6 Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (including disturbed) (32500/42110)

Diegan coastal sage scrub–Valley needlegrass grassland is similar to Diegan coastal sage scrub, but includes considerable cover of purple needlegrass (*Stipa pulchra*). This vegetation community is not included in Holland (1986) or Oberbauer et al. (2008). This combination of vegetation communities is project specific and mapped in areas that are supported by more than 20% purple needlegrass within Diegan coastal sage scrub. See description for Diegan coastal sage scrub in Section 3.1.5 and valley needlegrass grassland in Section 3.1.10. Approximately 55.01 acres of Diegan coastal sage scrub–Valley needlegrass grassland occur on site in several locations, primarily within the southern portion of the Habitat Preserve (Figures 4a through 4c). In addition, 30.26 acres of disturbed Diegan coastal sage scrub–valley needlegrass grassland on site are located in large patches west of Via Francis and east of Sycamore Canyon Road (Figures 4a through 4c). Diegan coastal sage scrub and valley needlegrass grassland (including disturbed) are considered sensitive vegetation communities in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3.1.7 Diegan Coastal Sage Scrub–Non-Native Grassland (32500/42200)

Disturbed Diegan coastal sage scrub–non-native grassland is similar to Diegan coastal sage scrub, but is dominated by wild oat (*Avena fatua*), bromes (*Bromus* spp.), stork's bill (*Erodium* spp.), and mustard (*Brassica* spp.). This vegetation community is not included in Holland (1986) or Oberbauer et al. (2008). This combination of vegetation communities is project specific and is mapped in areas supported by more than 20% non-native grasses within Diegan coastal sage scrub. See descriptions for Diegan coastal sage scrub in Section 3.1.5 and non-native grassland in Section 3.1.11. Approximately 8.38 acres of disturbed Diegan coastal sage scrub–non-native grassland

within the Habitat Preserve (Figures 4a through 4c). Diegan coastal sage scrub and non-native grassland are considered sensitive vegetation communities in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3.1.8 Diegan Coastal Sage Scrub–Baccharis-Dominated (32530)

Diegan coastal sage scrub–Baccharis-dominated is similar to Diegan coastal sage scrub, but dominated by *Baccharis* species (desert broom [*B. sarothroides*] and/or coyote brush [*B. pilularis*]) (Oberbauer et al. 2008). This community typically occurs on disturbed sites or those with nutrient-poor soils and is often found within other forms of Diegan coastal sage scrub and on upper terraces of river valleys. This community is distributed along coastal and foothills areas in San Diego County. Approximately 5.38 acres of Diegan coastal sage scrub–Baccharis-dominated on site occurs in several locations, with the majority in the southern portion of the study area north of Carlton Hills Boulevard (Figures 4a through 4c). Diegan coastal sage scrub–Baccharis-dominated is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3.1.9 Granitic Southern Mixed Chaparral (37121)

Granitic southern mixed chaparral is similar to southern mixed chaparral, but dominated by granitic soils. Granitic southern mixed chaparral is a drought- and fire-adapted community of woody shrubs from 5 to 10 feet tall that often forms dense, impenetrable stands. It develops primarily on mesic north-facing slopes and in canyons, and is characterized by crown- or stump-sprouting species that regenerate following fire. This association typically contains chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicolor*), wild lilac (*Ceanothus* spp.), and laurel sumac. Due to its high-density cover, there is little or no understory in this community, except for in openings. The dominant species in the southern mixed chaparral on site are chamise, laurel sumac, white sage (*Salvia apiana*), coyote brush, and orange bush monkeyflower (*Mimulus aurantiacus*).

Approximately 292.53 acres of granitic southern mixed chaparral occur in several locations in the northwestern portion of the Habitat Preserve (Figures 4a through 4c). Granitic southern mixed chaparral is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018), as a form of mixed chaparral.

3.1.10 Valley Needlegrass Grassland (including disturbed) (42110)

Valley needlegrass grassland is characterized by a sparse to dense cover of perennial grasses typically up to 2 feet tall. This vegetation community typically occurs on fine-textured soils (often clay) that are moist or wet in the winter and very dry during summer and fall. Characteristic plant species typically include native grass species such as purple needlegrass, bromes, and goldfields (*Lasthenia* spp.) (Oberbauer et al. 2008). Plant species observed within native grassland include

purple needlegrass, with forbs such as common goldenstar (*Bloomeria crocea*) and California blue-eyed grass (*Sisyrinchium bellum*). The percentage cover of native species can be quite low, but an area can be designated as native grassland if there is 20% cover of native grassland species. In San Diego County, native grassland often occurs where the native vegetation has been disturbed by grazing, fire, agriculture, or other activities.

A total of 72.75 acres of valley needlegrass grassland communities occurs on site in several locations, primarily along the southern and western boundaries of the Habitat Preserve (Figures 4a through 4c). In addition, 42.45 acres of disturbed valley needlegrass grassland on site occur in two areas, including east and north of Sycamore Canyon Road on the western portion of the Habitat Preserve (Figures 4a through 4c). Valley needlegrass grassland (including disturbed) is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3.1.11 Non-Native Grassland (42200)

Non-native grassland consists of dense to sparse cover of annual grasses with flowering culms between 0.5 to 3 feet in height (Oberbauer et al. 2008). In San Diego County, the presence of wild oat, bromes, stork's bill, and mustard are common indicators. In some areas, depending on past disturbance and annual rainfall, annual forbs may be the dominant species; however, it is presumed that grasses will dominate. Non-native grassland totals 93.85 acres within the Habitat Preserve. Non-native grassland is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3.1.12 Vernal Pool (44000), Wetland

Vernal pools are seasonally flooded wetland communities (Oberbauer et al. 2008). Vernal pools are depressions that support distinctive living communities adapted to seasonally dry and wet hydrologic conditions. Vernal pools are associated with two important physical conditions: (1) a subsurface hardpan or claypan that inhibits the downward percolation of water, and (2) a topography characterized by a series of low hummocks called mima mounds and low depressions (the vernal pools), which prevent aboveground water runoff. Vernal pools capture and store precipitation on the surface and/or subsurface in low depressions, which prevent aboveground water runoff (Bauder et al. 2009). Water collects in these depressions during the rainy season, and as the rainy season ends and the dry season begins, the water that has collected in these vernal pools gradually evaporates. The chemical composition of the remaining pool water becomes more concentrated as the pool water evaporates, which creates a chemical micro-environmental complex system for unique wetland-dependent vernal pool plant and animal communities to develop (Bauder et al. 2009). Vernal pools retain pooled water for approximately 2 weeks after significant rain events. Indicator species for vernal pools include *Psilocarphus* spp., toothed calicoflower (*Downingia cuspidata*), and crustaceans. The following criteria differentiate vernal pools from

other temporary wetlands: the basin is at least partially vegetated during the normal growing season or is unvegetated due to heavy clay or hardpan soils that do not support plant growth; and the basin contains at least one vernal pool indicator species (Oberbauer et al. 2008).

Vernal pools occur within 0.40 acres on site along the western boundary and in the southern portion of the Habitat Preserve and 0.01 acres of vernal pools occur within a temporary impact area (Figures 4a through 4c). Vernal pools mapped within the project site include features (i.e., natural vernal pools and road ruts) containing both plant and wildlife (i.e., San Diego fairy shrimp and western spadefoot) indicator species. Six vernal pool plant indicator species were observed on site: winged water-starwort (*Callitriche marginata*), shortseed waterwort (*Elatine brachysperma*), California waterwort (*Elatine californica*), water pygmyweed (*Crassula aquatica*), annual hairgrass (*Deschampsia danthonioides*), and woolly marbles (*Psilocarphus brevissimus*). As a wetlands community, vernal pools are considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and potentially by the resource agencies.

3.1.13 Southern Arroyo Willow Riparian Forest (61320), Wetland

Southern arroyo willow riparian forest is a winter-deciduous riparian forest dominated by broad-leafed trees and arroyo willow (*Salix lasiolepis*). Typically it consists of a moderately tall, closed, or nearly closed canopy, with an understory of shrubby willows (Oberbauer et al. 2008). Southern arroyo willow riparian forest is characterized by the presence of several species besides arroyo willow, including San Diego sagewort (*Artemisia palmeri*), mulefat (*Baccharis salicifolia*), manroot (*Marah macrocarpus*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), Goodding's willow (*Salix gooddingii*), narrowleaf willow (*Salix exigua*), and yellow willow (*Salix lasiandra*) (Oberbauer et al. 2008). Southern arroyo willow riparian forest occurs in sub-irrigated and frequently overflowed areas along rivers and streams that are perennially wet (Oberbauer et al. 2008).

Approximately 1.54 acres of southern arroyo willow riparian forest occur within the Habitat Preserve, in one area north of Sycamore Canyon Road (Figures 4a through 4c). In the Habitat Preserve, southern arroyo willow riparian forest is dominated by arroyo willow. As a wetlands community, southern arroyo willow riparian forest is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3.1.14 Southern Sycamore–Alder Riparian Woodland (62400), Wetland

Southern sycamore–alder riparian woodland is characterized by tall, open, broad-leafed woodland dominated by California sycamore and white alder (*Alnus Rhombifolia*) (Oberbauer et al. 2008). The woodland includes scattered trees in shrubby thickets of sclerophyllous and deciduous species. Characteristic species include coast live oak (*Quercus agrifolia*), blue elderberry (*Sambucus*

nigra), and poison oak (*Toxicodendron diversilobum*). Southern sycamore–alder riparian woodland totals 1 acre within the Habitat Preserve. Southern sycamore–alder riparian woodland occurs in three areas, one area within Sycamore Canyon and in two drainages that act as tributaries to Sycamore Canyon (Figures 4a through 4c). As a wetlands community, southern sycamore–alder riparian woodland is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the resource agencies.

3.1.15 Mulefat Scrub (63310), Wetland

Mulefat scrub is a depauperate, tall, herbaceous riparian scrub strongly dominated by mulefat. This early seral community is maintained by frequent flooding. Site factors include intermittent stream channels with fairly coarse substrate and moderate depth to the water table (Oberbauer et al. 2008). This community type is widely scattered along intermittent streams and near larger rivers. Mulefat scrub totals 1.56 acres on site in the western portion of the Habitat Preserve within Sycamore Canyon and in a drainage that acts as a tributary to Sycamore Canyon (Figures 4a through 4c). As a wetlands community, mulefat scrub is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the resource agencies.

3.1.16 Southern Willow Scrub (63320), Wetland

Southern willow scrub is a dense, broad-leafed, winter-deciduous riparian thicket dominated by several willow species, with scattered emergent Fremont cottonwood and California sycamore. This community was formerly extensive along the major rivers of coastal Southern California, but is now much reduced (Oberbauer et al. 2008).

Approximately 0.07 acres of southern willow scrub occurs within the Habitat Preserve (Figures 4a through 4c). This vegetation community primarily occurs within drainages. As a wetland community, southern willow scrub is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the resource agencies.

3.1.17 Non-Vegetated Channel or Floodway (64200), Wetland

According to Oberbauer et al. (2008), non-vegetated channel is the sandy, gravelly, or rocky fringe of waterways or flood channels that is unvegetated on a relatively permanent basis. Vegetation may be present but is usually less than 10% total cover and grows on the outer edge of the channel. There are 6.71 acres of non-vegetated channel or floodway within the Habitat Preserve (Figures 4a through 4c). Non-vegetated channel is considered a jurisdictional resource by the resource agencies and a sensitive community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3.1.18 Arundo-Dominated Riparian (65100), Wetland

Arundo-dominated riparian vegetation community is composed of monotypic or nearly monotypic stands of giant reed, which is a non-native species that is fairly widespread in Southern California. Typically, it occurs on moist soils and in streambeds and may be related directly to soil disturbance or the introduction of propagates by grading or flooding. Mapped occurrences may include surrounding native trees. Giant reed often occupies jurisdictional wetlands.

Approximately 0.46 acres of arundo-dominated riparian occurs within the Habitat Preserve (Figures 4a through 4c). Since this is a non-native vegetation community, arundo-dominated riparian is only considered a sensitive vegetation community because it is a regulated habitat under CDFW jurisdiction.

3.1.19 Coast Live Oak Woodland (71160)

Coast live oak woodland is dominated by a single evergreen species, coast live oak, with a canopy height reaching 32.8 to 82.0 feet (10 to 25 meters) (Oberbauer et al. 2008). The shrub layer is poorly developed, but may include toyon (*Heteromeles arbutifolia*), gooseberry (*Ribes* spp.), or laurel sumac. Other shrub species include chamise, California buckwheat, and chaparral yucca (*Hesperoyucca whipplei*). The herb component is continuous, dominated by a variety of introduced species (Oberbauer et al. 2008).

Within the Habitat Preserve, coast live oak woodland is dominated by coast live oak and comprises 26.48 acres (Figures 4a through 4c). Coast live oak woodland occurs primarily in several patches along the northwestern boundary of the Habitat Preserve. Coast live oak woodland is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

3.2 Jurisdictional Wetlands and Waters

During the 2016 jurisdictional wetlands delineation performed by Dudek, approximately 32.31 acres of potential jurisdictional resources, out of 44.97 total acres within the entire project site, were identified within the Habitat Preserve (Figures 4a through 4c). These jurisdictional resources are under the jurisdiction of the ACOE, RWQCB, and CDFW and are summarized in Table 4. Jurisdictional resource totals are based on the preliminary jurisdictional delineation approach described in the Biological Technical Report for the proposed project prepared by Dudek (2020a).

Table 4
Jurisdictional Resources Present within the Habitat Preserve

Jurisdictional Resource	Habitat Preserve Acreage	Enhancement Acreage	Re-Establishment Acreage
ACOE/RWQCB Wetlands and CDFW Riparian Areas			
Disturbed Wetlands	0.06	0.06	—
Mulefat Scrub	1.13	—	—
Southern Arroyo Willow Riparian Forest	1.54	1.54	—
Southern Willow Scrub	0.04	—	—
ACOE/RWQCB/CDFW Subtotal	*2.78*	*1.60*	—
ACOE/RWQCB Non-Wetland Waters and CDFW Streambed			
Non-Vegetated Channel or Floodway	5.84	—	—
CDFW Only Riparian Habitat			
Arundo-Dominated Riparian	0.02	—	0.02
Coast Live Oak Woodland	22.68	22.68	—
Mulefat Scrub	0.03	—	—
Southern Sycamore–Alder Riparian Woodland	0.96	0.96	—
CDFW Only Subtotal	*23.70*	23.64	—
Total Acreage[1]	32.31	25.25	0.02

ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.
[1] Totals may not sum due to rounding.

3.3 Special-Status Plant Species

A total of 14 special-status plant species were detected within the project site; of that total 11 species were observed within the Habitat Preserve (Figures 4a through 4c). Table 5 summarizes all special-status plant species occurring within the Habitat Preserve and their respective management considerations.

Table 5
Special-Status Plant Species Occurring within the Habitat Preserve and Management Considerations

Plant Species	Status (Federal/State/CNPS/Draft Santee MSCP Subarea Plan)	Habitat Preserve	Management Considerations
San Diego Sagewort (*Artemisia palmeri*)	None/None/4.2/None	30	No management concerns. Likely to be established from implementation of the Wetlands Mitigation Plan within the Habitat Preserve, which would incorporate, as appropriate, sensitive species impacted by the project into the plant palette.

Table 5
Special-Status Plant Species Occurring within the Habitat Preserve and Management Considerations

Plant Species	Status (Federal/State/CNPS/Draft Santee MSCP Subarea Plan)	Habitat Preserve	Management Considerations
Coulter's Saltbush (*Atriplex coulteri*)	None/None/1B.2/None	—	A minimum of 2 individuals will be targeted for translocation.[1] Plant propagation will be initiated at least one year prior to installation to provide the appropriate quantity of genetically local nursery stock. Population is only known extant occurrence in San Diego County. Potentially sensitive to hydrologic changes especially those which alter soil conditions.
San Diego Goldenstar (*Bloomeria clevelandii*)	None/None/1B.1/Covered	10,354	A minimum of 4,300 individuals will be targeted for translocation. Susceptible to loss due to habitat conversion, increases in shrub and/or non-native cover, or changes in soils conditions.
Small-flowered Morning-glory (*Convolvulus simulans*)	None/None/4.2/None	7	Susceptible to loss due to habitat conversion, increases in shrub and/or non-native cover, or changes in soils conditions.
Variegated Dudleya (*Dudleya variegata*)	None/None/1B.2/Covered NE	8,156	Susceptible to loss due to habitat conversion, increases in shrub and/or non-native cover, or changes in soils conditions. This species will be targeted for collection.
San Diego Barrel Cactus (*Ferocactus viridescens*)	None/None/2B.1/Covered	4,270	This species will be targeted for collection.
Palmer's Grapplinghook (*Harpagonella palmeri*)	None/None/4.2/None	16	Susceptible to loss due to habitat conversion, increases in shrub and/or non-native cover, or changes in soils conditions.
Graceful Tarplant (*Holocarpha virgata* ssp. *elongata*)	None/None/4.2/None	4	Highly disturbance-tolerant, no management concerns.
Willowy Monardella (*Monardella viminea*)	FE/CE/1B.1/Covered	1,621	Dependent on floodplain hydrology, susceptible to exotics invasion.
California Adder's-tongue (*Ophioglossum californicum*)	None/None/4.2/None	250	No impacts are anticipated to this species. Susceptible to loss due to habitat conversion, increases in shrub and/or non-native cover, or changes in soils conditions.
Chaparral Rein Orchid (*Piperia cooperi*)	None/None/4.2/None	1	No impacts are anticipated to this species. Susceptible to loss due to habitat conversion, increases in shrub and/or non-native cover, or changes in soils conditions.

Table 5
Special-Status Plant Species Occurring within the Habitat Preserve and Management Considerations

Plant Species	Status (Federal/State/CNPS/Draft Santee MSCP Subarea Plan)	Habitat Preserve	Management Considerations
Engelmann Oak (*Quercus engelmannii*)	None/None/4.2/None	—	Oak disease, reproduction. Impacts would occur to 5 individuals, which would require replanting of 15 individuals (3:1 ratio per Draft Santee MSCP Subarea Plan). To be established from implementation of the Wetlands Mitigation Plan within the Habitat Preserve.
Ashy Spike-Moss (*Selaginella cinerascens*)	None/None/4.1/None	*Not mapped due to low ranking and prevalence, likely occurs.*	No management concerns. Would likely benefit from implementation of the Vernal Pool Mitigation Plan within the Habitat Preserve.
San Diego County Viguiera (*Viguiera laciniata*)	None/None/4.2/None	1,959	No management concerns.

Notes: MSCP = Multiple Species Conservation Program; CNPS = California Native Plant Society; NE = narrow endemic.

[1] The narrow endemic species policy identified in the Draft Santee MSCP Subarea Plan requires 100% conservation within open space (i.e., hardline preserve) and 80% conservation through translocation within permanent impact (i.e., take-authorized) areas. Conservation of Coulter's saltbush, although not a Covered Species, will be treated in a manner consistent with the narrow endemic policy of the Draft Santee MSCP Subarea Plan. Implementation of this policy ensures adequate conservation of each species within the subarea, as well as regionally within the MSCP Plan area.

Status Legend
Federal
FE: Federally listed as endangered.
State
CE: State listed as endangered.
CRPR: California Rare Plant Rank (previously known as the CNPS List)
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
4: Plants of limited distribution – a watch list
Threat Rank
.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 – Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
Draft Santee MSCP Subarea Plan (City of Santee 2018)
Covered: Draft Santee MSCP Subarea Plan Covered Species

Since the focus of this PMP is specifically on management actions and adaptive management strategies for Draft Santee MSCP Subarea Plan Covered Species (and one non-covered species: Coulter's saltbush [*Atriplex coulteri*]), descriptions of those five species are provided below and management of those species within the Habitat Preserve is specified in Section 4.2.5, Species Surveys, of this PMP.

Coulter's Saltbush (*Atriplex coulteri*), California Rare Plant Rank 1B.2

Coulter's saltbush has a California Rare Plant Rank (CRPR) of 1B.2. Coulter's saltbush is a dicot, California native perennial herb, and is distributed in Southern California (CNPS 2018). This species is found in coastal strand, valley grassland, and coastal sage scrub. Coulter's saltbush's bloom period is March through October. This species occurs on alkaline or clay soils at an elevation less than 1,640 feet.

A total of 65 Coulter's saltbush individuals were observed in the western central portion of the project site within disturbed valley needlegrass grassland, non-native grassland, and disturbed habitat (Figures 4a through 4c). Although there are no Coulter's saltbush individuals mapped within the Habitat Preserve, there are 50 individuals occurring within the Impact Neutral area and will not be impacted with project implementation. Therefore, they are considered preserved. A minimum of two individuals will be translocated to meet the narrow endemic species policy identified in the Draft Santee MSCP Subarea Plan.

San Diego Goldenstar (*Bloomeria clevelandii*), CRPR 1B.1/Draft Santee MSCP Subarea Plan Covered Species

San Diego goldenstar has a CRPR 1B.1 and is covered by the Draft Santee MSCP Subarea Plan. San Diego goldenstar is a monocot, California native perennial herb, and is distributed in San Diego and Riverside Counties (CNPS 2018). San Diego goldenstar is found in coastal sage scrub, chaparral, valley grassland, and freshwater wetlands. This species' bloom period is between April and May. San Diego goldenstar occurs at an elevation less than 330 feet.

Approximately 10,354 San Diego goldenstar plants or approximately 56% of the total population were mapped in the Habitat Preserve (Figures 4a through 4c). A minimum of 4,300 individuals will be translocated to meet the narrow endemic species policy identified in the Draft Santee MSCP Subarea Plan.

Variegated Dudleya (*Dudleya variegata*), CRPR 1B.2/Draft Santee MSCP Subarea Plan Covered Species NE

Variegated dudleya has a CRPR 1B.2 and is covered by the Draft Santee MSCP Subarea Plan. Variegated dudleya is a perennial herb that blooms April through June and grows in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland with clay soils, and vernal pools (CNPS 2018). This species is distributed in San Diego, Orange, and Imperial Counties. The elevation range for variegated dudleya is less than 1,000 feet.

Approximately 8,156 individuals or approximately 91% of the population of variegated dudleya were recorded within the Habitat Preserve (Figures 4a through 4c). Although not required under the Draft Santee MSCP Subarea Plan, this species will be targeted for collection and translocation.

San Diego Barrel Cactus (*Ferocactus viridescens*), CRPR 2B.1/Draft Santee MSCP Subarea Plan Covered Species

San Diego barrel cactus has a CRPR 2B.1 and is covered by the Draft Santee MSCP Subarea Plan. San Diego barrel cactus is a dicot, California native shrub stem succulent, and is only distributed in San Diego County (CNPS 2018). This species is found in chaparral, valley grassland, coastal sage scrub, vernal pools, and freshwater wetlands. This species' bloom period is between May and June. San Diego barrel cactus occurs on sandy to rocky areas and at an elevation between 30 feet and 500 feet.

A total of 4,270 San Diego barrel cactus plants or approximately 88% of the total population were observed within the Habitat Preserve (Figures 4a through 4c). Although not required under the Draft Santee MSCP Subarea Plan, this species will be targeted for collection and translocation.

Willowy Monardella (*Monardella viminea*), Federally Endangered/State Endangered/CRPR 1B.1/Draft Santee MSCP Subarea Plan Covered Species

Willowy monardella is federal- and state-endangered, has a CRPR 1B.1, and is covered by the Draft Santee MSCP Subarea Plan. Willowy monardella is a dicot, California native perennial herb, and is distributed in San Diego and Riverside Counties (CNPS 2018). This species is found in rocky washes, cobbly areas, and alluvial benches. The bloom period for willowy monardella is between June and August. Willowy monardella occurs at an elevation less than 1,310 feet.

A total of 1,621 willowy monardella individuals or approximately 99% of the total population were observed in the northwestern portion of the Habitat Preserve (Figures 4a through 4c). See the Biological Technical Report (Dudek 2020a) for a discussion of the USFWS designated Critical Habitat for this species within the project site.

3.4 Special-Status Wildlife Species

The Habitat Preserve provides suitable habitat for all 41 special-status wildlife species observed within the project site (Figures 4a through 4c). Since the focus of this PMP is specifically on management actions and adaptive management strategies for Draft Santee MSCP Subarea Plan Covered Species, Table 6 summarizes only the Covered wildlife species occurring within the Habitat Preserve and their respective management considerations.

Table 6
Special-Status Wildlife Species Occurring within the Habitat Preserve and Management Considerations

Wildlife Species	Regulatory Status: Federal/State/ Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Habitat Preserve	Management Considerations
Amphibians and Reptiles			
Western spadefoot (*Spea hammondii*)	None/SSC/Covered	146.24 acres and 24 occupied features[1]	Habitat management concerns include maintenance of breeding pool hydrology and water quality adequate to support the life history of the spadefoot toad, including controls on exotic invasive species that may affect pool hydrology, particularly the duration of ponding. Additionally, connectivity within the population is a consideration. Basins will be created per the Vernal Pool Mitigation Plan. Species-specific management concerns include managing exotic predators such as bullfrogs, African clawed frogs and crayfish and collecting of toads by the public, as well as human disturbance of breeding pools and consequently egg masses and larvae (tadpoles). Argentine ants also may threaten the native insect prey base.
Blainville's horned lizard (*Phrynosoma blainvillii*)	None/SSC/Covered	1,348.66 acres; 10 locations	Habitat management concerns include quality of suitable habitats and particularly invasion by exotic invasive species and firebreaks created for fire management. Species-specific management concerns include Argentine ants which displace native harvester ant prey, urban-related predators such as cats and unleashed dogs, roads and trails where horned lizards can be killed or injured, and collection by the public.
Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*)	None/SSC/Covered	1,290.01 acres; 30 locations	Habitat management concerns include quality of suitable habitats such as state transition to annual grassland from frequent fires (which reduce woody shrubs and termite habitat), drought, and exotic invasive species. Species-specific management concerns include Argentine ants through direct effects on native prey base, urban-related predators such as cats and unleashed dogs, and paved roads that inhibit movements.

Table 6
Special-Status Wildlife Species Occurring within the Habitat Preserve and Management Considerations

Wildlife Species	Regulatory Status: Federal/State/ Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Habitat Preserve	Management Considerations
		Birds	
Coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)	None/SSC/Covered	0.42 acres; 2 clusters[2]	Habitat management concerns include maintaining suitable cactus thickets, which are extremely vulnerable to fire that can create a temporal habitat loss. Conservation of the species will include creation of cactus thickets in the south that are expected to be occupied. It will be important to space these thickets such that dispersal can occur; wrens are relatively sedentary (e.g., According to a monitoring study conducted in 2012 (Kamada and Preston 2013), males dispersed a median distance of ~709 feet and females dispersed a median distance of ~1,635 feet from their original territory/location where banded). Thickets would need to be in close proximity and suitable dispersal habitat between thickets would be needed. Species-specific management concerns for the cactus wren are urban edge effects, including urban-related predators (e.g., cats), and Argentine ants also may directly impact the species.
Coastal California gnatcatcher (*Polioptila californica californica*)	FT/SSC/Covered	1,017.61 acres; 25 Use Areas[3]	Habitat management concerns include long-term quality of coastal sage scrub. Frequent fire that could result in transition of shrublands to annual grassland and other invasive species is the main management issue. Species-specific management concerns include factors that reduce the species' main prey base (leaf- and plant hoppers and spiders) such as fires, pesticides and Argentine ants (which displace native insects). Human activities which produce high noise levels, such as construction, could disturb breeding activities. Brown-headed cowbird parasitism, urban-related predators (e.g., cats) and Argentine ants also may directly impact the species. Gnatcatchers generally appear to be tolerant of passive public uses such as jogging, hiking, mountain biking, and equestrian use on designated trails, given their persistence in many regional and wilderness parks.

Table 6
Special-Status Wildlife Species Occurring within the Habitat Preserve and Management Considerations

Wildlife Species	Regulatory Status: Federal/State/ Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Habitat Preserve	Management Considerations
Least Bell's vireo (*Vireo bellii pusillus*)	FE/SE/Covered	3.71 acres; 1 individual[4]	This species has not been observed nesting within the project site. Therefore, management for least Bell's vireo will involve both preserving wetland habitat and creation/restoration/enhancement of habitat based on the Wetland Mitigation Plan. Human activities which produce high noise levels, such as construction, could disturb breeding activities. Brown-headed cowbird parasitism, urban-related predators (e.g., cats) and Argentine ants also may directly impact the species.
Invertebrates			
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	FE/None/Covered	0.50 acres of vernal pools; 38 occupied features[5]	Management for the San Diego fairy shrimp will involve both preserved basins and creation of new basins based on the Vernal Pool Mitigation Plan. Conditions in the created basins will emulate conditions in the existing basins, including supporting adequate ponding to support the fairy shrimp life cycle. Species-specific management concerns include Argentine ants which displace or prey on invertebrates and trails where fairy shrimp can be killed or injured.
Quino checkerspot butterfly (*Euphydryas editha quino*)	FE/None/Covered	1,096.57 acres of potential habitat based on the 2009 extrapolation model[6] and 1 individual from 2005 (not observed during focused surveys in 2016)	Habitat management concerns regard the long-term suitability of potential Quino checkerspot butterfly habitat. The focus will be on removal of non-native grasses, weedy material, and duff layers and augmenting the annual host and nectar plant through seeding as needed so that habitat is more suitable for Quino checkerspot butterfly. Argentine ants that displace native insects and possibly help promote other non-native invertebrates such as earwigs and sowbugs, also possibly could affect the Quino checkerspot butterfly.
Hermes copper butterfly (*Lycaena hermes*)	FC/None/Covered	94.77 acres;[7] 2 historic locations (individuals were observed in 2003, and 2005, and not during	Habitat management concerns regard the general long-term suitability of coastal sage scrub and southern mixed chaparral, and maintaining adequate cover of the host

Table 6
Special-Status Wildlife Species Occurring within the Habitat Preserve and Management Considerations

Wildlife Species	Regulatory Status: Federal/State/ Draft Santee MSCP Subarea Plan	Suitable Habitat and Occurrence in Habitat Preserve	Management Considerations
		recent focused surveys conducted in 2016)	plant *Rhamnus crocea* within 15 feet of *Eriogonum fasciculatum*. Restoration, enhancement, and creation of suitable habitat areas will entail repairing degraded habitat through the control of invasive species and/or planting of appropriate native species (i.e., redberry buckthorn within 15 feet of California buckwheat).

Notes: MSCP = Multiple Species Conservation Program.

1 The following criteria was used for western spadefoot habitat modeling: within 300 meters of an occupied features, within vernal pool, non-native grassland, native grassland, or coastal sage scrub, and less than 20% slope. Based on occupied features rather than number of records/individuals. Number of occupied features for western spadefoot includes those recorded in 2004, 2005, 2016, and 2017.

2 The habitat for historical occurrences of coastal cactus wren burned and is in the process of recovery. A total of five clusters of coastal cactus wrens were observed during surveys in 2017 within the project site. Clusters rather than individual records were considered for impacts given the localized groups that this species occurs in.

3 Based on Use Areas documented during 2016 focused surveys. With the exception of one Use Area (impacts are less than 1 acre), only Use Areas 100% within the Habitat Preserve are considered preserved.

4 Records for least Bell's vireo include one individual from 1997 located within riparian habitat within the Habitat Preserve.

5 Number of San Diego fairy shrimp includes features that had immature or female brachiopods that could not be identified to species and is based on the protocol-level survey results from 2004, 2004/2005, and 2015/2016.

6 The model includes areas within 656 feet (200 meters) of mapped host plants within coastal scrub, grassland, vernal pools, and disturbed habitat.

7 Suitable habitat for Hermes copper butterfly based on presence of redberry buckthorn within 15 feet of California buckwheat.

Status Legend
FE: Federally Endangered
FT: Federally Threatened
FC: Federal Candidate
BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern
SSC: California Species of Special Concern
FP: California Fully Protected Species
WL: California Watch List Species
SE: State Endangered
ST: State Threatened
MSCP: Draft Santee MSCP Subarea Plan (City of Santee 2018)
Covered: Draft Santee MSCP Subarea Plan Covered Species

3.5 Habitat Connectivity and Wildlife Corridors

The entire project site currently functions as a large habitat block with no distinct wildlife corridors or linkages. Wildlife crisscross up and down slopes and use existing trails, ridges, and valleys throughout the project site. The project site is adjacent to both Goodan Ranch/Sycamore Canyon County Park and MCAS Miramar, which are large patches of natural open space that provide avenues for the immigration and emigration of wildlife. Therefore, it can be assumed that the

project site functions as a regional wildlife movement corridor and allows wildlife movement within the project site and to adjacent off-site lands.

The project design provides for a primary wildlife corridor through the north-central portions of the project, with a minimum width of 1,150 feet (Figure 5a). This criterion meets generally accepted wildlife movement principles outlined in the MSCP Plan Design Criteria and Draft Santee MSCP Subarea Plan guidelines. An additional corridor exists along the northern boundary of the project site, which is mostly 1,400 or more feet wide and buffers a canyon. It does narrow to 619 feet for approximately 800 feet, but this area is adjacent to protected and managed County of San Diego Park Preserve lands. The entire northern edge buffers existing protected preserve lands to the north so this also meets the Draft Santee MSCP Subarea Plan Guidelines. To the west, a large corridor buffering Sycamore Creek is provided. This corridor is between 1,000 and 400 feet wide (at the detention basin, which still could be used for movement), but is further widened by the adjacent military base and conserved preserve areas along the entire boundary. All three corridors lead to or buffer a significant potential regional corridor along the Sycamore Canyon. Therefore, the landscape scale habitat connections for regional wildlife movement would not be substantially affected. Depending on future adjacent development within the adjacent County lands to the east, the project would provide another secondary wildlife corridor, varying in width from 508 feet to 1,400 feet, along the eastern boundary currently adjacent to extant habitat areas.

Wildlife movement may be hindered at interior Streets V and W, as well as the Cuyamaca Street extension; therefore, a wildlife undercrossing would be constructed approximately 400 feet south of the project limits along Cuyamaca Street so that it adequately conveys coyotes, mule deer, and smaller-sized wildlife, and uses existing or manufactured topography (Figure 5b, Wildlife Cross Section Plan View A, B, C, and D, and Figure 5c, Wildlife Corridors and Crossings). This crossing, which measure 6.9 meters (22.5 feet) wide by 3.7 meters (120 feet) tall by 35 meters (115 feet) long (0.7 openness ratio),[1] would meet the suggested 0.6 openness ratio suggested for mule deer and other large mammals in Southern California. The crossing will have a raised floor and/or side platform to allow dry passage for wildlife when water is flowing. Interior roads connecting the development bubbles would employ road signs, speed bumps, and other traffic-calming devices to reduce traffic speeds to 25 miles per hour to allow wildlife to cross roads more safely. Interior roads will also have limited or no lighting, rolled curbs and gutters to ease small wildlife movement, narrow medians, tinted concrete surfaces to mimic natural soils, and low traffic volumes (Figure 5a). Small 48-inch diameter reinforced concrete pipe culverts, and curbs directing small wildlife species into the culverts, will be installed under Fanita Parkway to allow western spadefoot and other small wildlife to cross (Figure 5a).

[1] ACOE defines a culvert's openness ratio as the culvert's cross-sectional area divided by its length. This is calculated in meters.

Due to the approximate 900-acre block of habitat being preserved in the southern portion of the project site, the loss or constraint of local wildlife movement opportunities would not adversely affect genetic exchange and diversity of populations at the landscape level. That is, none of the wildlife species that could be affected or displaced by the loss or constraint of local movement areas have genetically unique or endemic populations that would be functionally isolated from other populations, and the regional habitat linkages would ensure that genetic exchange and diversity of these species in the region would be maintained. The open space configuration for the project would maintain connectivity to the north into Sycamore Canyon Open Space Preserve, to the east into open space County lands, and to the west into MCAS Miramar open space (which contains over 3,000 acres of coastal sage scrub and 9,000 acres of chaparral) (Figure 6, Regional Wildlife Corridors). This PMP will provide long-term management for the large block of suitable habitat for wildlife movement by maintaining connectivity to regional habitat linkages. See Table 7, which summarizes other open space preserves in the region and known key isolated California gnatcatcher populations in Southern California for comparative purposes.

Table 7
Open Space Preserves within the Fanita Ranch Vicinity

Open Space	Acreage
Goodan Ranch/Sycamore Canyon Open Space Preserve	2,272
MCAS Miramar	3,770 (coastal sage scrub); 9,258 (chaparral)
Mission Trails Regional Park	7,220
El Capitan Preserve	2,619
Fanita Ranch Preserve	1,686 (includes a 900-acre block)
Barnett Ranch County Preserve	728
Boulder Oaks County Preserve	1,268
Del Dios Highlands County Preserve	774
El Capitan County Preserve	2,619
Los Peñasquitos Canyon County Preserve	3,700
Luef Pond County Preserve	90
Mt. Gower County Preserve	1,574
Oakoasis County Preserve	400
Santa Margarita County Preserve	221
Simon County Preserve	650
Tijuana River Valley Regional Park	1,800
Wilderness Gardens County Preserve	737

MCAS = Marine Corps Air Station.



SOURCE: SANGIS 2017, 2019

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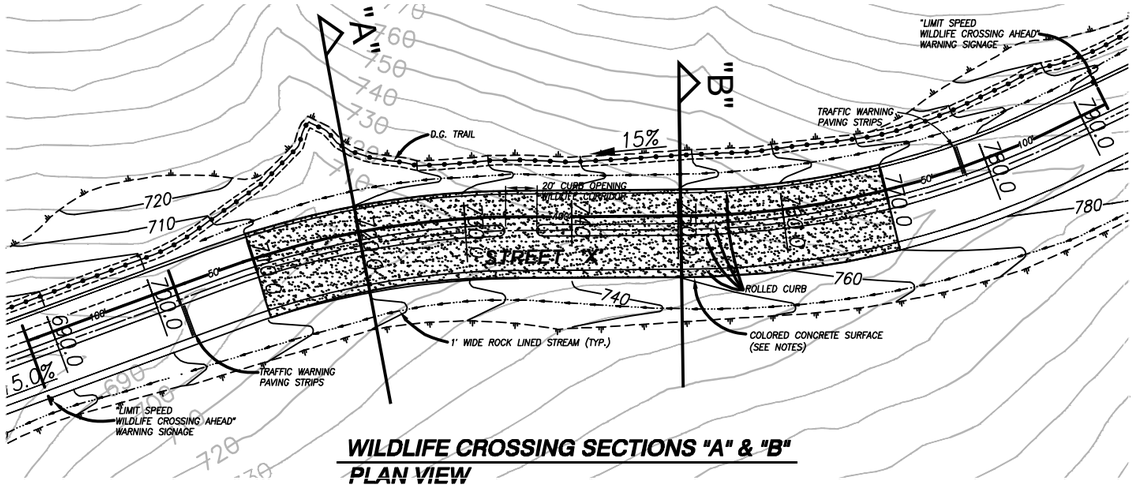
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FIGURE 5a

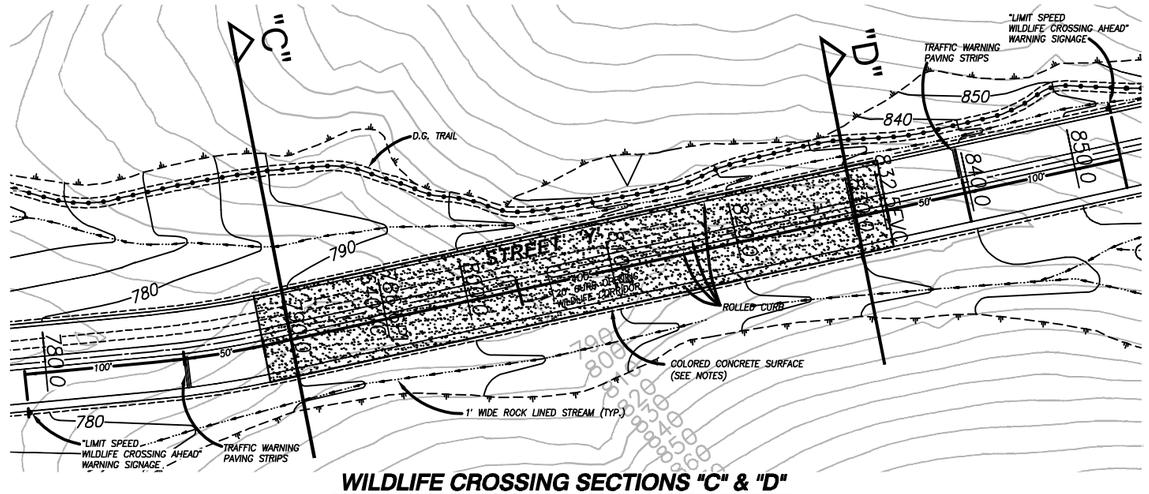
Local Wildlife Corridors

On-Site Preserve Management Plan for the Fanita Ranch Project

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WILDLIFE CROSSING SECTIONS "A" & "B"
PLAN VIEW



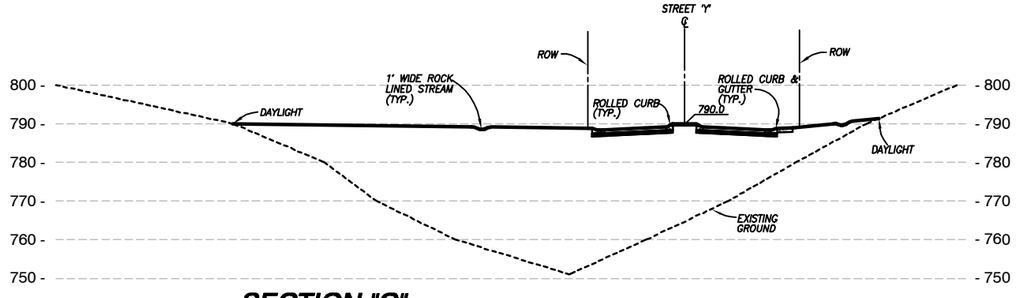
WILDLIFE CROSSING SECTIONS "C" & "D"
PLAN VIEW



SECTION "A"

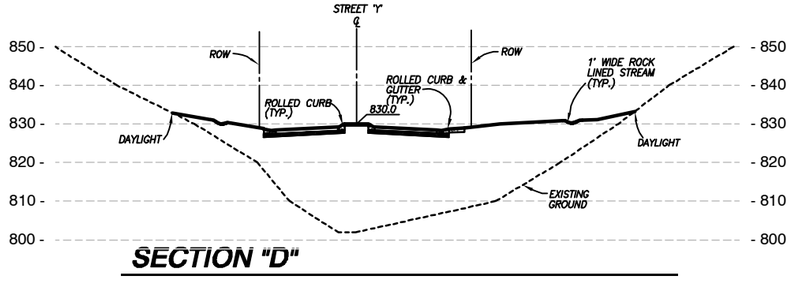
SCALE: 1"=20'

SECTION "B"



SECTION "C"

SCALE: 1"=20'



SECTION "D"

SOURCE: Hunsaker 2018

FIGURE 5b

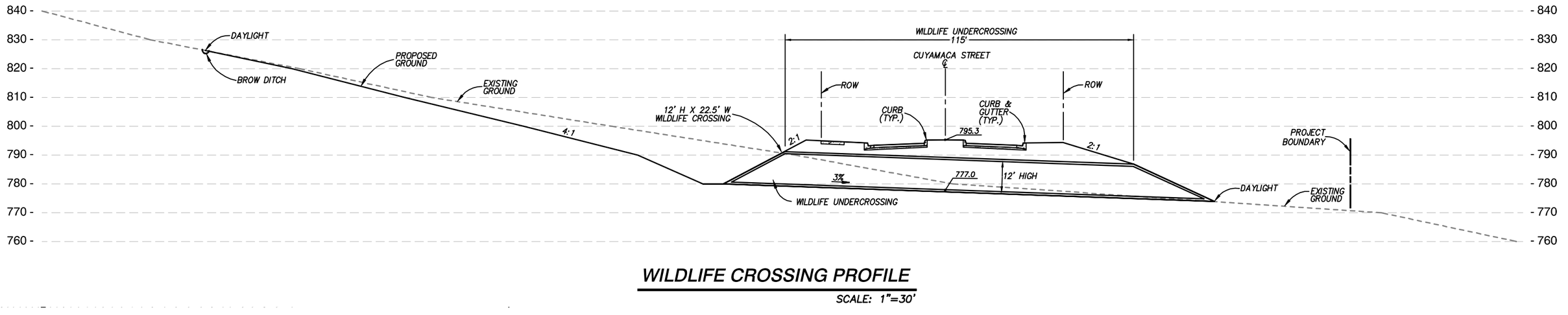
Wildlife Cross Section Plan View A, B, C and D

On-Site Preserve Management Plan for the Fanita Ranch Project

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WILDLIFE CROSSING PROFILE

SCALE: 1"=30'

SOURCE: Hunsaker 2019

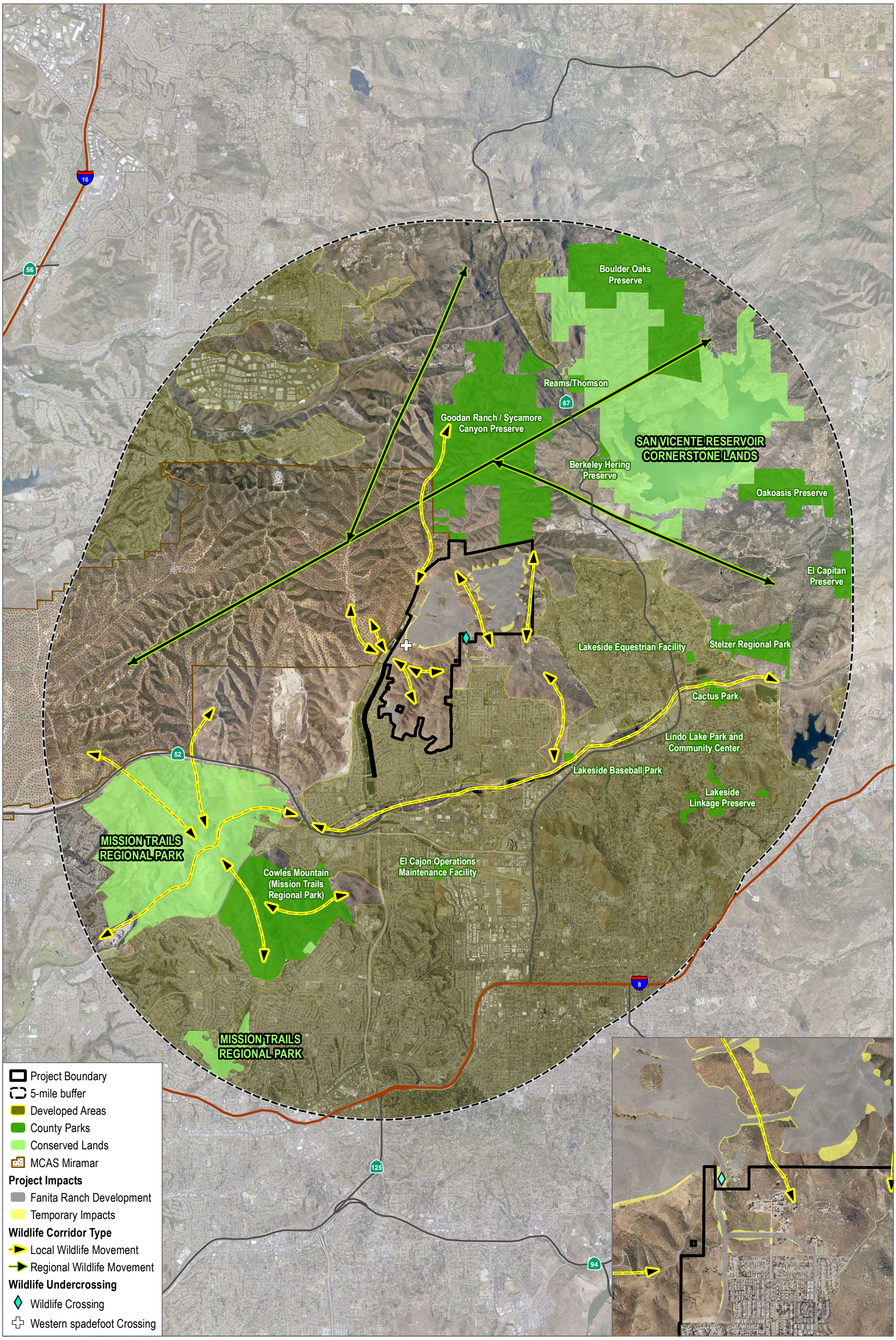
FIGURE 5c

Wildlife Corridors and Crossings

On-Site Preserve Management Plan for the Fanita Ranch Project

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SOURCE: SANGIS 2017, 2019

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0 1 2 Miles

FIGURE 6

Regional Wildlife Corridors

On-Site Preserve Management Plan for the Fanita Ranch Project

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3.6 Overall Biological Value

As described in the above sections, the on-site Habitat Preserve supports a variety of native vegetation communities, wetlands, non-wetland waters, special-status plant and wildlife species, and wildlife movement. It is adjacent to contiguous areas of undeveloped habitat, providing habitat connectivity to adjacent open space and preserve areas (Figures 4a through 6).

3.7 Restoration and Enhancement Opportunities

Restoration and enhancement activities implemented under this PMP are intended to occur over discrete areas associated with limited disturbance areas. Activities will include a combination of active and passive restoration programs that will gradually increase biological resources within the Habitat Preserve through periodic treatments, mainly involving seed application on a landscape level combined with weed control activities. The distribution of treatment blocks is shown on Figure 7a, Potential Restoration Treatment Areas, and Figure 7b, Conceptual Habitat Treatment Areas. Figure 7a shows the potential restoration treatment polygons within the Habitat Preserve. As shown on Figure 7b, the Habitat Preserve was divided into Zone A and Zone B. Zone A includes areas that will receive treatment on a rotational basis, whereas Zone B will receive as-needed treatment since this area of the Habitat Preserve is more intact. Each hexagon is approximately 12 acres and numbered 1 through 8, which represents the year that treatment activities will take place within that hexagon. This would be separate from the treatments occurring from restoration activities associated with the project's temporary impacts. Treatments are directed to increase biological resources for the following special-status species: Coulter's saltbush, San Diego barrel cactus, San Diego goldenstar, variegated dudleya, willowy monardella, Quino checkerspot butterfly, Hermes copper butterfly, San Diego fairy shrimp, western spadefoot, coastal California gnatcatcher, and coastal cactus wren. The restoration and enhancement occurring within the Habitat Preserve does not require the recovery of any listed species and is not associated with species recovery as defined by the Endangered Species Act, but meets the conservation standard of the Natural Community Conservation Plan, and is intended to assist in species recovery efforts. Covered species monitoring will be conducted by the Wildlife Agencies and the San Diego Management and Monitoring Program, in accordance with the MSCP Plan and the Draft Santee MSCP Subarea Plan.

3.7.1 Restoration

Restoration is proposed in areas that will be temporarily impacted by the proposed project, but which will remain within the Habitat Preserve. Temporary impact areas will be restored to the appropriate native vegetation community type. To determine the appropriate restored habitat, the Upland Restoration Plan will include an evaluation of restoration suitability specific to proposed vegetation types, soil preparation, plant palettes, discussion of irrigation, erosion control, maintenance and monitoring program, and success criteria, as approved by the City. All areas will

be monitored for a minimum of 5 years to maximize the likelihood of establishment of intended plant communities. Some of the restored upland communities will be on fill slopes associated with roadways; the portion adjacent to the roadways will likely require frequent maintenance for trash removal. Additionally, the Wetlands Mitigation Plan for the Fanita Ranch Project will describe the program to mitigate anticipated temporary impacts to waters of the United States and wetlands vegetation communities. Temporary impacts to sensitive upland and wetland vegetation communities will become a managed part of the Habitat Preserve once restored.

According to the Draft Santee MSCP Subarea Plan, temporary impacts to native grassland require a 2:1 mitigation ratio. A 1:1 ratio of in-place restoration for impacts to native grassland areas, in addition to a 1:1 ratio of preservation and/or creation of native grassland within the Habitat Preserve, would satisfy the 2:1 mitigation ratio for impacts to native grassland outlined in Table 5-14 in the Draft Santee MSCP Subarea Plan. Restoration and creation of native grassland will have the added benefit of increasing suitable habitat for grasshopper sparrow.

The salvage of individual special-status plants, including four Covered plant species (variegated dudleya, San Diego goldenstar, willowy monardella, and San Diego barrel cactus) and one sensitive plant species (Coulter's saltbush), from the project's impact footprint prior to construction and translocation into the Habitat Preserve would help ensure the likelihood of their long-term viability. The Rare Plant Mitigation Plan will discuss appropriate methods for plant salvage and/or growing and planting; in general, the impacted population of the sensitive plant will be targeted for salvage and translocation to meet the 80% minimum translocation survival rate. Where this is not feasible, germination and growing of appropriate genetic stock will occur and be planted on site in suitable receptor sites. Success of the translocation program, within the receptor sites such that the plant and acreage goals are established, will be measured through 5 years of monitoring and annual reporting to the City and the Wildlife Agencies. The translocation program will be detailed in the Rare Plant Mitigation Plan and integrated with the Upland Restoration and Wetlands Mitigation Plans, as appropriate.

3.7.2 Enhancement

The goal of enhancement within the Habitat Preserve is to reinforce the passive revegetation of native habitat with habitat enhancement activities such as weed control, native seed mix applications, container plant installation, and limited irrigation. Enhancement of native habitats is intended to increase native habitat resources throughout the Habitat Preserve as natural recruitment (i.e., habitat restoration opportunities) is identified by the Preserve Manager. It is anticipated that gradual habitat enhancements will focus on mapped disturbed habitat and mapped disturbed native vegetation communities, such as coastal sage scrub and native grassland. Enhancement treatments directed at coastal sage scrub and native grassland within the Habitat Preserve will directly benefit

Quino checkerspot butterfly, coastal California gnatcatcher, Hermes copper butterfly, Belding's orange-throated whiptail, and Blainville's horned lizard, among others.

Rehabilitation/enhancement of existing seasonal basin features (i.e., natural vernal pools and road ruts containing vernal pool indicator plant and wildlife species) within the Habitat Preserve, and creation of new features as outlined in the Vernal Pool Mitigation Plan will provide greater higher quality habitat for both San Diego fairy shrimp and western spadefoot. In addition, this will present opportunities for introduction of other listed vernal pool plants if deemed appropriate by the City and Wildlife Agencies.

In-perpetuity management of the Habitat Preserve will focus on removal of non-native grasses, weedy material, and duff layers through hand-weeding, mowing, or with herbicide, so that habitat is more suitable for Quino checkerspot butterfly. Habitat enhancement may also include the addition of dot-seed plantain and other host and nectar plants that are obligate for Quino checkerspot butterfly, in seed mixes in areas of habitat restoration within the Habitat Preserve and/or focused planting areas specifically for Quino checkerspot butterfly. Figure 7a includes the recommended, high priority areas for host plant enhancement.

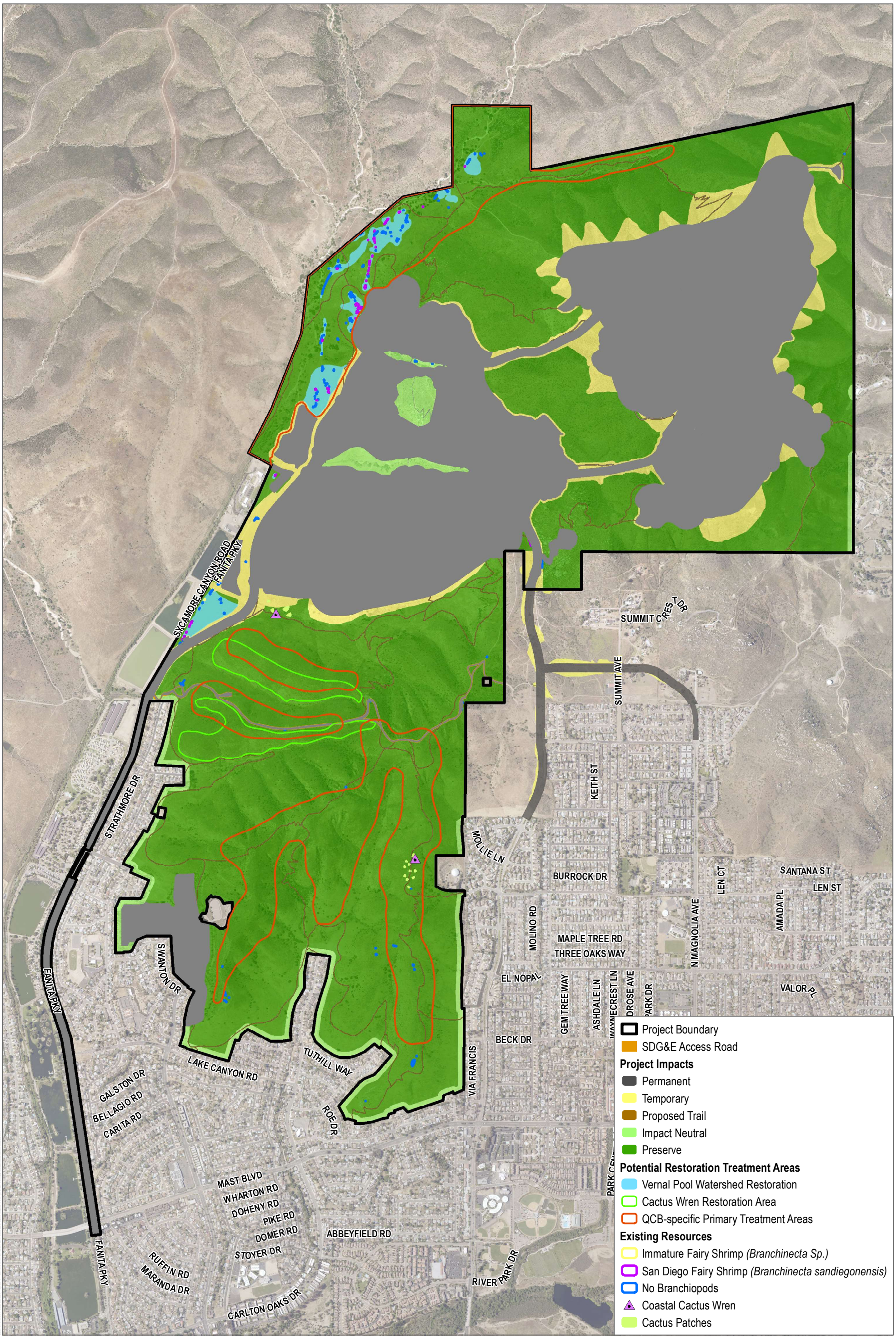
Additionally, to reduce edge effects from incursions by domestic pets, children, or recreationists along the Habitat Preserve/development interface, brush management zones, temporary impact zones between roadways, and manufactured slopes will be planted as appropriate with cactus species, coast prickly pear (*Opuntia littoralis*) and coastal cholla (*Cylindropuntia prolifera*), and redberry buckthorn (*Rhamnus crocea*), which is the host plant for Hermes copper butterfly. Cactus will be planted so that it does not hinder fire access, but will be clustered so that it discourages or inhibits encroachment. An added benefit is that these areas eventually could support coastal cactus wren and Hermes copper butterfly.

Special treatment will be required when enhancing old off-road trails. These areas are characterized by highly compacted soil that has lost most of the finer soil particles through erosion. Vegetation is absent. Re-establishment of native vegetation in these areas requires pre-treatment as follows:

- Block access to the trail from adjoining trails or other access. This may be done using post-and-rail (or similar) fencing, boulders, native vegetation debris piles, or other means.
- Elimination of soil compaction using hand tools or a walk-behind roto-tiller.
- Soil amendment or import topsoil to create surface grades that are flush with the adjacent native grade to re-establish sheet flow through the area. Care must be taken to not concentrate flow that can cause erosion.
- Install best management practices in the form of temporary erosion control, such as the use of bundled native organic debris, fiber rolls (that are made with weed-free straw

and woven jute thread mesh), and 100% straw (weed-free) erosion control blanket (sewn with jute thread).

- Application of a native seed mix either hand broadcast or using hydroseed methods. If hydroseeded, consider using a soil tackifier that will help hold seed to the soil and reduce erosion.
- Installation of container plant for species that do not establish well from seed or if seed is unavailable from local collections or commercial sources.



SOURCE: SANGIS 2017, 2019

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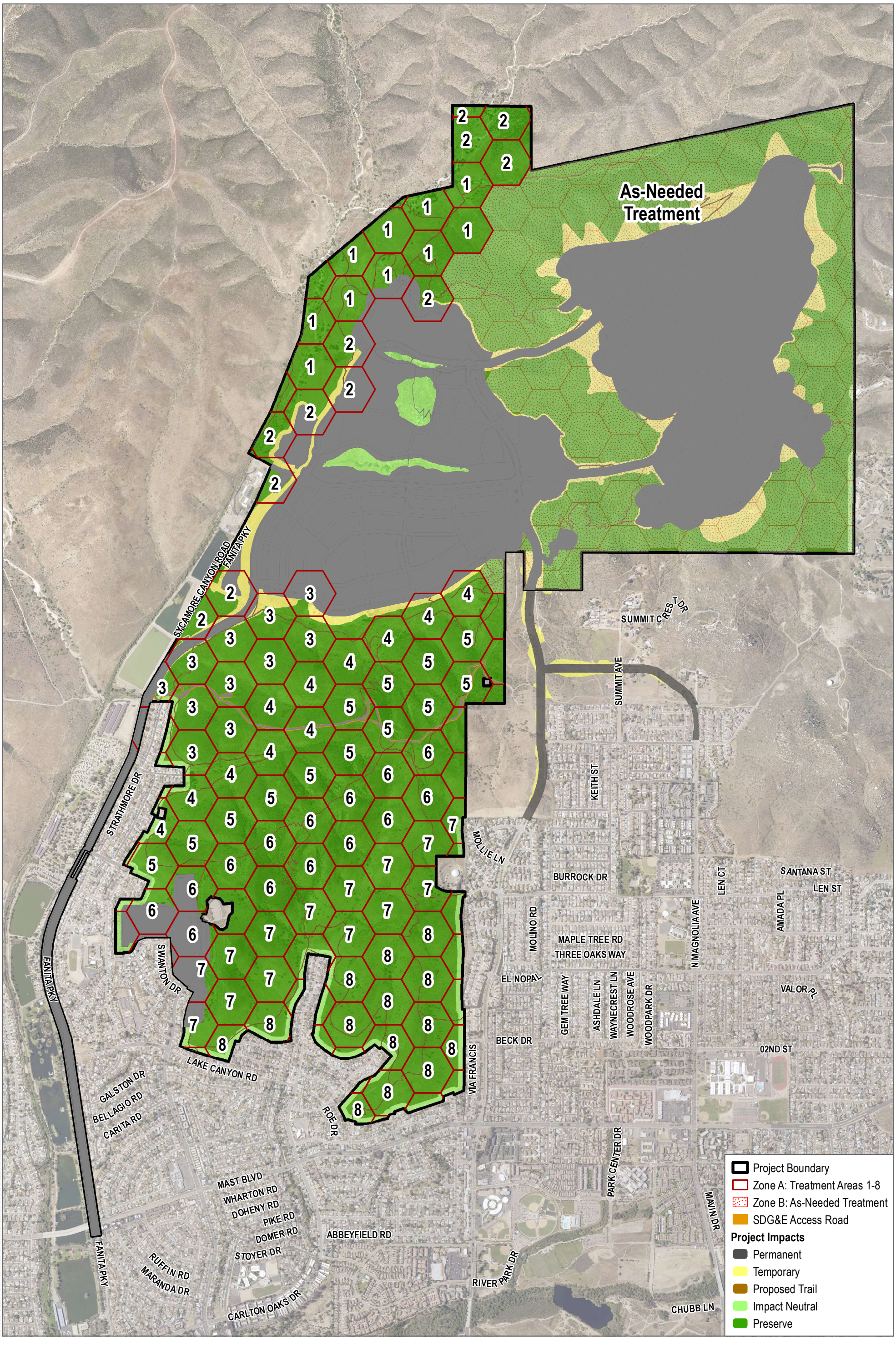
0 750 1,500 Feet

FIGURE 7a

Potential Restoration Treatment Areas

On-Site Preserve Management Plan for the Fanita Ranch Project

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SOURCE: Hunsaker 2018; SANGIS 2017, 2019

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0 750 1,500 Feet

FIGURE 7b

Habitat Treatment Areas

On-Site Preserve Management Plan for the Fanita Ranch Project

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4 BIOLOGICAL RESOURCE MANAGEMENT

This PMP identifies activities to manage and preserve the sensitive biological resources within the Habitat Preserve. The main goal is to conserve the 1,650 acres of on-site Habitat Preserve, including the sensitive plant and wildlife species it supports.

4.1 Management Goals

Goal: To preserve and manage lands to the benefit of the flora, fauna, and native ecosystem functions reflected in the natural communities occurring within the Habitat Preserve.

Ongoing species and habitat monitoring will occur in accordance with City and regional standards. These standards typically include vegetation mapping every 5 years. Habitat maintenance may be required if vegetation mapping indicates habitat conversion that is detrimental to the preservation of native ecosystem functions. Specific management tasks are described in the following section, 4.2 Biological Management Tasks.

4.2 Biological Management Tasks

The biological management tasks associated with the Habitat Preserve are outlined in Table 2 of this report. This section includes a description of each of the tasks required for management of the open space.

4.2.1 Baseline Inventory of Resources and Threats

The first year of the Habitat Preserve monitoring program will focus on an inventory of the baseline conditions within the Habitat Preserve with regard to natural vegetation communities and observed or foreseeable threats to the health of the vegetation communities and constituent plant and wildlife species such as invasive exotic plant and animal species, altered hydrology, geomorphology, degraded water quality, and incompatible land uses and activities (e.g., OHVs or use of pesticides adjacent to the Habitat Preserve). This information will be spatially represented in a GIS database. It may be that a simple update is required due to the abundance of existing data that exists.

It is important to note that the Habitat Preserve nearly completely burned in the 2003 Cedar Fire and that the current vegetation communities are still recovering from the burn (i.e., the current vegetation communities are not at climax stages). For this reason, and others that affect vegetation communities (e.g., precipitation cycles, and past and current land disturbances), dual communities were mapped in areas that supported more than 20% native grasses within shrubs and additional combinations of vegetation communities were mapped as artifacts of post-2003 fire mapping.

While vegetation mapping was updated in 2014, establishing the baseline for future monitoring of the vegetation communities will require a current mapping of the communities on the Habitat Preserve. The existing vegetation map dates from 1996-1997, with field checking in May 2003 by Dudek biologists, and again in 2004 following the October 2003 Cedar Fire, which burned almost the entire Habitat Preserve area. Dudek revisited the project site in 2014 to verify and update the vegetation mapping after an approximate 10 years of recovery. Because of the dynamic nature of vegetation communities, however, the acreages of mapped vegetation communities can only be used as a guideline for evaluating the overall health of the Habitat Preserve and future native plant community distribution.

Threats to the Habitat Preserve to be inventoried are those that could affect the long-term function and values of the system and lead to long-term, and possibly irreversible, degradation of natural vegetation communities, including the following:

- Wildfires (both too frequent and too infrequent)
- Invasive exotic plant and wildlife species
- Altered hydrology and geomorphology
- Degraded water quality
- Human activities such as OHV use, unauthorized trail creation, trash dumping, unleashed pets, and feeding wildlife.

Establishing the baseline for these threats will be conducted in conjunction with the vegetation community mapping and will include field checking and evaluation. A rapid assessment technique, such as the semi-quantitative relevé technique (CDFW and CNPS 2019) will be used to characterize the vegetation communities with regard to their recovery from the 2003 Cedar Fire and extent of invasive exotic plant species. This method allows for relatively quick categorization of vegetation conditions using visual estimates. It also includes codes to characterize threats to sites, including those thought to be relevant to Habitat Preserve management, including OHVs, unauthorized trails, invasive exotic plants (e.g., giant reed, annual grasses), vandalism, erosion and runoff, and non-native predators (e.g., African clawed frog, domestic animals).

The relevé technique involves the establishment of fixed relevé plots throughout the Habitat Preserve that are monitored and visually evaluated on a regular schedule. Percent native vegetation cover, species diversity, and habitat type are visually estimated and compared to previously collected data to form a data array over the monitoring period that can be used to identify significant changes within native plant communities. These trends become the triggers for management actions as threats and opportunities are revealed through repeated observations.

Results of the relevé evaluations would form a substantial portion of the Preserve Manager's documentation of changes within the Habitat Preserve over time.

4.2.2 Update Biological Mapping and Aerial Photography

Every 10 years, the Preserve Manager will update the vegetation map on a current aerial photograph of the Habitat Preserve. This task includes mapping vegetation over the entire Habitat Preserve and updating the aerial photography. It is recommended that the Habitat Preserve be overflown with an Unmanned Aerial System (UAS; i.e., drone) to collect accurate and detailed RGB (color) imagery on a regular basis as well.

Vegetation communities will be mapped using two compatible classification systems: (1) Holland (1986) as modified by Oberbauer (Oberbauer et al. 2008), and (2) the Vegetation Classification Manual for Western San Diego County (SANDAG 2011). Both systems provide methods to classify vegetation. Holland communities are described at a landscape scale and are currently used by Santee for mitigation analysis and to plan conservation targets for the Draft Santee MSCP Subarea Plan. The San Diego Vegetation Classification system provides a higher-resolution view into the specific vegetative components of communities and changes within communities over time and is more detailed than the Holland classification system. Vegetation mapping within the Habitat Preserve will be completed based on field surveys using the San Diego Vegetation Classification system and cross-walked to the Holland classification (not the other way around).

Ongoing invasive plant surveys will be conducted along natural conduits for dispersal (trails, drainages, disturbed areas) during general stewardship or biological monitoring, and/or through volunteer patrols. A comprehensive survey and assessment of the distribution of invasive plant species will be completed annually and summarized in the Habitat-Preserve-specific annual report.

4.2.3 Removal of Invasive Species

Invasive plant species control will be initiated by the Preserve Manager upon detection of an expanding patch or population of invasive plant species. This is particularly important when new invasive species to the County are detected. The Preserve Manager will map occurrences of perennial, non-native species that have a rating of moderate or high by the California Invasive Plant Council. The management objective for invasive species within the Habitat Preserve is complete elimination of invasive plant species. Elimination will focus first on interruption of weed reproduction and secondarily on physical removal. Detection will be immediately followed by mapping to determine the extent of the plant population and to characterize the environmental preferences of the species to better predict the possible areas where infestations could occur. Follow-up monitoring and mapping will be essential to track the geographic expansion or contraction of population(s), and population density. Management activities will continue until eradication is achieved.

If the use of herbicide is deemed necessary, application should be minimal and may only occur in compliance with all federal and state laws. Use of chemical herbicides will be determined in coordination with the County Department of Environmental Health. All herbicide use will be applied by backpack sprayers or stump painting directly on target weeds and will involve short-duration, biodegradable chemicals. Prior to use, a risk analysis and cost/benefit analysis will occur that evaluates the potential indirect threat and benefits to native botanical species.

4.2.4 Predator/Pest Control

The Preserve Manager will evaluate the need for predator/pest control and identify appropriate measures (e.g., pesticides, traps) to reduce/eliminate the problem. In general, predator control will be conducted as needed based on adaptive measures for special-status species (described in Section 4.2.6, Species Management). If significant predator/pest eradication actions are determined to be necessary, the Preserve Manager will notify the appropriate regulatory oversight agencies and take corrective action to eliminate problem species. This task includes annual evaluation and set up of traps, if necessary, for feral cats and/or other nest parasites/predators (i.e., brown-headed cowbirds and African clawed frog) that are determined by the Preserve Manager to have a detrimental effect on managed species. Domestic animals may be trapped and delivered to the Humane Society for return to the responsible owner, if an identification tag is present. If owner identification is possible and the owner is a member of the Fanita HOA, proper notice will be made to the HOA Board of Directors and corrective actions will be administered by the Board. Non-domestic species will be trapped or poisoned as recommended by a certified pest control advisor. However, it should be noted that native species (e.g., coyotes, bobcats, mule deer, woodrats, rabbits) will not be controlled unless they pose a threat to residents, pets, or property – these species have a key role in the functionality of the Habitat Preserve. Once identified and treated, the Preserve Manager will track the status of the non-domestic species' population on an annual basis and during periods where the species are most easily detected. These status checks will be entered into the Habitat Preserve's annual reports. See Section 4.2.7 for specifics on monitoring for cowbirds and African clawed frogs within the Habitat Preserve.

4.2.5 Species Surveys

Several special-status species were documented throughout the Habitat Preserve. Special-status plant populations documented within the Habitat Preserve include Coulter's saltbush, San Diego barrel cactus, San Diego goldenstar, variegated dudleya, and willowy monardella. Numerous special-status wildlife species were also documented in the project site and are listed in Section 3.4.

Protective measures to monitor and manage these species will be implemented, as necessary, to help ensure the persistence of preserved biological resources in the open space. Where applicable,

long-term monitoring for species will follow the methods outlined within the most current version of the Draft Santee MSCP Subarea Plan (Table 7-1). The current methods are presented below:

- **Wildlife Surveys**
    - Hermes Copper Butterfly – Every 5 years, because the Habitat Preserve is known to have suitable habitat for Hermes copper butterfly based on the habitat assessment, but is not currently occupied, focused surveys will be conducted following County interim guidelines for Hermes copper (County of San Diego 2010), or any subsequent guidance from the USFWS. Surveys will consist of at least two surveys, conducted at least 8 to 14 days apart, during the peak of the flight season, which is defined as May 25 to June 22 (County of San Diego 2010). Surveys will not be conducted in adverse weather and will not be conducted concurrently with other surveys. If Hermes copper butterfly is found on site, then a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the San Diego Management and Monitoring Program (SDMMP) Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017a) will be used. The threats assessment will focus on the distribution and quality of mature spiny redberry, associated California buckwheat, and threats and stressors (invasive species, changes in vegetation type cover resulting from alteration of fire regime and/or climate change) as it pertains to the habitat needs of Hermes copper butterfly.
    - Quino Checkerspot Butterfly – Every 5 years, effectiveness monitoring surveys will be performed that include focused surveys for Quino checkerspot butterfly, conducted at the height of the flight season in the highest quality habitat. Surveys will be conducted by a qualified biologist holding a USFWS recovery permit for this species. Except for the number of surveys, which will be reduced since 12 protocol surveys are not required for habitat management purposes, the surveys will follow the USFWS survey guidelines (USFWS 2014) regarding timing, weather conditions, and survey coverage. Baseline focused surveys for Quino will include at least three weekly surveys per year. Surveys will cover up to 10 acres of suitable habitat known to or likely to support host plant, and then 20% of the suitable habitat of the entire Habitat Preserve, focusing on highest potential habitat (as determined by professional judgment of the USFWS-permitted surveyor). To avoid surveying during suboptimal seasons, if precipitation totals are 25% or more below the mean rainfall by February of the survey year (i.e., 5th year), the focused surveys would be postponed until the next year (6th year). If rainfall is similarly low in the 6th year, surveys would be postponed until the next year (7th year). Surveys will be conducted during the 7th year regardless of rainfall, and the monitoring period will be reset. Every 3 years, a habitat evaluation and threats assessment will be conducted. A threats assessment protocol similar to the SDMMP Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017a) will be used. The threats

assessment will focus on the quality of host plants (invasive species, changes in vegetation type cover resulting from alteration of fire regime and/or climate change) as it pertains to the habitat needs of Quino checkerspot butterfly. If multiple populations exist, a threats assessment will be conducted for each occurrence.

- San Diego Fairy Shrimp – A tiered three-level monitoring approach will be completed at vernal pool complexes that will be managed on the Habitat Preserve that requires both qualitative and quantitative monitoring. Monitoring approaches and methods are described in detail in Appendix G, Vernal Pool Conservation Standards, of the Draft Santee MSCP Subarea Plan. Monitoring is the responsibility of the Preserve Manager and will be conducted by a qualified biologist following standard monitoring protocols. Monitoring would be coordinated with regional efforts conducted by other entities (e.g., USFWS, SDMMP).
- Belding's Orange-throated Whiptail and Blainville's Horned Lizard – Every 5 years, presence/absence surveys will be conducted as part of effectiveness monitoring. Surveys will be completed using a focused visual encounter survey methodology for terrestrial reptiles during the peak activity period for the species. These surveys will follow the time-constrained search methodology (Corn and Bury 1990) unless a more widely accepted monitoring method is implemented across the Draft Santee MSCP Subarea Plan area.
- Western Spadefoot Toad – Every 5 years, surveys will be conducted as part of effectiveness monitoring. During the winter, spadefoot tadpoles can be observed in the breeding pools for 8 to 10 weeks after breeding, but can be as little as 40 days. Surveys for spadefoot will begin within a week of the first significant winter rain, as early as October or November. Surveys for spadefoot eggs and tadpoles can be done during the day and do not require nighttime surveys. If spadefoot are not detected after the first rains, surveys will be repeated with the next rain event. Once breeding has been confirmed, surveys will be repeated at 4- to 6-week intervals to document the success or failure of the breeding effort. Nighttime surveys for adult spadefoot using eyeshine can be done at the onset of the rainy season if desired or if breeding pools do not fill. Pool size, depth, water temperature, and notes on habitat type and vegetation in and near the pools will be recorded (Fisher et al. 2004). Every 3 years, a habitat evaluation and threats assessment will be conducted. A threats assessment protocol similar to the SDMMP Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017a) will be used. The threats assessment will focus on the quality of breeding and upland aestivation habitat (invasive plant species, presence of non-native animal species, hydrologic modifications, changes in habitat cover resulting from alteration of fire regime and/or climate modifications, connections between breeding habitat and upland aestivation habitat) as it pertains to the habitat needs of western spadefoot toad. Document the level

of perceived human activities in breeding habitat (e.g., trail use, littering, and vandalism) as well as other threats to determine management needs.

- Coastal California Gnatcatcher – Every 5 years, comprehensive field surveys for coastal California gnatcatcher will be conducted within suitable habitat as part of effectiveness monitoring. Surveys will follow, at a minimum, the survey protocol used for the Carlsbad Habitat Management Plan (HMP) (City of Carlsbad 2013), which, with the exception of the timing and number of visits, follows the USFWS coastal California gnatcatcher protocol (USFWS 1997). Every 3 years, a habitat evaluation and threats assessment will be conducted. A threats assessment protocol similar to the SDMMP Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017a) will be used. The threats assessment will focus on the quality of coastal sage scrub habitat (invasive species, changes in vegetation type cover resulting from alteration of fire regime and/or climate change) as it pertains to the habitat needs of coastal California gnatcatchers. Other potential threats include human activity, edge effects, and nest predation and parasitism.
- Least Bell's Vireo – Every 5 years, comprehensive field surveys for least Bell's vireo as part of effectiveness monitoring will occur to identify the extent of occupied habitat within the Habitat Preserve. With the exception of the number and time separation of visits, surveys for least Bell's vireo will, at minimum, follow the USFWS Least Bell's Vireo Survey Guidelines Surveys (USFWS 2001). A total of three surveys will be conducted—one in mid-May, one in June, and one in early July. Every 3 years, a habitat evaluation and threats assessment will be conducted. A threats assessment protocol similar to the SDMMP Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017a) will be used. The threats assessment will include an evaluation of the vegetation as it pertains to the needs of least Bell's vireo (e.g., non-native vegetation outcompeting native saplings, low tree density). Also conduct photo monitoring at riparian locations within the Habitat Preserve. Take photographs at each photo station in the same cardinal direction as in previous years.
- San Diego Cactus Wren – Every 5 years, comprehensive field surveys will be completed in conjunction with surveys for coastal California gnatcatcher. Because of similar habitat requirements of coastal cactus wren and coastal California gnatcatcher, surveys for coastal cactus wren will be completed simultaneously with coastal California gnatcatchers using the same protocols. The survey results will include the location of pairs and individuals observed on site. A detailed mapping and inventory of cactus scrub habitat on the Habitat Preserve will be completed and maintained using the same methods and protocols used by SDMMP to map cactus patches on other preserve lands in San Diego County (TNC 2015). The cactus scrub habitat will be categorized based on size, quality, type, and an assessment of threats (e.g., invasive species). Particular focus will be on large cactus plant individuals, as cactus wren

typically have been found nesting at an average height of approximately 50 inches (138 centimeters), with an observed range of 30–90 inches (74–226 centimeters) (Unitt 2004). This information will serve as an update of cactus scrub habitat on the Habitat Preserve, support fire management planning, serve as a benchmark for restoration if a fire occurs, and facilitate the exchange of information with other regional entities on how to addressing cactus scrub habitat distributions. Every 3 years, a habitat evaluation and threats assessment will be conducted. A threats assessment protocol similar to the SDMMP Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017a) will be used. The threats assessment will include an evaluation of the vegetation as it pertains to the needs of San Diego cactus wren (e.g., native or non-native vegetation overtopping cactus, low cactus density). Photo monitoring and qualitative site visits of each cactus scrub patch location within the Habitat Preserve will be completed.

- Southwestern Willow Flycatcher – Every 5 years, comprehensive field surveys of breeding southwestern willow flycatcher will be completed as part of effectiveness monitoring to identify if occupied breeding habitat exist within conserved lands. With the exception of the number and timing of visits, surveys for southwestern willow flycatcher will follow the survey protocol for Southwestern Willow Flycatcher Surveys (Sogge et al. 2010). At least four complete surveys will be conducted—one in late May, two in June, and one in the first half of July. If occupied breeding habitat of southwestern willow flycatcher is found, then a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017a) will be used. The threats assessment will include an evaluation of the vegetation health as it pertains to the needs of southwestern willow flycatcher (e.g., non-native vegetation outcompeting native saplings, low tree density). Also conduct photo monitoring at riparian locations within the Habitat Preserve. Take photographs at each photo station in the same cardinal direction as in previous years.
- Western Burrowing Owl – Although burrowing owl surveys have been performed over open habitat with negative results, there is potential habitat present. Therefore, within the first year of Habitat Preserve conservation easements being established, a detailed baseline habitat assessment will be completed to identify areas suitable for burrowing owl foraging and breeding using the methodology described in Appendix C of the CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012). Of particular importance will be the presence of California ground squirrels in the Habitat Preserve. If suitable habitat (i.e., suitable open habitat with minimum 11-centimeter diameter burrows present) is present, then every 5 years, presence/absence surveys will be completed as part of effectiveness monitoring to identify if occupied habitat exists within the Habitat Preserve. Surveys will follow the methodology

described in Appendix D of the CDFW Staff Report on Burrowing Owl Mitigation (CDFG 2012). Surveys will only occur over those portions of the Habitat Preserve that contain suitably sized burrows. If occupied western burrowing owl habitat is found, a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017a) will be used. The threats assessment methodology includes the following:

- Determine and establish sampling plots (10-meter circular area to be consistent with the habitat sampling area in the SDMMP Rare Plant Monitoring IMG Protocol). Focus sampling plots within high priority areas and in the vicinity of documented occurrences (i.e., direct observations made during that year's species survey, observations from previous years' surveys, or incidental observations made during other site visits).
- To limit disturbance by the monitoring biologist, estimate the perimeter of the sampling plot rather than installing permanent markers or using a measuring tape. Threats and habitat assessments should be conducted concurrently, and can be conducted at the same time as species surveys.
- Threats assessment will include documentation the following with field notes: observations of predators such as coyotes or raptors, signs of unauthorized access such as off-road vehicle use, lack of mammal burrows, potential use of rodenticide, and thick or tall vegetation. Threats assessments can be conducted concurrently with species surveys and/or habitat condition assessments.
- Annual habitat assessment will include documentation of the following with field notes: presence/absence of ground squirrels, presence/absence of mammal burrows, percent cover of bare ground, and presence/absence of brush piles, scattered shrubs or structures that could be used as cover to hide from predators. Take photographs of the sampling area as described in the rare plant protocol.

- **Rare plant surveys.** Every 5 years, conduct comprehensive floristic surveys to identify rare plants within the Habitat Preserve following California Native Plant Society survey guidelines (CNPS 2018). Surveys must be conducted during the blooming period (spring, late summer, and fall). Floristic surveys will be led by a qualified rare plant botanist. If populations of rare plants are identified during floristic surveys, map the perimeter of the current extent of the occurrence. This will represent the maximum extent of the occurrence. In subsequent years, the occurrence may vary in size, and the maximum extent will expand to include all areas occupied by the species across survey years. Every 3 years, monitoring of known occurrences of listed and Draft Santee MSCP Subarea Plan-covered species will occur following the most current Management Strategic Plan Rare Plant Protocol (SDMMP 2017a). The Management

Strategic Plan Rare Plant Protocol is a rapid assessment protocol for assessing the status, habitat, and threats to a rare plant population. The current Management Strategic Plan rare plant protocol provides details on how to conduct the monitoring and how to complete a Rare Plant Occurrence Monitoring Form. The protocol includes the following steps:

- Within each sampling area, conduct occurrence status assessment as described in the protocol, using the Rare Plants Occurrence Monitoring Form.
- Map the perimeter of the current extent of the occurrence and make a population estimate. This will represent the maximum extent of the occurrence. In subsequent years, the occurrence may vary in size and the maximum extent will expand to include all areas occupied by the plant across survey years.
- Conduct photo-monitoring.
- Conduct habitat assessment within sampling area using the Rare Plant Occurrence Monitoring Form.
- Document threats assessment within the habitat plot on the Rare Plant Occurrence Monitoring Form. Assess the maximum extent of the rare plant population for any other threats.

4.2.6 Species Management

Based on the species surveys described earlier, management tasks for the rare plant populations and special-status wildlife species may be required. This includes weed control and predator control. Predator control is not anticipated at this time; however, if predators such as feral cats, raccoons, red fox, or other species cause nest failure or other detrimental effects on wildlife species, trapping or other predator control methods will be used.

4.2.6.1 Covered Plant Species

The following text is taken directly from Section 7.2.6, Management Actions and Adaptive Management Strategies for Covered Species, of the Draft Santee MSCP Subarea Plan. If populations of Coulter's saltbush, San Diego barrel cactus, San Diego goldenstar, variegated dudleya, or willowy monardella are identified within the Habitat Preserve, the following management actions will be implemented by the Preserve Manager to protect known populations within the Habitat Preserve.

1. Protect known occurrences
    a. If populations of Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya/willowy monardella are identified within a preserve during baseline and/or subsequent surveys, the Preserve Manager will identify and

implement appropriate measures to protect known populations to minimize disturbance and edge effects. Appropriate measures shall include but are not limited to:

- Protect areas of known occurrences from disturbance through fencing, signage, realignment of trails, and enforcement. Preserve Manager will inspect preserves at least quarterly, to assess for the integrity of fencing, signage, and to watch for any new disturbances, including trespass and fire. Preserve Manager will correct access controls as possible, while on site, and will coordinate enforcement if necessary. Preserve Manager will plan proposed trails to not be located adjacent to Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya/ willowy monardella occurrences. In some cases, existing trails adjacent to special-status plant occurrences will be retained within the Habitat Preserve for use by the public. See the Fanita Ranch Preserve Public Access Plan (Dudek 2020b) for information on how the maintenance and management of the existing retained trails will prevent impacts to adjacent special-status plant locations.

2. Apply adaptive management based on monitoring results

   a. **Adaptive management recommendations.** The Preserve Manager will develop adaptive management recommendations specific to Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya/willowy monardella based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

   b. **Implement adaptive management strategies.** Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya/willowy monardella include, but are not limited to:

      - **Conduct invasive plant management near known occurrences.** Conduct invasive plant and fuels management in the vicinity of Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya/willowy monardella. Maintain less than 20% invasive plant cover, and attempt to remove all invasive plants and grass thatch from the base of Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya/willowy monardella. Preserve manager will have maintenance conducted at least twice a year if weed cover is over 20%, but may adopt broader, more intensive, weed control efforts to reduce long-term maintenance needs. No change in management is needed if changes in invasive species coverage are declining or below these threshold levels.

- **Adjust vegetation management methods along the urban/wildland interface if feasible.** If a Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya occurrence is located within and near vegetation management zones, assess opportunities for adjusting vegetation management methods (e.g., modifying weeding activities to allow Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya to seed) that could allow Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/ variegated dudleya to thrive without reducing public safety.

3. Potential additional management actions not required by the Draft Santee MSCP Subarea Plan

   a. Evaluate opportunities to expand and enhance Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya within preserves. The Preserve Manager will conduct an evaluation of the preserves to determine if there are opportunities to expand and enhance Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya within the preserves. The Preserve Manager will coordinate with the City and other regional entities as appropriate, to determine the viability and whether the need for Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya enhancement is appropriate within the Habitat Preserve. While not a requirement, management actions could include transplanting, dethatching of non-native grasslands, and restoration of habitat. If it is determined that San Diego barrel cactus habitat expansion and/or enhancement is warranted on preserves, Preserve Manager will work to determine funding for restoration efforts using appropriate funding source(s), including outside sources such as grants and the SANDAG Transnet Environmental Mitigation Program (EMP). Habitat restoration and/or enhancement will be implemented using best available information on BMPs [best management practices] for Coulter's saltbush/San Diego barrel cactus/San Diego goldenstar/variegated dudleya. A qualified restoration biologist will determine and conduct monitoring of restored habitat.

   b. Evaluate opportunities to expand and enhance willowy monardella within preserves. The Preserve Manager will conduct an evaluation of the preserves to determine if there are opportunities to expand and enhance willowy monardella within the preserves. The Preserve Manager will coordinate with the City and other regional entities as appropriate, to determine the viability and whether the need for willowy monardella enhancement is appropriate within the Habitat Preserve. While not a requirement, management actions could include transplanting, planting of container stock, intensive hand-weeding around clusters of plants, and slightly less intensive weeding in the vicinity of willowy monardella. Activities could also include efforts to reduce channel downcutting. If it is determined that willowy monardella habitat expansion and/or enhancement is warranted on preserves, Preserve Manager will work to determine

funding for restoration efforts using appropriate funding source(s) such as grants and EMP. Habitat restoration and/or enhancement will be implemented using best available information on BMPs for willowy monardella. A qualified restoration biologist will determine and conduct monitoring of restored habitat.

4.2.6.2 Covered Wildlife Species

The following text is taken from Section 7.2.6, Management Actions and Adaptive Management Strategies, of the Draft Santee MSCP Subarea Plan.

Western Spadefoot

Rehabilitation/enhancement of existing seasonal basin features (i.e., natural vernal pools and road ruts containing vernal pool indicator plant and wildlife species) within the Habitat Preserve, and creation of new features as outlined in the Vernal Pool Mitigation Plan will provide higher quality habitat, including suitable breeding sites, for western spadefoot. Since populations of western spadefoot are known to occur within the Habitat Preserve, the following management actions will be implemented by the Preserve Manager to protect known populations.

1. Protect occupied habitat of western spadefoot toad
    a. The Preserve Manager will identify and implement appropriate measures to protect occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:
        - Minimize disturbance of upland habitats through planning new trails to avoid fragmentation of habitat and planning trails to avoid pools.
        - The Preserve Manager will prioritize efforts to minimize edge effects, manage invasive plant species, implement fire management and control unauthorized public access in portions of the preserves known to support western spadefoot.
2. Apply adaptive management based on monitoring results
    a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to western spadefoot based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.
    b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is

needed (USFWS 2016). Adaptive management actions specific to western spadefoot could include, but are not limited to:

- Removal of non-native aquatic species to protect and enhance known populations of western spadefoot. The Preserve Manager will evaluate status and conditions of non-native aquatic species detrimental to western spadefoot (e.g., American bullfrogs, African clawed frogs) to determine if actions within the Habitat Preserve should be taken to protect and enhance western spadefoot breeding habitat. The Preserve Manager will be responsible for the preparation of a non-native aquatic species control plan. Nonnative aquatic species removal may need to be implemented as part of a regional effort to effectively remove/control non-native aquatic species within the preserves and surrounding watershed/sub-watershed.
- Prevent net loss of suitable breeding habitat within preserves. If any decrease in distribution of suitable breeding habitat for western spadefoot toad is detected within the Habitat Preserve, determine the cause and take corrective actions (e.g., restoration following major wildfires that result in hydrologic modification and/or loss of breeding habitat). Suitable breeding sites can be created or enhanced as evidenced by the use of road rut pools (Rochester et al. 2017). Potential breeding sites shall not be limited to just a few or one pool. Redundant pools should be available to provide options and for the potential variability that some may fail while others succeed.
- Reduce direct mortality of adults from use of roads and trails within preserves. During the time of year that metamorphs are dispersing from the breeding pools, ensure that they also have the means to safely cross roads and trails. If western spadefoots are identified on roads/trails within preserves or on adjacent local roads, it should be determined from where they are entering the road and if the situation can be modified to reduce access to the road surface.

3. Potential additional management actions not required by the Subarea Plan

    a. Evaluate opportunities to expand and enhance western spadefoot habitat. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state if the preserve is located in an area which can support western spadefoot habitat. The Preserve Manager will conduct an evaluation of the preserve to determine if there are opportunities to expand and enhance western spadefoot breeding habitat within the preserve. Suitable breeding sites can be created or enhanced as evidenced by the use of road rut pools (Rochester et al. 2017). Potential breeding sites shall not be limited to just a few or one pool. Redundant pools should be available to provide options and for the potential variability that some may fail while others succeed. Funding may be sought using grants or EMP.

Belding's Orange-Throated Whiptail

Since populations of Belding's orange-throated whiptail are known to occur within the Habitat Preserve, the following management actions will be implemented by the Preserve Manager to protect known populations.

1. Protect known occurrences and occupied habitat of Belding's orange-throated whiptail
    a. The Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:
        - Identify and address any activities along the urban-wildland interfaces that facilitate Argentine ant infestations. Argentine ant infestations can be facilitated by over-watering of landscaping which can create an artificially damp soil conditions preferred by Argentine ants. The Preserve Manager will establish a schedule for general stewardship monitoring along the urban/wildlands interface to identify any activities that facilitate Argentine ant infestations. If situations occur, the Preserve Manager will coordinate with adjacent land-owners to address the situation. The frequency of urban/wildlands interface monitoring will depend upon the level of urban/wildlands interface that occurs on preserves and the type of urban development.
        - Conduct activities to encourage native termite activity. As native termites are a primary prey of Belding's orange-throated whiptail, the Preserve manager shall conduct activities to encourage natural decomposition of woody material in and adjacent to riparian areas. Any necessary fuels reduction near riparian areas will focus on removal of flashy herbaceous material over sticks and other woody material. This would not necessarily apply to fuel modification zones adjacent to development.
        - If new trails, staging areas, or other facilities that involve human presence are proposed on preserves, these facilities will be sited away (100-foot buffer) from areas of occupied Belding's orange-throated whiptail to the extent feasible. The goal will be to avoid the introduction of new facilities or trails that could reduce habitat quality, increase risk of trampling, or allow for unauthorized collecting.
        - Implement a public awareness program that includes information for residential developments adjacent to preserves with occupied Belding's orange-throated whiptail habitat about the significance of collecting, off-road driving, and uncontrolled pets to the Belding's orange-throated whiptail.
2. Apply adaptive management based on monitoring results
    a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to Belding's orange-throated whiptail

based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to coast horned lizard could include, but are not limited to

   - Prevent net loss of suitable habitat within preserves. If any decrease in distribution of areas of suitable Belding's orange-throated whiptail habitat is detected, determine the cause and take corrective actions (e.g., removal of threats from increased human activity such as unauthorized trail use or restoration following major wildfires that result in vegetation type changes with less open ground cover).

3. Potential additional management actions not required by the Subarea Plan

   a. Evaluate opportunities to expand and enhance Belding's orange-throated whiptail habitat. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat for Belding's orange-throated whiptail habitat beyond its original state if the preserve is located in an area identified through ongoing regional monitoring efforts as important Belding's orange-throated whiptail habitat. The Preserve Manager will coordinate with other regional entities as appropriate, determine if the viability and whether the need for Belding's orange throated whiptail habitat enhancement is appropriate within the Habitat Preserve. The evaluation will consider factors of regional-scale connectivity and linkages within and between core areas to identify areas that may require management to improve connectivity for small vertebrates. If it is determined that Belding's orange-throated whiptail habitat expansion and/or enhancement is warranted on the preserve, the Preserve Manager will work to determine funding for restoration efforts from appropriate source(s) such as grants or EMP. Habitat restoration will be implemented using best available information on methods to create and/or enhance Belding's orange-throated whiptail habitat (e.g., dethatching to maintain open areas). Determine and conduct monitoring of restored habitat.

Blainville's Horned Lizard

Since Blainville's horned lizard are known to occur within the Habitat Preserve, the following management actions will be implemented by the Preserve Manager to protect known populations.

1. Protect known occurrences and occupied habitat of Blainville's horned lizard
    a. The Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:
        - Identify and address any activities along the urban-wildland interfaces that facilitate Argentine ant infestations. Argentine ant infestations can be facilitated by over-watering of landscaping which can create an artificially damp soil conditions preferred by Argentine ants. The Preserve Manager will establish a schedule for general stewardship monitoring along the urban/wildlands interface to identify any activities that facilitate Argentine ant infestations. If situations occur, the Preserve Manager will coordinate with adjacent land owners to address the situation. The frequency of urban/wildlands interface monitoring will depend upon the level of urban/wildlands interface that occurs on preserves and the type of urban development.
        - If new trails, staging areas, or other facilities that involve human presence are proposed on preserves, these facilities will be sited away (100-foot buffer) from areas of occupied Blainville's horned lizard to the extent feasible. The goal will be to avoid the introduction of new facilities or trails that could reduce habitat quality, increase risk of trampling, or allow for unauthorized collecting.
        - Implement a public awareness program that includes information for residential developments adjacent to preserves with occupied Blainville's horned lizard habitat about the significance of collecting, off-road driving, and uncontrolled pets to the Blainville's horned lizard.
2. Apply adaptive management based on monitoring results
    a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to Blainville's horned lizard based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.
    b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is

needed (USFWS 2016). Adaptive management actions specific to Blainville's horned lizard could include, but are not limited to

- Prevent net loss of suitable habitat within preserves. If any decrease in distribution of areas of suitable Blainville's horned lizard habitat is detected, determine the cause and take corrective actions (e.g., removal of threats from increased human activity such as unauthorized trail use, or restoration following major wildfires that result in vegetation type changes with less open ground cover).

3. Potential additional management actions not required by the Subarea Plan
    a. Evaluate opportunities to expand and enhance Blainville's horned lizard habitat. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat for Blainville's horned lizard habitat beyond its original state if the preserve is located in an area identified through ongoing regional monitoring efforts as important Blainville's horned lizard habitat. The Preserve Manager will coordinate with other regional entities as appropriate, determine if the viability and whether the need for Blainville's horned lizard habitat enhancement is appropriate within the Habitat Preserve. The evaluation will consider factors of regional-scale connectivity and linkages within and between core areas to identify areas that may require management to improve connectivity for small vertebrates. If it is determined that Blainville's horned lizard habitat expansion and/or enhancement is warranted on the preserve, the Preserve Manager will work to determine funding for restoration efforts from appropriate source(s). Habitat restoration will be implemented using best available information on methods to create and/or enhance Blainville's horned lizard habitat (e.g., dethatching to maintain open areas). Determine and conduct monitoring of restored habitat.

Coastal California Gnatcatcher

Since coastal California gnatcatcher are known to occur within the Habitat Preserve, the following management actions will be implemented by the Preserve Manager to protect known populations.

1. Protect occupied habitat of coastal California gnatcatcher
    a. The Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:
        - If preserves have existing trail(s) adjacent to or within occupied coastal California gnatcatcher habitat and these trail(s) have been historically used for hiking, biking, and riding, seasonal trail closure or trail realignment is not considered necessary.

However, activities beyond historic trail use level shall be scheduled outside the coastal California gnatcatcher breeding season (February 15 through August 30).

- The Preserve Manager will prioritize efforts to minimize edge effects, manage invasive plant species, implement fire management and control unauthorized public access in portions of the Habitat Preserve known to support coastal California gnatcatcher.

2. Apply adaptive management based on monitoring results

   a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to coastal California gnatcatcher based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

   b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to coastal California gnatcatcher could include, but are not limited to

      - Actively restore coastal California gnatcatcher habitat if significantly impacted by fire. After a fire, the Preserve Manager will complete an inventory of coastal sage scrub areas that have been affected and estimate the potential for the habitat to recover to its original state through passive restoration (i.e., let habitat restore through natural processes). If it is determined that active restoration (i.e., planting and/or seeding of habitat) is warranted or beneficial, the Preserve Manager will pursue opportunities to complete restoration effort using appropriate funding source(s). Coastal sage scrub restoration will be implemented using current information on best approaches and strategies, including planting techniques, post-planting watering regimes, protection from herbivory, invasive plant control, and success criteria.

3. Potential additional management actions not required by the Subarea Plan

   a. Expand and enhance coastal California gnatcatcher habitat on preserves. The Preserve Manager will conduct an evaluation to determine if there are opportunities to expand and enhance coastal California gnatcatcher habitat within the Habitat Preserve. While this is not a requirement, the Preserve Manager is encouraged to take active steps to expand and improve habitat beyond its original state in areas that were determined very high or high value as part of regional habitat suitability modeling (Winchell and Doherty 2008). The Preserve Manager will coordinate with the City and other regional entities to determine if coastal California gnatcatcher habitat enhancement is applicable within the Habitat Preserve. The evaluation will consider factors of regional coastal

California gnatcatcher habitat connectivity, population dynamics, and proximity to population clusters. If it is determined that coastal California gnatcatcher habitat expansion and/or enhancement is warranted within the Habitat Preserve, the Preserve Manager will work to determine funding for restoration efforts using appropriate source(s). Coastal sage scrub expansion and enhancement will be implemented using current information on best approaches and strategies for coastal sage scrub restoration, including planting techniques, post-planting watering regimes, protection from herbivory, invasive plant control, and success criteria.

Coastal Cactus Wren

Since coastal cactus wren are known to occur within the Habitat Preserve, the following management actions will be implemented by the Preserve Manager to protect known populations.

1. Protect occupied habitat of coastal cactus wren
    a. The Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:
        - If preserves have existing trail(s) adjoining or within occupied coastal cactus wren habitat and these trail(s) have been historically used for hiking, biking and riding, seasonal trail closure or trail realignment is not considered necessary. However, activities beyond historic trail use level shall be scheduled outside the cactus wren breeding season (early March through July).
        - The Preserve Manager will prioritize efforts to minimize edge effects, manage invasive plant species, implement fire management and control unauthorized public access in portions of the preserve known to support coastal cactus wren.
2. Apply adaptive management based on monitoring results
    a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to coastal cactus wren based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.
    b. **Implement adaptive management strategies.** Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is

needed (USFWS 2016). Adaptive management actions specific to coastal cactus wren could include, but are not limited to

- **Conduct invasive species management near known occupied habitat.** If invasive species exceed 20% total vegetated cover around occupied cactus patches, or have increased by 25% or more since the previous survey, implement invasive species control measures within 20 feet of the cactus patches. In addition, identify situations in which vegetation management (e.g., thinning, dethatching) around cactus patches is warranted to reduce the threats of nest predation and fire intensity, as well as enhance cactus wren foraging opportunities. The goal of the habitat thinning is to reduce the potential fire intensity around a cactus patch during a fire and reduce the opportunity for nest predation from ground species (e.g., snakes). Native shrubs within 2 feet of cactus patches will also be pruned, as these can serve as ladders for predators. The Preserve Manager will implement quantitative or semi-quantitative monitoring to evaluate the BMPs and effectiveness of these focused vegetation management and/or invasive species control efforts.
- **Prevent net loss of suitable nesting habitat in the preserves.** If any decrease in distribution of cactus scrub habitat suitable for nesting is detected within the preserve, determine the cause and take corrective actions (e.g., removal of threats from unauthorized human activity, restoration following major wildfires that result in total loss of cactus patches). If it is determined that cactus wren habitat expansion and/or enhancement is warranted on the preserve, Preserve Manager will work to determine appropriate funding for restoration efforts using appropriate source(s). Cactus scrub restoration will be implemented using best available information on BMPs for cactus scrub restoration. The San Diego Management and Monitoring Program (SDMMP) has outlined best approaches and strategies for cactus scrub restoration, including site selection, patch size, cactus salvage, large specimen collection, propagule selection, planting layout (cactus planting, co-planting), plant protection, weed control, and supplemental watering (TNC 2015). A qualified restoration biologist will conduct monitoring of restored habitat following accepted monitoring protocols. Each restoration project site will be unique and warrant site specific monitoring success criteria be developed.
- **Conduct post fire evaluation and restoration**. For at least the first 3 years following a wildfire, conduct avian point counts to determine the status of coastal cactus wren occurrences affected by the wildfire. Use the established permanent camera stations and conduct photo-monitoring and qualitative site visits within cactus scrub patches to characterize post fire cactus scrub habitat recovery. Identify and prioritize management actions to recover coastal cactus wren populations and important cactus scrub habitat patches. If warranted, cactus scrub restoration will

be implemented using best available information on BMPs for cactus scrub restoration. SDMMP has outlined best approaches and strategies for cactus scrub restoration, including site selection, patch size, cactus salvage, large specimen collection, propagule selection, planting layout (cactus planting, co-planting), plant protection, weed control, and supplemental watering (TNC 2015). A qualified restoration biologist will conduct monitoring of restored habitat following accepted monitoring protocols. Each restoration project site will be unique and warrant site specific monitoring success criteria be developed.

3. Potential additional management actions not required by the Subarea Plan

    a. Expand and enhance cactus wren habitat within the preserve. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state if suitable cactus scrub habitat exists (SDMMP 2017b). The Preserve Manager will coordinate with the City and other regional entities as appropriate, to determine if the viability and whether the need for coastal cactus wren habitat enhancement is appropriate within the Habitat Preserve. The evaluation will consider factors of regional cactus wren habitat connectivity, population dynamics, and proximity to population clusters. If it is determined that cactus wren habitat expansion and/or enhancement is warranted on the preserve, Preserve Manager will work to determine appropriate funding for restoration efforts using appropriate source(s), such as grants and EMP. Cactus scrub restoration will be implemented using best available information on BMPs for cactus scrub restoration. SDMMP has outlined best approaches and strategies for cactus scrub restoration, including site selection, patch size, cactus salvage, large specimen collection, propagule selection, planting layout (cactus planting, co-planting), plant protection, weed control, and supplemental watering (TNC 2015).

Least Bell's Vireo

If populations of least Bell's vireo are identified within the Habitat Preserve, the following management actions will be implemented by the Preserve Manager to protect known populations.

1. Protect occupied habitat of least Bell's vireo

    a. The Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

        - If new trails, staging areas, or other facilities that involve human presence and noise, these facilities will be sited away (100-foot buffer) from areas of occupied least Bell's vireo habitat to the extent feasible. The goal will be to avoid the

introduction of new facilities or trails that could reduce habitat quality, result in habitat fragmentation, or allow for cowbird parasitism.

- If a preserve has existing trail(s) adjoining or within occupied least Bell's vireo habitat and these trail(s) have been historically used for hiking and riding, seasonal trail closure or trail realignment are not required, but may be considered. The Preserve Manager will avoid scheduling and allowing large events (e.g., 5K runs) that could substantially change trail use activity along a trail through or with adjoining occupied least Bell's vireo habitat during the breeding season (April 1 through July 31).
- Any necessary tree removal will be conducted in a manner to avoid impacts to least Bell's vireo. Regional efforts to control pests and pathogens may include removal of infected trees in riparian areas. Current pests and pathogens affecting trees in San Diego County riparian areas include goldspotted oak borer (GSOB) and Kuroshio shot hole borer (SHB)/*Fusarium* sp. complex. Tree removal will typically be conducted outside of the bird breeding season to avoid potential impacts. If there is a clear and immediate need to remove infected trees during the breeding season, the Preserve Manager will have nesting-bird surveys conducted to ensure that breeding birds are not affected and will coordinate with the USFWS and CDFW to ensure that federal and state laws protecting nesting birds are not violated.
- Preserve Manager will prioritize efforts to minimize edge effects, manage invasive plant species, implement fire management and control unauthorized public access in portions of the preserve known to support least Bell's vireo.

2. Apply adaptive management based on monitoring results

   a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to least Bell's vireo based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

   b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to least Bell's vireo could include, but are not limited to

      - Identify and conduct cowbird trapping. An evaluation of preserves will be completed to assess the potential of cowbird parasitism at the preserves. If it is determined that cowbird parasitism is a threat, the Preserve Manager will seek out opportunities to participate in other cowbird trapping program or initiate its own

cowbird trapping program. Cowbirds traps shall be erected in areas near concentrated uses, such as staging areas and well-used trails. Trapping locations shall be accessible to vehicles with water and perching areas nearby. A reconnaissance of the areas shall be conducted to identify potential predators. Traps shall be erected and set by March 15 and will be checked daily from March 15 through June 1. Once the birds have been caught within the traps, incidental non-target birds will be collected with a net and released. Adult cowbirds shall be humanely euthanized. The data sheets and a report documenting the findings shall be submitted to the City.

- Conduct invasive plant species management near known occupied habitat. Identify situations in which invasive species control (e.g., removal of invasive riparian species that displace native riparian trees such as giant reed or tamarisk) around riparian habitat is warranted to increase habitat suitability for native plant and wildlife species as well as enhance least Bell's vireo foraging opportunities by providing the biodiversity of native plant species that supports insect prey for least Bell's vireo. The goal of the invasive species removal is to remove non-native plants that alter morphology, hydrology, and biodiversity of riparian habitat for least Bell's vireo and other native riparian species (SDMMP 2017b). The Preserve Manager may implement quantitative or semi-quantitative monitoring to evaluate invasive species control efforts.
- Prevent net loss of suitable nesting habitat within a preserve property. If any decrease in distribution of riparian habitat suitable for nesting of least Bell's vireo is detected, determine the cause and take corrective actions (e.g., removal of threats from increased human activity such as unauthorized trail use, restoration following major wildfires that result in a loss of riparian habitat). Riparian habitat restoration will be implemented using best available information on BMPs for riparian restoration. SDMMP has outlined best approaches and strategies for least Bell's vireo habitat restoration, especially with respect to avoid cowbird parasitism, by focusing restoration on increasing density of understory vegetation to shield parental activity from searching cowbirds (SDMMP 2017b). Determine and conduct monitoring of restored habitat.

3. Potential additional management actions not required by the Subarea Plan

    a. Evaluate opportunities to expand and enhance least Bell's vireo habitat. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state if the Habitat Preserve is located in an area identified through ongoing regional monitoring efforts as core least Bell's vireo habitat. The Preserve Manager will coordinate with other regional entities as appropriate, determine if the

viability and whether the need for least Bell's vireo habitat enhancement is appropriate within the Habitat Preserve. The evaluation will consider factors of regional least Bell's vireo habitat connectivity, population dynamics, and proximity to population clusters. If it is determined that least Bell's vireo habitat expansion and/or enhancement is warranted on the preserve property, the Preserve Manager will work to determine funding for restoration efforts from appropriate source(s). Riparian habitat restoration will be implemented using best available information on BMPs for riparian restoration. SDMMP has outlined best approaches and strategies for least Bell's vireo habitat restoration, especially with respect to avoid cowbird parasitism, by focusing restoration on increasing density of understory vegetation to shield parental activity from searching cowbirds (SDMMP 2017b). Determine and conduct monitoring of restored habitat.

San Diego Fairy Shrimp

Rehabilitation/enhancement of existing seasonal basin features (i.e., natural vernal pools and road ruts containing vernal pool indicator plant and wildlife species) within the Habitat Preserve, and creation of new features as outlined in the Vernal Pool Mitigation Plan will provide higher quality habitat, including suitable breeding sites, for San Diego fairy shrimp. Since San Diego fairy shrimp are known to occur within the Habitat Preserve, the following management actions will be implemented by the Preserve Manager to protect known populations.

1. Conduct management and monitoring of vernal pools on preserves
    a. San Diego fairy shrimp is a vernal pool obligate species under the Subarea Plan. Management and monitoring of vernal pool plant species are addressed in the vernal pool management and monitoring section (see Draft Subarea Plan Section 5.5.7 and Appendix G, Vernal Pool Conservation Standards, to the Draft Subarea Plan).

Quino Checkerspot Butterfly

If populations of Quino checkerspot butterfly are identified within the Habitat Preserve, the following management actions will be implemented by the Preserve Manager to protect known populations.

1. Protect known occurrences and occupied habitat of Quino checkerspot butterfly
    a. If Quino checkerspot butterfly are identified within the Habitat Preserve during surveys, the Preserve Manager will identify and implement appropriate measures to protect occupied habitat to minimize disturbance and edge effects. Appropriate measures will include:
        - **Manage invasive plant species in occupied Quino checkerspot butterfly habitat**. Occupied habitat will be inspected for potential threats. If invasive plant

species exceed 10% total vegetated cover, or have increased by 25% or more since the previous survey, implement invasive species control measures. No change in management is needed if changes in invasive plant species coverage is declining or below these threshold levels.

- **Protect occupied Quino checkerspot butterfly habitat from unauthorized human activity**. If human activity (e.g., trail use) occurs in the vicinity of occupied habitat, evaluate the potential need for exclusionary fencing and signage for larvae locations, and implement where potential for human ingress exists.
- The Preserve Manager will prioritize efforts such as added fencing to minimize edge effects, manage invasive plant species, implement fire management and control unauthorized public access in portions of the property known to support Quino checkerspot butterfly.

2. Apply adaptive management based on monitoring results

   a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to Quino checkerspot butterfly based on results of monitoring efforts. Adaptive management recommendations such as increased fencing, using alternative host plant seed mixes, or changing the geographic areas for Quino management will be included in the annual report that will be reviewed by the City.

   b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed as directed by the 2016 Habitat Conservation Planning and Incidental Take Permit Processing Handbook (USFWS 2016).

3. Potential additional management actions not required by the Subarea Plan

Conduct supplemental planting of dot-seed plantain and other host plants. The Preserve Manager will conduct an evaluation to determine if there are opportunities to expand and enhance Quino checkerspot butterfly habitat within the Habitat Preserve. The Preserve Manager will take active steps to improve habitat beyond its original state since the Habitat Preserve is identified through ongoing regional monitoring efforts as core Quino checkerspot butterfly habitat (SDMMP 2017b). The Preserve Manager will coordinate with the City and other regional entities, as applicable, to determine where the viability and the need for Quino checkerspot butterfly habitat enhancement is appropriate within the Habitat Preserve. The evaluation will consider factors of regional Quino checkerspot butterfly habitat connectivity and linkages, population dynamics, and proximity to population clusters. Habitat enhancement will include the addition of dot-seed plantain and other host and nectar plants in seed mixes in areas of habitat restoration within the Habitat Preserve and/or focused planting areas

specifically for Quino checkerspot butterfly. The Preserve Manager will ensure that host plants are not placed in areas that are likely to be disturbed (e.g., avoid utility easements and roads).

Hermes Copper Butterfly

If populations of Hermes copper butterfly are identified within the Habitat Preserve, the following management actions will be implemented by the Preserve Manager to protect known populations.

1. Protect known occurrences of Hermes copper butterfly
    a. If Hermes copper are identified within the Habitat Preserve during surveys, the Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures include but are not limited to:
        - On preserves with public access, prevent unauthorized entry to suitable habitat, particularly open areas of California buckwheat near spiny redberry, through fencing, signage, and enforcement.
        - Avoid constructing trails in potentially suitable habitat and do not impact mature spiny redberry. Do not construct trails in habitat known to be occupied and consider realigning trails out of and away from occupied habitat.
2. Apply adaptive management based on monitoring results
    a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to Hermes copper butterfly based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.
        - Implement adaptive management strategies. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to Hermes copper could include, but are not limited to: Actively restore Hermes copper habitat if significantly impacted by fire. If occupied habitat is significantly impacted by fire, the Preserve Manager will pursue opportunities to implement habitat restoration to improve and speed habitat recovery and habitat quality. While this is not a requirement, the Preserve Manager is encouraged to take active steps to facilitate post-fire recovery of habitat back to its original state. Frequent and/or intense fires on preserves have the potential to extirpate populations. After a fire, the Preserve Manager will complete an inventory of suitable habitat that have been

affected and estimate the potential for the habitat to recover to its original state through passive restoration. Host plants and nectar plants may have different responses to different burns, as spiny redberry is capable of re-sprouting from an underground burl, while nectar plants cannot. If it is determined that active restoration is warranted or beneficial, the Preserve Manager will pursue opportunities to complete restoration effort using appropriate funding source(s). Suitable habitat restoration will be implemented using current information on best approaches and strategies for habitat restoration, including planting techniques, seeding, post-planting watering regimes, herbivore protection, invasive plant control, and success criteria. If populations of Hermes copper on preserve are lost to wildfire, and if the habitat can recover to be suitable for Hermes copper, Preserve Managers are encouraged coordinate with the USFWS and regional efforts for potential active reintroduction of adult Hermes copper.

3. Potential additional management actions not required by the Subarea Plan

    a. **Conduct supplemental planting of host and nectar plants to expand and enhance Hermes copper habitat**. Preserve Manager will conduct an evaluation to determine if there are opportunities to expand and enhance Hermes copper habitat on preserves. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state if the preserves are identified through monitoring efforts as high-quality Hermes copper habitat. The Preserve Manager will coordinate with the City and other to regional entities, as applicable, to determine the viability and whether the need for Hermes copper habitat enhancement is appropriate within the Habitat Preserve. The evaluation will consider factors of regional Hermes copper habitat connectivity, population dynamics, and proximity to population clusters. If it is determined that Hermes copper habitat expansion and/or enhancement is applicable on preserves, the Preserve Manager will work to determine funding for restoration efforts using appropriate source(s). Habitat enhancement may include planting of spiny redberry and California buckwheat, and invasive plant removal.

4.2.7 Monitoring

This PMP provides for monthly monitoring of the Habitat Preserve. The Preserve Manager will visit the Habitat Preserve each month to monitor the overall conditions of the Habitat Preserve and determine if any management tasks are required. Monitoring for predator species (i.e., brown-headed cowbirds and African clawed frog) and Argentine ants (*Linepithema humile*) that are determined by the Preserve Manager to have a detrimental effect on managed species will be conducted according to the methods listed below.

4.2.7.1 Brown-Headed Cowbird Trapping

A brown-headed cowbird trapping program shall be initiated within the Habitat Preserve as necessary. The trapping program shall include the following: trapping will begin during the first phase of grading and continue for a period of 15 years, or until such time as an alternative control method is developed, which will then replace the trapping program through the 15-year period. The trapping program will be based on the most currently used trapping methods. Three traps will be set at appropriate locations within or adjacent to the Habitat Preserve, though there is flexibility to install one at another location within the City sphere of influence (e.g., Santee Lakes) that might provide better local and regional benefits (e.g., along river or creek or at a local equestrian center). Trapping shall be performed between April 1 and August 1 unless 21 days without brown-headed cowbirds occurs, then trapping may end for that year.

To establish whether a cowbird trapping program is necessary, focused surveys will be conducted in and around the Habitat Preserve. A qualified biologist will survey the Habitat Preserve during February, April, and May of each year during the construction phase, through final buildout. If final buildout occurs before 10 years, then at least 10 years of surveys will be required. During the survey, no single biologist may cover more than 300 acres of Habitat Preserve. If 10 or more males or 5 or more females or juveniles are observed on any single occasion, then trapping shall commence. No additional monitoring or trapping will be required after 10 years, even if the brown-headed cowbird occurrence thresholds have not been met. Since there is a small segment of trail designated for equestrian use, the monitoring for brown-headed cowbirds will be monitored and managed in accordance with this PMP, even if the 10-year threshold has been met for the remainder of the Habitat Preserve. Yearly reporting of the trapping results shall be provided in accordance with this PMP and will minimally include the rationale for trap placement, number of target species, non-target species, mortalities of each, sex and age of each as able to be determined, comparison to prior trapping, and suggestions for the following year.

4.2.7.2 African Clawed Frog

African clawed frogs have been detected in the past within Sycamore Creek and vernal pool features on the Fanita Ranch project site. This monitoring program will determine the presence of African clawed frogs within occupied San Diego fairy shrimp and western spadefoot features. Monitoring will consist of surveying flowing and pooled portions of Sycamore Creek and restored and natural vernal pool features within the Habitat Preserve once per month from January through April while the project is in construction. After construction is complete, these areas will be surveyed for African clawed frogs once per year in March. If African clawed frogs are observed during the construction or postconstruction monitoring, then control measures will be implemented. Since different areas may require control each year, yearly updates will be made as necessary if African clawed frogs persist.

4.2.7.3 Argentine Ant

The invasive, non-native Argentine ant is a threat to covered species occurring within the Habitat Preserve. Argentine ants displace native pollinators (e.g., harvester ants [*Messor* spp., *Pogonomyrmex* spp.]) and are ineffective at seed dispersal. Further, Argentine ants, once established in a microhabitat, can wreak ecological havoc, disrupt ecosystem processes, and threaten future stability. The following measures will monitor and control Argentine ants in perpetuity within the Habitat Preserve.

Upon initiating construction, including landscaping within the development area, quarterly monitoring by a qualified biologist will be initiated for Argentine ants along the development–Habitat Preserve interface at sentinel locations where invasions could occur (e.g., where moist microhabitats that attract Argentine ants may be created). A qualified biologist will determine the monitoring locations. Ant pitfall traps, bait sampling, or similarly appropriate sampling method will be placed in these sentinel locations and operated on a quarterly basis to detect invasion by Argentine ants. If Argentine ants are detected during monitoring, direct control measures will be implemented immediately to help prevent the invasion from worsening. These direct controls may include but are not limited to nest/mound insecticide treatment, or available natural control methods being developed. A general reconnaissance of the infested area would also be conducted to identify and correct the possible source of the invasion, such as uncontrolled urban runoff, leaking pipes, or collected water. Monthly monitoring reports, as needed, will be submitted to the City Development Services Department. Monitoring reports will include remedial recommendations and issue resolution discussions when necessary.

Long-term quarterly monitoring will be conducted in-perpetuity to ensure that the Habitat Preserve is maintained free of Argentine ants. Quarterly monitoring will commence upon initiating construction adjacent to the Habitat Preserve, and will include both qualitative and quantitative monitoring. Through long-term quarterly monitoring along the urban–Habitat Preserve interface, it should be possible to identify trouble spots fairly early, before large colonies become established. If only a few ants (scouts) are found during a monitoring visit and soil moisture conditions in the area appear to be low enough to preclude colonization, a localized search within 300 to 500 feet of where the ants were observed may be adequate to identify and fix a source of increased moisture (e.g., a leaking pipe or uncaptured runoff) that could perpetuate an invasion. Fixing a leaking pipe, for example should then make conditions again unsuitable for Argentine ants and the colony would be expected to die out. If the monitoring reveals a high abundance of ants in the area, suggesting the presence of a nearby nest, implementation of direct control methods would be warranted.

The monitoring will inform management recommendations as necessary to maximize the likelihood that the Habitat Preserve remains free of Argentine ant invasion and in a healthy state. Special attention will be placed on examining preserve edges, as these locations are where new ant

invasions and other problems such as collecting moisture are often first detected. Quarterly monitoring will be conducted in perpetuity, and will be sufficient to detect incipient invasions.

- **Qualitative Monitoring.** The qualitative monitoring will involve a general site visit to inspect along the urban-Habitat Preserve interface. During each visit, the Preserve Manager or qualified biologist will note any changes from the baseline or previous visits, including any physiognomic changes, evidence of increased moisture along the edges of and within preserve areas, increased incidence of non-native species, human disturbance, or other factors that may further accelerate the spread of ants into the preserve. Quarterly assessments will also include a review of the preserve's physical features, including the condition of protective fencing, adjacent storm-drain outfalls, and BMPs to ensure they are functioning properly and not creating a suitable environment for Argentine ants. The Preserve Manager or qualified biologist will also review qualitative data collected during other preserve management activities, and incorporate relevant information into analysis of the success of the Argentine ant control program.
- **Quantitative Monitoring**. Quantitative monitoring will include pitfall traps, bait sampling, or other appropriate method along the urban–Habitat Preserve interface. During the first quarterly monitoring visit, the qualified biologist or Preserve Manager will determine the specific monitoring locations situated along the construction–Habitat Preserve interface where invasions could potentially occur (e.g., moist microhabitats that may attract Argentine ants). These locations may or may not be the same locations where pitfall trapping was conducted during construction of the project site.

  If Argentine ants are not detected during the qualitative or quantitative monitoring surveys, the results will be recorded in a data sheet and submitted in the annual monitoring report. Data entered into an electronic data sheet (e.g., the Kerata application) can then be uploaded directly into an Excel database for long-term tracking.

  If Argentine ants are detected during either qualitative or quantitative monitoring, direct control measures will be immediately implemented. The source of the invasion (e.g., uncontrolled urban runoff, leaking pipes, and ponding water) will be removed and any mitigation measures that are needed to restore the site shall be implemented first. Then, direct control measures will be implemented that address the severity of the invasion, the available control measures, location of the site, and proximity to special-status species. After application of direct control methods, weekly monitoring visits will be required until three consecutive monitoring visits have resulted in no detections of this species.

  Within 30 days of detection of Argentine ants, the results of the surveys will be submitted to City. Remedial actions undertaken, any follow-up measures, and locations of Argentine ant invasions will be documented and submitted to the City as needed until the Argentine

ant invasion has been successfully halted. These reports shall include remedial recommendations and issue resolution discussions when necessary.

- **Pitfall Trap Method Option**. Pitfall trapping for Argentine ants will be conducted by the Preserve Manager or qualified biologist who can identify the appropriate local invertebrate fauna to species level (to the extent possible) and at least to genus level. Unbaited pitfall traps consisting of 10 test tubes in a transect will be used at the urban–Habitat Preserve interface. It is recommended that at least 5 traps (Suarez et al. 1998) and up to 20 (Holway 1998) be used for monitoring. Monitoring is recommended for 5 consecutive days (Suarez et al. 1998), but the literature suggests anywhere from 48 hours (Porter and Savignano 1990) to 20 days (DiGirolamo and Fox 2006; Holway 1998). Transects will be set up to ensure thorough sampling of the Habitat Preserve. It is suggested that pitfall traps (test tubes) be aligned in a transect such that they are perpendicular to the preserve boundary (DiGirolamo and Fox 2006).

  After the end of the trapping, the qualified biologist/Preserve Manager will identify and count all species and representative specimens of each species will be collected as a baseline invertebrate inventory. The test tubes should be approximately 10 meters (33 feet) apart (DiGirolamo and Fox 2006). Traps will be test tubes (18 millimeters (0.7 inch) inner diameter by 150 millimeters (5.9 inches) long) on-third filled with a 1:1 solution of water and ethylene glycol, which will preserve arthropods. Ethylene glycol is sweet and therefore serves as an attractant to the ants. Each test tube will be dug into the ground, and the lip of the jar shall be flush with the ground. It is recommended that each test tube support an outer sleeve (e.g., an 18-centimeter (7-inch) piece of polyvinyl chloride (PVC) tubing) inserted into the ground that can be closed during the non-trapping period.

  If non-target species (e.g., skunk (*Mephitis* sp.), raccoon (*Procyon lotor*), or other mammals) are detected tampering with the traps, trapping will be suspended for 1 week to prevent chemical spills. When trapping is reinstated, daily checks of the traps will be implemented to ensure that there are no continuing issues. If non-target species are continually tampering with the traps, the Preserve Manager or qualified biologist will consult with the USFWS and CDFW on implementation of other sampling methods.

- **Soil Monitoring**. An additional part of the quarterly monitoring program will be to ensure that soil saturation is maintained at 10% saturation or less to preclude Argentine ants from occupying the Habitat Preserve. At the first monitoring visit, the Preserve Manager or qualified biologist will establish several (between two and seven, depending on the size of the preserve or open space area) permanent monitoring locations for soil moisture measurements. Two years of data will be collected as baseline information to which future data will be compared; comparisons across months and years will consider rainfall, season, and any additional relevant factors. Each monitoring location will be selected such that a representative sample is obtained

in several microhabitats (e.g., drainage, depression, hillside). It is suggested that these monitoring locations be adjacent to the pitfall trap transects.

In general, outside of natural winter variations, soil moisture concentrations of greater than 10% are expected to facilitate the spread of Argentine ants. However, in certain areas, such as drainages, soil depressions, or areas adjacent to irrigated slopes, moisture levels are expected to be higher than 10%. Therefore, if soil moisture at a given monitoring location deviates by less than 10% from the baseline, no further action is required. If soil moisture at a given monitoring location deviates by more than 10% from the baseline, remedial actions will be undertaken to rectify the problem.

- **Landscape Control**. Artificial irrigation, urban runoff, and container plants are key management areas that are likely to facilitate or enhance the ability for Argentine ants to spread into the Habitat Preserve. Container plants that are to be installed within 200 feet of the Habitat Preserve shall be inspected by the Preserve Manager or landscape contractor for Argentine ants and any plants that are found to contain Argentine ants shall be rejected and returned immediately to the nursery. Landscape plans will include a plant palette composed of native, non-invasive species that do not require high irrigation rates, and the Preserve Manager will need to review these plans. This will prevent the spread of Argentine ants into the Habitat Preserve because minimal standing water or other water sources is essential to reducing the potential for Argentine ant invasion. Except as required for fuel modification, irrigation of perimeter landscaping shall be limited to temporary irrigation (i.e., until plants become established).

4.3 Adaptive Management

The Preserve Manager is responsible for interpreting the results of site monitoring to determine the ongoing success of the PMP. If it is necessary to modify the plan between regularly scheduled updates, plan changes will be submitted to the City and Wildlife Agencies for approval, as required. Specific adaptive management strategies from the Draft Santee MSCP Subarea Plan for special-status plant and wildlife species are included in Section 4.2.6.

4.4 Operations, Maintenance, and Administrative Tasks

Table 2 and Section 4.2 describe a list of tasks such as baseline inventory, vegetation mapping, and regular visits to be conducted by the Preserve Manager. Regular visits will occur monthly and annually.

4.4.1 Goals

Goal: To manage, maintain, and administer the proposed project in an ongoing setting to ensure the integrity of the Habitat Preserve.

4.4.2 Tasks

The general operations, maintenance, and administrative tasks to be conducted by the Preserve Manager will include the following tasks:

4.4.2.1 Annual Monitoring Reports

A letter report will be submitted to the City that will summarize the overall condition of vegetation communities and sensitive species in the Habitat Preserve, outline proposed management tasks for the following year, and provide results of management activities proposed in the previous report. Submitted annually by the end of January, this letter report will compare the most recent data with those collected in previous years, evaluate sensitive species status and local wildlife corridor use, and outline appropriate remedial measures, per County and/or SDMMP guidelines. The report will also address any adaptive management (changes) resulting from previous monitoring results, and provide a methodology for measuring the success of adaptive management. Copies of California Natural Diversity Database forms submitted to the state for any new sensitive species observations or significant changes to species previously reported will be included, as will copies of invasive plant species forms submitted to the state or County. Fees for County review will also be included with submittal of the annual report.

The results of all updated vegetation mapping (every 5th year) and sensitive species monitoring will be included in the appropriate annual letter reports.

4.4.2.2 Management Plan Review

This PMP will be reviewed by the Preserve Manager every 5 years to determine what revisions or updates are needed. Due to changing conditions within the Habitat Preserve, it may be necessary to revise the tasks outlined in this plan to ensure continued success of the stated goals.

4.4.2.3 Public Outreach and Education

Public outreach and education are critical for ensuring successful management and public support The Preserve Manager will initiate and sustain community outreach and educational programs that are designed to increase community awareness of the Preserve, its biological resources, and community value. These programs should include regular contact with HOA representatives, and the Draft Santee MSCP Subarea Plan Coordinator/Preserve Steward. The Preserve Manager will regularly attend HOA Board Meetings and submit articles for publication in the HOA newsletter or online Community Intranet, if available. The Preserve Manager should host or coordinate docent-led tours of the Preserve to interested community members to heighten awareness of Preserve resources, promote a sense of ownership, and to recruit volunteers for Preserve functions and activities. The Preserve Manager will coordinate management and reporting activities with the

Draft Santee MSCP Subarea Plan Coordinator/Preserve Steward to ensure compliance with the Draft Santee MSCP Subarea Plan.

As stated in the Draft Santee MSCP Subarea Plan, the Preserve Manager will provide educational brochures, kiosks, interpretive centers, and signs to educate the public about the Habitat Preserve's conservation goals, biological/physical resources, and appropriate uses on and adjacent to the Habitat Preserve, including appropriate trail user etiquette.

4.4.2.4 Access Control and Enforcement

The Preserve Manager will conduct periodic security patrols of the Habitat Preserve to monitor activities and conditions that could cause long-term degradation of the functions and values of the Habitat Preserve. It is anticipated that these patrols primarily would focus on prohibited activities, especially unauthorized trail creation, use and vandalism, such as cutting of fences, trash dumping and illegal shooting, but also would note other threats such as non-native or urban-related predators (e.g., cats and dogs), erosion, and exotic species invasions.

Since unauthorized mountain bike trails are prevalent within the Habitat Preserve, the Preserve Manager will coordinate with representatives of the local mountain biking groups such as the San Diego Mountain Biking Association to encourage self-policing and ensure that closed trails within the Habitat Preserve remain unused.

If security breaches of the Habitat Preserve are found to be significant and beyond the control of the Preserve Manager, an outside commercial security service may be contracted by the HOA and funded by the Preserve budget to augment security. In addition, certain security "hotspots" may require additional security measures, such as chain link or barbed wire fencing, motion detectors, or cameras. The need for and practicality of these additional measures will be determined by the Preserve Manager, and in consultation with the HOAs, City of Santee, law enforcement, and/or adjacent landowners if necessary.

The Preserve Manager and HOA will have enforcement authority in the form of citations against HOA members who engage in prohibited activities. Repeated offenses by multiple users, including HOA members or the general public, would provide the grounds for temporary closure of trail segments or portions of the Habitat Preserve to prevent unacceptable adverse impacts to vegetation communities and species in the Habitat Preserve. Such temporary closures also would serve to alert and educate users about the importance of obeying Habitat Preserve rules and regulations, thereby reducing such future impacts on the biological resources of the Habitat Preserve.

For more serious Habitat Preserve offenses or criminal acts, such as repeated trespass and deliberate vandalism, which cannot be directly controlled by the Preserve Manager and HOA, the San Diego County Sheriff will be contacted to help address the problem. Prior to full

implementation of the PMP, the Preserve Manager and HOA will meet with the Sheriff to develop a reporting and response strategy regarding circumstances that warrant contacting the Sheriff to develop and action plan appropriate for the Preserve Manager, the HOA, and the City.

To prevent human-induced degradation of the Habitat Preserve due to illegal occupancy, trespassing (especially OHV activity), removal of resources, or dumping of trash or debris, the Preserve Manager will restrict public access to the Habitat Preserve. Permanent signage will be posted consistent with California Penal Code requirements at locations of unauthorized trails entering the Habitat Preserve and will be maintained by the Preserve Manager. Habitat Preserve signage will be installed where open space is adjacent to roadways and recreational areas and will be corrosion resistant, a minimum of 6 inches by 9 inches, on posts not less than 3 feet in height from the ground surface, and must state the following:

Sensitive Environmental Resources
Area Restricted by Easement
Entry restricted to pedestrians and non-motorized vehicles only. No equestrian activities are permitted except for the trail segment located in the extreme northeastern corner of the Habitat Preserve. To report a violation or for more information about easement restrictions and exceptions, contact the City of Santee, Development Services
Reference: (XXXX)

Proposed sign locations are shown in Figure 8, Habitat Preserve Sign and Gate Locations.

4.4.2.5 Fencing/Barriers

Because the Habitat Preserve is located adjacent to other undeveloped land, perimeter fencing around the entire Habitat Preserve is not planned. However, gates and fencing will be constructed at select areas along the Habitat Preserve boundary and within the Habitat Preserve to help control unauthorized access to sensitive areas of the Habitat Preserve (Figure 8). Access gates to restrict unauthorized vehicles will be included at all locations where trails enter the Habitat Preserve adjacent to development and public roads (Figure 8). This may include bollards or welded pie devices to narrow the entry point with a step over to prevent heavy/motorized vehicles from entering. The narrow entrance would also prevent equestrian activities in unauthorized areas. It is expected that a larger locked gate will be included at several locations to allow emergency/enforcement services. Gates may be constructed with heavy pipe with a protected lock box to protect against vandalism where access is suitable for maintenance and security vehicles. Wooden two-rail peeler log fence or an equivalent product, use of large boulders, K-Rail or similar material will be used to prevent OHV use, contain use to the designated trails, discourage trail cutting, and deter unauthorized access into areas of existing sensitive biological resources.

As directed by MM-BIO-19 in the Biological Technical Report for the project (Dudek 2020a), natural barriers that offer Habitat Preserve protection will also be used. Cactus species will be planted along the Habitat Preserve/development interface in brush management zones, temporary impact zones between roadways, and manufactured slopes in development areas to reduce edge effects from incursions by domestic pets, children, or recreationists. Cactus will be planted so that it does not hinder fire access, but will be clustered so that it discourages or inhibits encroachment. These areas are shown on Figure 7a and specified in Section 3.7, Restoration and Enhancement Opportunities.

4.4.2.6 Illegal Occupancy

Currently, there is no obvious illegal occupancy of the project site or Habitat Preserve. However, the Preserve Manager will survey the Habitat Preserve for evidence of illegal access, encroachments (i.e., landscaping and/or play areas by adjacent owners), and encampments concurrently with other monthly site management activities and file a report with the local Sheriff's Department, if necessary, to ensure the Habitat Preserve remains free of human occupancy.

4.4.2.7 Removal of Resources

Removal of any plants, animals, rocks, minerals, or other natural resources from the Habitat Preserve is prohibited unless determined to be beneficial to the management of the Habitat Preserve. The Preserve Manager will maintain a log of illegal collecting and may report individuals caught removing natural resources from the Habitat Preserve to the USFWS, CDFW, City, and/or sheriff's office. The Preserve Manager may allow and supervise seed collection and plant cuttings as part of revegetation efforts within the Habitat Preserve and/or in nearby areas. Any such collected plant materials will be limited to such that is necessary and in accordance with state law to ensure successful revegetation while not adversely affecting local plant populations.

4.4.2.8 Trash Removal and Vandalism Repair

Trash collection and disposal will be required on a frequent basis (estimated at 40 labor hours per month) due to public activities within the Habitat Preserve, such as using recreational trails, and in public activity areas such as passive and active parklands, that are immediately adjacent to the Habitat Preserve boundary. Monitoring of trash issues will dictate the frequency of trash collection; it is estimated that collection would occur every 3 to 4 weeks. Trash control will focus on collection points where frequent public access occurs such as trailheads and parking lots. Fugitive trash must also be addressed within the Habitat Preserve through routine monitoring along trails, using volunteer staff. Situations involving dumping should be referred to law enforcement authorities. Areas where dumping is encountered will be reviewed to determine access control measures that can eliminate future reoccurrences. Additionally, damage caused by vandalism will

be repaired. Upon initiation of the Habitat Preserve, existing trash will be removed to provide for a clean baseline.

4.4.2.9 Flood Management and Catastrophic Events

As a component of general monitoring responsibilities, and especially following severe storms, fires, floods or other significant disturbance events, the Preserve Manager will inspect the Habitat Preserve for erosion problems. For the purposes of this PMP, significant unnatural erosion is erosion that affects an area that is greater than 100 square feet and over 6 inches in depth, and/or erosion that may affect water quality and wetland resources or lead to instability of slopes or the loss/conversion of habitat. Should significant erosion be detected, the Preserve Manager will evaluate the need for repair; the Preserve Manager's investigation will include an attempt to identify the cause(s) and means by which the damage has occurred. The Property Analysis Record provides a lump sum budget to address potential post-fire erosion issues in the event of a wildfire. In the event of severe erosion with potentially costly remedies not anticipated by the PMP or Property Analysis Record, funding to implement erosion control will not be derived from annual management funds. In this case, the Preserve Manager will consult with the City to determine a plan of action that will include the identification of funding sources. Minor incidents of erosion (e.g., the formation of rivulets through upland areas) will be left untreated unless it is perceived that the erosion will cause the loss of sensitive habitat and/or create a hazardous situation that would constitute a threat to human health and safety.

The degree of urgency to remediate erosion problems within the Habitat Preserve will depend on the severity of the erosion, how quickly it is progressing, and what will happen until it is remediated. Erosion that undercuts riparian vegetation will need to be addressed as soon as possible, that is, soon enough to prevent the problem from worsening and under no circumstances later than 60 days from identification.

In the event that erosion becomes a recurring problem or periodic but severe, the Preserve Manager will develop an erosion control plan. The plan will address (1) erosion causes and (2) the type and placement of physical features to counteract or stem erosive forces, and (3) may include preparation of a conceptual plan to revegetate affected areas with native seed. If the source of an erosion problem within the Habitat Preserve lies outside of the Habitat Preserve, the cause will be identified and the responsible party or parties made accountable.

Responses to catastrophic events may include creek bank stabilization measures, tree planting to replace trees lost through flood and fire, reseeding burned areas, weed suppression and control, and other recuperative actions that support and accelerate natural recovery to pre-event conditions. Catastrophic events in non-native conditions can create enhancement opportunities that will be considered by the Preserve Manager.

4.5 Public Use Tasks

The Habitat Preserve will contain a trail system that is open to public use (Figure 9). The trail system will be designed to accommodate use by pedestrians, and in selected areas mountain bikes and horses. Equestrian activities will only be permitted on the trail segment in the far northeast corner of the Habitat Preserve, connecting the Eucalyptus Hills community to the Sycamore Canyon County Preserve (Figure 9). Signage at trailheads and trail junctions will indicate where certain uses are permitted or prohibited, including firearms, open flames, and/or smoking. As directed by the Draft Santee MSCP Subarea Plan, temporary signs will be posted to indicate habitat restoration and erosion control areas and the Preserve Manager will limit the use of signs that attract attention to the specific location of species that are sensitive to human disturbance. For details on public use within the Habitat Preserve see the Fanita Ranch Public Access Plan (Dudek 2020b).

The Preserve Manager will manage and maintain the trail usage, and monitor usage to determine if management or changes in the trail usage are required. Any of these uses will be restricted as necessary due to ecological vulnerabilities, erosion problems, unauthorized trails and bypasses, and damage to fences, interpretive facilities, signage, and trash receptacles. For example, mountain bikes may be prohibited during saturated ground conditions. The Preserve Manager will provide monitoring during maintenance and repair activities to help ensure an appropriate treatment of these issues that is compatible with and protects the Habitat Preserve resources. Trash receptacles will be placed along the trails and stations for pet waste bag dispensers that have been installed to encourage users to pick up pet waste. Bicycle speed limits will be posted along trailheads.

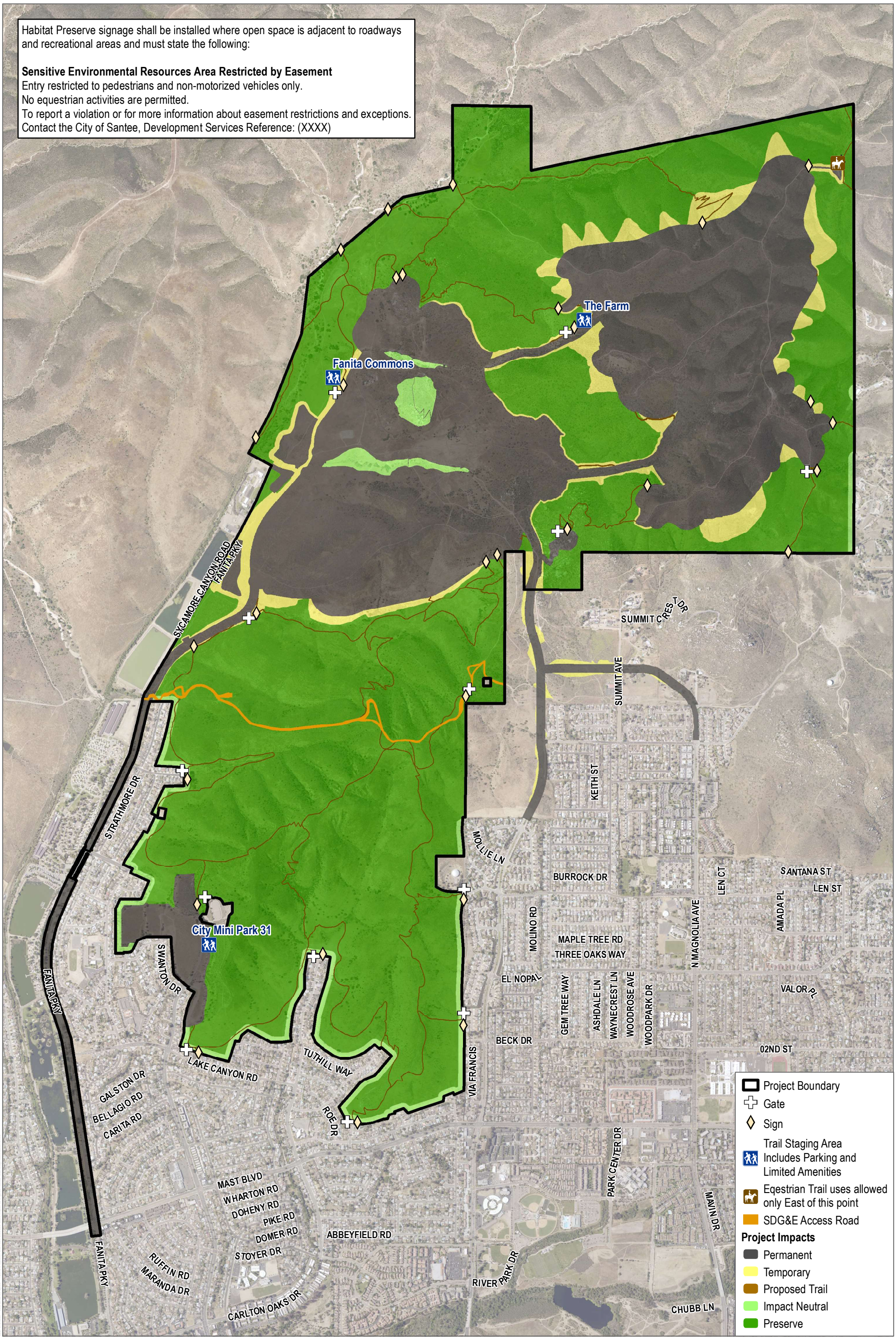
Trail signage will be used at trailheads, trail junctions and at sensitive areas to educate the public about the preserve biology and sensitive resources. Trailhead signage will establish trail rules, enforcement methods, and potential enforcement consequences for non-compliant trail users. Directional signage will orient trail users to the trail system, provide trail junction cues to reduce trail cutting between nearby trails, and advise users about area restrictions. Activities that will be specifically prohibited include the following:

- Hiking, mountain biking and equestrian activities off designated trails.
- Collection or removal of any native plant, animal or microorganism, unless authorized for monitoring or research, or for other authorized purposes.
- Deliberate killing and destruction of wildlife such as rattlesnakes and other reptiles, amphibians, mammals, and birds, and their nests as prescribed by the Migratory Bird Treaty Act.
- Planting, introduction, or dispersal of any non-native plant or wildlife species or microorganism.
- Disturbance, collection, or removal of cultural resources unless conducted under an authorized survey, salvage or research program and consistent with relevant state and/or federal permits, authorizations or agreements.

- Collection of rocks, soils and fallen trees unless conducted under an authorized survey, salvage or research program.
- Any activities that are incompatible with or may disturb or disrupt ongoing management activities including: altering the general topography of the Habitat Preserve, including but not limited to building of roads and flood control work; and manipulating, impounding, or altering any natural watercourse, body of water, or water circulation on the open space, except as specified for restoration activities, and activities or uses detrimental to water quality, including but not limited to degradation or pollution of any surface or subsurface waters.
- Use of firearms or weapons, hunting or trapping (unless carried out pursuant to this PMP) and fireworks.
- Wood fires anywhere in the Habitat Preserve.
- Cigarette, cigar, pipe, and other smoking.
- Vehicle operations off designated roads except for infrastructure operation/maintenance or Preserve management, such as fence repairs.
- Swimming and/or wading in lakes, ponds and creeks, unless conducted as part of authorized activities (e.g., monitoring or research of aquatic species).
- All pets off leash (6-foot maximum leash), all pets outside designated locations or off designated trails and failure to dispose of pet waste other than in trash receptacles or at pet waste stations.
- Alcohol consumption, except as specifically authorized for specific, controlled, outdoor gatherings.
- Dumping of ashes, trash, garbage or other unsightly, offensive or toxic material or the storage or use of biocides and agricultural chemicals except as such biocides and/or chemicals may be necessary implement the PMP.
- Construction, reconstruction, or placement of any building or other improvement, billboard, or sign.
- UAS (drone) use, unless otherwise approved by the Preserve Manager.
- Grazing or other agricultural activity of any kind.

Habitat Preserve signage shall be installed where open space is adjacent to roadways and recreational areas and must state the following:

Sensitive Environmental Resources Area Restricted by Easement
Entry restricted to pedestrians and non-motorized vehicles only.
No equestrian activities are permitted.
To report a violation or for more information about easement restrictions and exceptions.
Contact the City of Santee, Development Services Reference: (XXXX)



SOURCE: Hunsaker 2019; SANGIS 2017, 2019

DUDEK

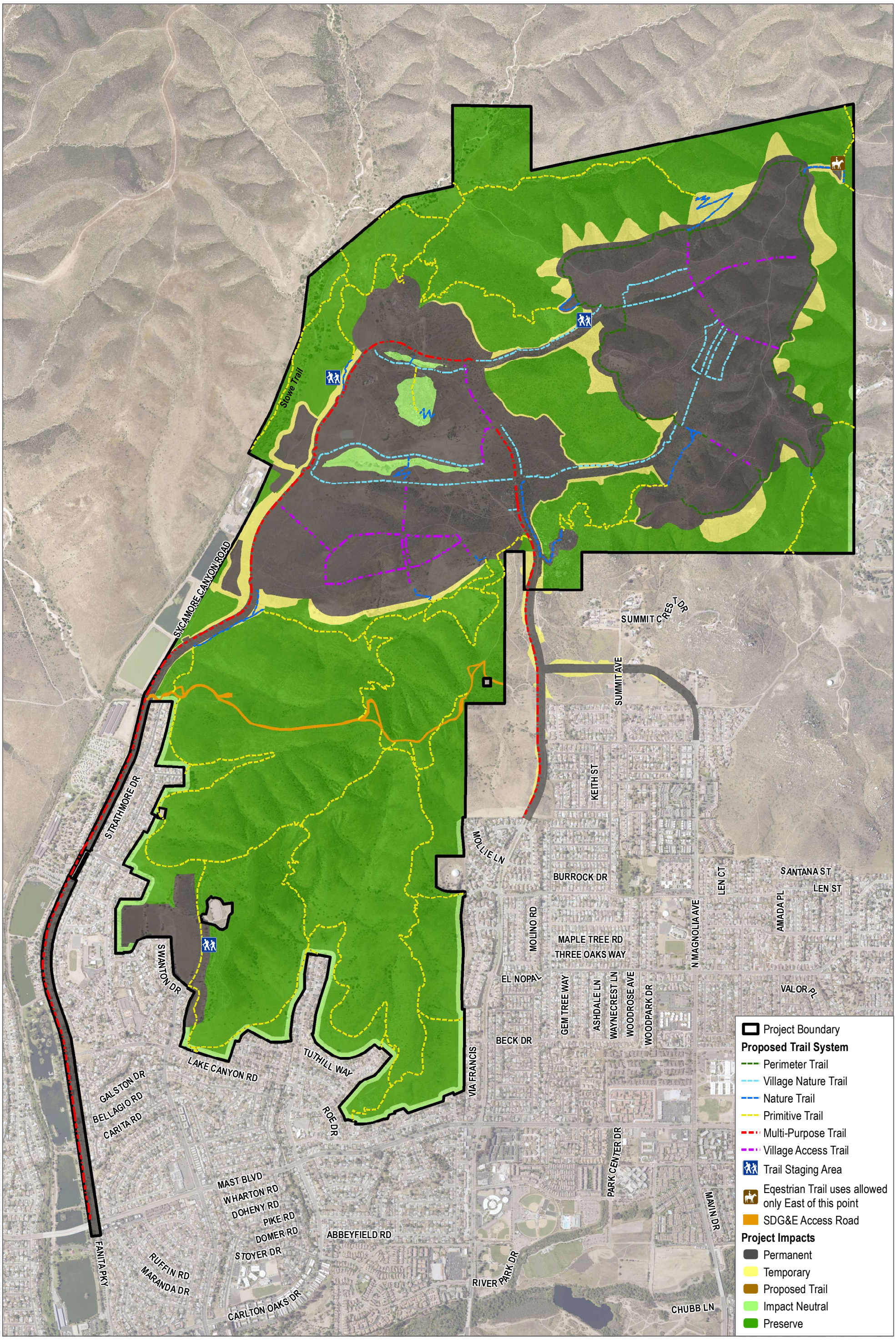
0 750 1,500 Feet

FIGURE 8

Habitat Preserve Sign and Gate Locations

On-Site Preserve Management Plan for the Fanita Ranch Project

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SOURCE: Hunsaker 2019; SANGIS 2017, 2019

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0 750 1,500 Feet

FIGURE 9

Habitat Preserve Trails

On-Site Preserve Management Plan for the Fanita Ranch Project

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4.6 Fire Management Element

Fire is a natural ecological component of the Mediterranean-type climate of San Diego County. Frequent wildfires have swept through the Habitat Preserve over the past 20 years, yielding a landscape of patchy native plant communities that represent various stages of post-fire recovery.

The Preserve Manager will coordinate with the Santee Fire Department on an annual basis to plan for fire prevention and control. The Preserve Manager will assist the HOA with compliance with MSCP requirements and fire codes regarding maintenance of brush management areas. Assistance to the HOA may include monitoring to promote appropriate thinning under the HOA's contract that is compatible with biological resources while maintaining an appropriate level of fire protection. If areas within the Habitat Preserve burn, there will be no initial reseeding of areas, but there will be careful monitoring for the need for weed or erosion controls. The Preserve Manager will decide if reseeding is necessary if the natural revegetation process is deemed unsatisfactory. During the vegetation recovery period, the burned areas will be monitored by Habitat Preserve management staff to control non-native invasive weed species. Weed control measures will be initiated as necessary to prevent these species from replacing native vegetation.

The Preserve Manager will keep a copy of the latest version of the Fire Protection Plan on file and readily available and will be consulted when revisions are made to the Fire Protection Plan. The plan takes into account biological and other resources.

This task includes post-fire erosion and sediment removal activities and revegetation in the event that these activities are necessary. If reseeding of areas is required, the Preserve Manager will coordinate and perform this activity. The post-fire tasks are limited to a sum of $150,000 every 15 years for erosion control and sediment removal, and $75,000 every 15 years for revegetation. These sums are based on the assumption that a fire that requires erosion control and sediment removal and approximately 3 acres of revegetation would occur once every 15 years.

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5 MANAGEMENT CONSTRAINTS

This PMP has been written to satisfy the requirements of the City and attempts to identify possible issues in the future; however, unforeseeable changes may occur that are out of the control of the Preserve Manager. For example, changes in rainfall patterns may affect the populations of sensitive plant and animal species within the Habitat Preserve. Likewise, changes in other environmental factors such as air pollution, hazardous waste runoff, and erosion could have detrimental effects on the habitat within the management areas. An adaptive management approach will be taken to provide the flexibility to address unforeseen conditions.

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APPENDIX A

Vesting Tentative Map/Preliminary Grading Plan

LEGAL DESCRIPTION

REAL PROPERTY IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 1: (APN'S: 380-040-43-00 AND 380-040-44-00)

THOSE PORTIONS OF LOTS 5 AND 6 OF THE RESUBDIVISION OF FANITA RANCHO, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO OFFICIAL PLAT THEREOF NO. 1703 FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY AND RECORDED FEBRUARY 28, 1918, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWESTERLY CORNER OF LOT 1463 CARLTON HILLS, UNIT NO. 10 ACCORDING TO OFFICIAL PLAT THEREOF NO. 6866, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY AND RECORDED FEBRUARY 26, 1971; THENCE ALONG THE NORTHERLY LINE OF SAID LOT 1463, SOUTH 73 DEGREES 21'45" EAST, 47.06 FEET TO AN ANGLE POINT THEREIN, BEING ALSO AN ANGLE POINT IN THE BOUNDARY OF OAK HILLS UNIT NO. 134 ACCORDING TO OFFICIAL PLAT THEREOF NO. 6542, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY AND RECORDED NOVEMBER 18, 1969, BEING THE TRUE POINT OF BEGINNING; THENCE ALONG THE BOUNDARY OF SAID MAP NO. 6542 AS FOLLOWS:

NORTH 20 DEGREES 54'40" EAST, 145.18 FEET; NORTH 12 DEGREES 38'48" EAST, 84.58 FEET; NORTH 03 DEGREES 38'15" EAST, 222.90 FEET AND NORTH 12 DEGREES 38'45" EAST, 206.54 FEET TO THE NORTHERLY LINE OF SAID LOT 5; THENCE EASTERLY ALONG THE NORTHERLY LINE OF SAID LOTS 5 AND 6 TO THE NORTHEAST CORNER OF SAID LOT 6; THENCE ALONG THE EASTERLY LINE OF SAID LOT 6, SOUTH 00 DEGREES 06'17" WEST 1393.06 FEET TO THE NORTHEASTERLY CORNER OF CARLTON HILLS UNIT NO. 8, ACCORDING TO OFFICIAL PLAT THEREOF NO. 6216, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY AND RECORDED OCTOBER 23, 1968; THENCE ALONG THE BOUNDARY OF SAID MAP NO. 6216 AS FOLLOWS:

SOUTH 67 DEGREES 20'30" WEST, 184.81 FEET; NORTH 22 DEGREES 39'30" WEST, 40.00 FEET; SOUTH 67 DEGREES 20'30" WEST, 170.00 FEET; SOUTH 06 DEGREES 57'10" WEST, 84.33 FEET; SOUTH 11 DEGREES 43'00" WEST, 639.50 FEET; NORTH 47 DEGREES 57'58" WEST, 110.50 FEET; SOUTH 71 DEGREES 43'00" WEST, 161.00 FEET; SOUTHERLY ALONG THE ARC OF A 228.00 FOOT RADIUS CURVE, CONCAVE NORTHEASTERLY THROUGH A CENTRAL ANGLE OF 07 DEGREES 15'42", A DISTANCE OF 28.90 FEET; SOUTH 73 DEGREES 43'00" WEST, 108.00 FEET; SOUTH 20 DEGREES 39'45" WEST, 70.09 FEET; SOUTH 81 DEGREES 07'41" WEST, 71.64 FEET; SOUTH 71 DEGREES 43'00" WEST, 192.00 FEET; SOUTH 61 DEGREES 56'34" WEST, 121.77 FEET; NORTH 71 DEGREES 20'30" WEST, 87.71 FEET; NORTH 89 DEGREES 54'00" WEST 110.00 FEET; NORTH 15 DEGREES 09'00" EAST, 48.97 FEET; NORTH 74 DEGREES 54'00" WEST, 149.00 FEET; SOUTH 67 DEGREES 47'57" WEST, 43.97 FEET; NORTH 19 DEGREES 56'59" WEST, 83.45 FEET; NORTH 29 DEGREES 31'37" WEST, 163.69 FEET; AND NORTH 39 DEGREES 42'11" EAST, 93.45 FEET TO THE MOST EASTERLY CORNER OF LOT 1280 OF SAID MAP NO. 6216, BEING ALSO THE MOST SOUTHERLY CORNER OF LOT 1376 OF CARLTON HILLS UNIT NO. 9, ACCORDING TO MAP THEREOF NO. 6429, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, JULY 23, 1969; THENCE ALONG THE BOUNDARY OF SAID MAP NO. 6429, AS FOLLOWS:

NORTH 41 DEGREES 32'59" EAST, 196.98 FEET; NORTH 41 DEGREES 33'14" EAST 261.00 FEET; NORTH 53 DEGREES 14'57" EAST, 97.91 FEET; NORTH 68 DEGREES 28'58" EAST, 187.76 FEET; NORTH 40 DEGREES 30'50" EAST, 442.08 FEET; NORTH 49 DEGREES 24'00" WEST, 231.00 FEET; SOUTH 40 DEGREES 30'00" WEST, 38.00 FEET; NORTH 49 DEGREES 24'00" WEST, 115.00 FEET; SOUTH 51 DEGREES 54'36" WEST, 219.26 FEET; SOUTH 63 DEGREES 42'14" WEST, 165.28 FEET; SOUTH 75 DEGREES 58'20" WEST, 136.09 FEET; NORTH 88 DEGREES 40'00" WEST, 137.22 FEET; NORTH 69 DEGREES 41'44" WEST, 118.27 FEET; NORTH 57 DEGREES 20'00" WEST, 197.00 FEET; NORTH 49 DEGREES 02'30" WEST, 197.39 FEET; NORTH 21 DEGREES 34'42" WEST, 163.25 FEET; NORTH 82 DEGREES 30'07" WEST, 264.38 FEET; SOUTH 07 DEGREES 30'00" WEST, 75.49 FEET; AND SOUTH 08 DEGREES 09'22" EAST, 97.22 FEET TO THE NORTHEASTERLY CORNER OF CARLTON HILLS UNIT NO. 11, ACCORDING TO OFFICIAL PLAT THEREOF NO. 7133 FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, RECORDED DECEMBER 6, 1971; THENCE ALONG THE BOUNDARY OF SAID MAP NO. 7133 AS FOLLOWS:

SOUTH 81 DEGREES 50'38" WEST, 180.00 FEET; NORTH 87 DEGREES 19'12" WEST, 121.09 FEET; SOUTH 82 DEGREES 20'00" WEST, 50.00 FEET; NORTH 62 DEGREES 05'00" WEST, 448.01 FEET; SOUTH 51 DEGREES 20'00" WEST, 142.88 FEET; SOUTH 17 DEGREES 54'00" WEST, 113.72 FEET TO A POINT ON THE ARC OF A NON-TANGENT 215.00 FOOT RADIUS CURVE, CONCAVE NORTHERLY, A RADIAL LINE OF SAID CURVE BEARING SOUTH 00 DEGREES 48'00" EAST TO SAID POINT; WESTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 18 DEGREES 40'00", A DISTANCE OF 70.05 FEET; AND NON-TANGENT TO SAID CURVE SOUTH 17 DEGREES 54'00" WEST, 30.00 FEET TO THE ANGLE POINT IN THE NORTHERLY BOUNDARY OF LOT 1477 OF SAID MAP NO. 6866; THENCE ALONG THE NORTHERLY BOUNDARY OF SAID MAP NO. 6866 AS FOLLOWS:

NORTH 77 DEGREES 13'30" WEST, 187.20 FEET; NORTH 72 DEGREES 30'00" WEST, 544.64 FEET; NORTH 59 DEGREES 56'00" WEST, 72.57 FEET; AND NORTH 72 DEGREES 30'00" WEST, 78.99 FEET TO THE TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION THEREOF LYING WITHIN CARLTON ESTATES, ACCORDING TO MAP NO. 8796, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON FEBRUARY 9, 1978 AS FILE NO. 78-054692 OF OFFICIAL RECORDS.

PARCEL 2: (APN: 376-020-03-00)

THAT PORTION OF LOT 12 OF RESUBDIVISION OF FANITA RANCHO, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 1703, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, FEBRUARY 28, 1918, LYING WITHIN THE BOUNDARIES OF RECORD OF SURVEY MAP NO. 8279 RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF SAID SAN DIEGO COUNTY, MAY 4, 1978 AS FILE NO. 78-181648 OF OFFICIAL RECORDS.

PARCEL 3: (APN: 374-030-02-00)

THE SOUTH HALF OF LOT 1 AND ALL OF LOT 8 IN SECTION 4, TOWNSHIP 15 SOUTH, RANGE 1 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO OFFICIAL PLAT THEREOF.

PARCEL 4: (APN: 374-050-02-00)

THAT PORTION OF LOT 15 OF RESUBDIVISION OF FANITA RANCHO, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 1703, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, FEBRUARY 28, 1918, LYING WITHIN THE BOUNDARIES OF RECORD OF SURVEY MAP NO. 8279, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAID SAN DIEGO COUNTY, MAY 4, 1978 AS FILE NO. 78-181648 OF OFFICIAL RECORDS.

PARCEL 5: (APN: 374-060-01-00)

LOT 14 OF RESUBDIVISION OF FANITA RANCHO, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 1703, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, FEBRUARY 28, 1918.

PARCEL 6: (APN: 376-010-06-00)

ALL THAT PORTION OF LOT 11 OF RESUBDIVISION OF FANITA RANCHO, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 1703, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, FEBRUARY 28, 1918, LYING WITHIN THE BOUNDARIES OF RECORD OF SURVEY MAP NO. 8279, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAID SAN DIEGO COUNTY, MAY 4, 1978 AS FILE NO. 78-181648 OF OFFICIAL RECORDS.

PARCEL 7: (APN: 378-030-01-00)

LOT 13 OF RESUBDIVISION OF FANITA RANCHO, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 1703, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, FEBRUARY 28, 1918.

PARCEL 8: (APN: 378-020-54-00)

ALL THAT PORTION OF LOT 8 OF THE RESUBDIVISION OF FANITA RANCHO, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 1703, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY FEBRUARY 28, 1918 LYING WITHIN THE BOUNDARIES OF RECORD OF SURVEY MAP NO. 8279, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, MAY 4, 1978 AS FILE NO. 78-181648 OF OFFICIAL RECORDS.

EXCEPTING THEREFROM THAT PORTION THEREOF LYING WITHIN COUNTY OF SAN DIEGO TRACT NO. 3675-1, ACCORDING TO MAP NO. 9902, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON NOVEMBER 25, 1980 AS FILE NO. 80-398660 OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THAT PORTION THEREOF LYING WITHIN COUNT OF SAN DIEGO TRACT NO. 3675-2, ACCORDING TO MAP NO. 9903, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON NOVEMBER 25, 1980 AS FILE NO. 80-398661 OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THAT PORTION THEREOF LYING WITHIN COUNTY OF SAN DIEGO TRACT NO. 3675-3, ACCORDING TO MAP NO. 9904, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON NOVEMBER 25, 1980 AS FILE NO. 80-398662 OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THAT PORTION THEREOF LYING WITHIN COUNTY OF SAN DIEGO TRACT NO. 3675-4, ACCORDING TO MAP THEREOF NO. 9905, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON NOVEMBER 25, 1980 AS FILE NO. 80-398663 OF OFFICIAL RECORDS.

ALSO EXCEPTING FROM SAID LOT 8, ALL THAT PORTION THEREOF DESCRIBED AS FOLLOWS:

COMMENCING AT AN ANGLE POINT ON THE EASTERLY BOUNDARY OF THAT CERTAIN STRIP OF LAND, BEING A 30 FOOT EASEMENT AS DESCRIBED IN DEED TO THE SANTEE COUNTY WATER DISTRICT FOR ROAD AND UTILITY PURPOSES, RECORDED AUGUST 19, 1968 AS FILE NO. 134771 OF OFFICIAL RECORDS, SAID ANGLE POINT BEING THE TERMINUS OF A COURSE HAVING A BEARING AND DISTANCE OF NORTH 27 DEGREES 54'57" EAST 568.16 FEET; THENCE CONTINUING ALONG SAID EASTERLY BOUNDARY NORTH 26 DEGREES 14 EAST 846.04 FEET; THENCE LEAVING SAID EASTERLY BOUNDARY SOUTH 63 DEGREES 46' EAST 370.00 FEET; THENCE SOUTH 79 DEGREES 39' EAST, 670.81 FEET; THENCE NORTH 10 DEGREES 21' EAST, 18.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE NORTH 79 DEGREES 39' WEST 110.00 FEET; THENCE NORTH 10 DEGREES 21' EAST, 170.00 FEET; THENCE SOUTH 79 DEGREES 39' EAST, 120.00 FEET, SOUTH 10 DEGREES 21' WEST 170.00 FEET; THENCE NORTH 79 DEGREES 39' WEST, 10.00 FEET TO THE TRUE POINT OF BEGINNING.

LEGAL DESCRIPTION (CONT.)

ALSO EXCEPTING FROM SAID LOT 8, ALL THAT PORTION THEREOF DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT THAT BEARS NORTH 17 DEGREES 30' EAST, 2280.63 FEET FROM THE INTERSECTION OF THE CENTERLINE OF SYLMAST BOULEVARD WITH THE CENTERLINE OF CARLTON HILLS BOULEVARD AS SAID CENTERLINES ARE SHOWN ON MAP NO. 4364, A COPY OF WHICH IS ON FILE IN THE OFFICE OF THE COUNTY RECORDER OF SAID SAN DIEGO COUNTY THENCE SOUTH 75 DEGREES 57'15" EAST, 276.00 FEET; THENCE NORTH 14 DEGREES 02'45" EAST 295.00 FEET; THENCE NORTH 75 DEGREES 57'15" WEST, 355.00 FEET; THENCE SOUTH 14 DEGREES 02'45" WEST, 295.00 FEET; THENCE SOUTH 75 DEGREES 57'15" EAST 79.00 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPTING THEREFROM THAT PORTION THEREOF LYING WITHIN PARCELS 1-A AND 1-B AS CONDEMNED AND TAKEN BY THE PADRE DAM MUNICIPAL WATER DISTRICT BY FINAL ORDER OF CONDEMNATION CASE NO. 658159-1 AND FILED FEBRUARY 18, 1994 BY THE CLERK OF THE SUPERIOR COURT OF THE STATE OF CALIFORNIA, A CERTIFIED COPY OF WHICH WAS RECORDED FEBRUARY 24, 1994 AS FILE NO. 1994-0124825 OF OFFICIAL RECORDS OF SAID SAN DIEGO COUNTY.

ALSO EXCEPTING FROM SAID LOT 8, ALL THAT PORTION THEREOF DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE SOUTHERLY LINE OF THE LAND CONVEYED TO SANTEE COUNTY WATER DISTRICT RECORDED JUNE 27, 1963 AS FILE NO. 109476 OF OFFICIAL RECORDS, SAID POINT BEARS NORTH 17 DEGREES 39'11" EAST (NORTH 17 DEGREES 30'00" EAST PER SAID DEED) 2,280.63 FEET FROM THE INTERSECTION OF THE CENTERLINE OF SLYMAST BOULEVARD WITH THE CENTERLINE OF CARLTON HILLS BOULEVARD AS SAID CENTERLINES ARE SHOWN ON MAP NO. 4364 FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, THENCE EASTERLY ALONG SAID SOUTHERLY LINE SOUTH 75 DEGREES 53'58" EAST, 111.82 FEET TO AN ANGLE POINT IN THAT LAND DESCRIBED IN PARCEL 1-A OF THAT FINAL ORDER OF CONDEMNATION RECORDED FEBRUARY 24, 1994 AS FILE NO. 1994-0124825 OF OFFICIAL RECORDS; THENCE ALONG THE BOUNDARY OF SAID LAND DESCRIBED IN PARCEL 1-A, SOUTH 54 DEGREES 24'53" EAST, 107.08 FEET; THENCE SOUTH 77 DEGREES 09'15" EAST, 54.25 FEET; THENCE NORTH 59 DEGREES 03'17" EAST, 77.51 FEET; THENCE NORTH 12 DEGREES 19'23" EAST, 201.09 FEET TO THE TRUE POINT OF BEGINNING; THENCE NORTH 12 DEGREES 19'23" EAST, 15.00 FEET; THENCE NORTH 49 DEGREES 25'48" EAST, 68.71 FEET; THENCE LEAVING SAID BOUNDARY OF PARCEL 1-A, SOUTH 43 DEGREES 01'46" WEST, 81.18 FEET, TO THE TRUE POINT OF BEGINNING.

ALSO EXCEPTING FROM SAID LOT 8, ALL THAT PORTION THEREOF LYING WESTERLY OF THE EASTERLY LINE OF THE LAND CONVEYED TO THE PADRE DAM MUNICIPAL WATER DISTRICT BY DEED RECORDED APRIL 12, 1977 AS FILE NO. 77-132403 OF OFFICIAL RECORDS OF SAID SAN DIEGO COUNTY.

ALSO EXCEPTING FROM SAID LOT 8, ALL THAT PORTION THEREOF LYING WITHIN PARCEL 16 HEREINAFTER DESCRIBED.

PARCEL 9: (APN: 378-030-08-00)

LOT 7 OF RESUBDIVISION OF FANITA RANCHO, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 1703, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, FEBRUARY 28, 1918.

EXCEPTING THEREFROM THAT PORTION THEREOF LYING WITHIN CARLTON ESTATES, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 8796, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY ON FEBRUARY 9, 1978 AS FILE NO. 78-054692 OF OFFICIAL RECORDS.

ALSO EXCEPTING FROM SAID LOT 7, THAT PORTION THEREOF DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF WOODGLENN ESTATES, ACCORDING TO MAP THEREOF NO. 7560, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, FEBRUARY 21, 1973, THENCE ON A LINE PARALLEL WITH THE WESTERLY PROLONGATION OF THE CENTER LINE OF WOODGLEN VISTA DRIVE, AS SHOWN ON MAP, NORTH 89 DEGREES 51'10" WEST 687.38 FEET TO A POINT ON THE EASTERLY LINE OF SAID LOT 7; THENCE ALONG SAID EASTERLY LINE, NORTH 00 DEGREES 12'05" EAST, 42.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE NORTH 89 DEGREES 51'10" WEST, 250.00 FEET TO THE BEGINNING OF A TANGENT 458.00 FOOT RADIUS CURVE, CONCAVE NORTHEASTERLY; THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 36 DEGREES 06'36" A DISTANCE OF 288.65 FEET; THENCE NORTH 00 DEGREES 12'05" EAST, 522.49 FEET; THENCE NORTH 89 DEGREES 49'55" EAST, 500.00 FEET TO THE EASTERLY LINE OF THE SAID LOT 7; THENCE ALONG SAID EASTERLY LINE SOUTH 00 DEGREES 12'05" WEST, 610.00 FEET, MORE OR LESS, TO THE TRUE POINT OF BEGINNING.

ALSO EXCEPTING THEREFROM THAT PORTION THEREOF LYING WITHIN PARCELS A, B AND C AS SET OUT IN EXHIBIT "A" IN CERTIFICATE OF COMPLIANCE RECORDED JULY 3, 1995 AS FILE NO. 1995-0282020 OF OFFICIAL RECORDS OF SAID SAN DIEGO COUNTY.

PARCEL 10: (APN'S: 378-392-61-00 AND 378-392-62-00)

LOTS A AND B OF COUNTY OF SAN DIEGO TRACT NO. 3675-1, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 9902, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, NOVEMBER 25, 1980.

PARCEL 11: (APN: 378-391-59-00)

LOT D OF COUNTY OF SAN DIEGO TRACT NO. 3675-2, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 9903, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, NOVEMBER 25, 1980.

PARCEL 12: (APN: 378-382-58-00)

LOT F COUNTY OF SAN DIEGO TRACT NO. 3675-3, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 9904, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, NOVEMBER 25, 1980.

PARCEL 13: (APN: 378-381-49-00)

LOT G OF COUNTY OF SAN DIEGO TRACT NO. 3675-4, IN THE CITY OF SANTEE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 9905, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, NOVEMBER 25, 1980.

PARCEL 14:

INTENTIONALLY DELETED

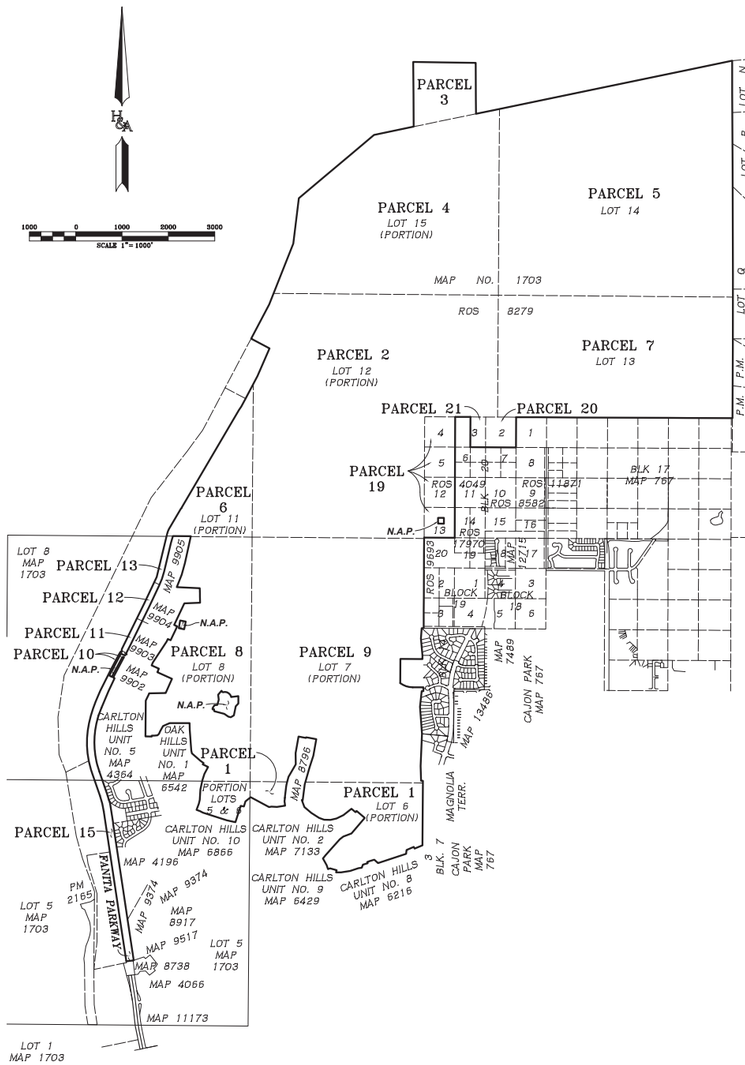
PARCEL 15: (APN: 380-031-18-00, 378-020-46-00 AND 378-020-50-00)

PARCEL A AS SHOWN ON CERTIFICATE OF COMPLIANCE RECORDED MAY 22, 2019 AS INSTRUMENT NO. 2019-0193705 DESCRIBED AS FOLLOWS:

THOSE PORTIONS OF LOTS 5 AND 8 OF RESUBDIVISION OF FANITA RANCHO, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 1703, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, FEBRUARY 28, 1918, BEING MORE PARTICULARLY DESCRIBED AS PARCEL 13 AND PARCEL 16 PER THAT CERTAIN TRUSTEE'S DEED UPON SALE RECORDED IN THE OFFICE OF SAID COUNTY RECORDER FEBRUARY 2, 2011 AS DOCUMENT NO. 2011-0063943, OF OFFICIAL RECORDS

EXCEPTING THEREFROM THAT PORTION OF SAID PARCEL 15 LYING EASTERLY OF THE FOLLOWING DESCRIBED LINE:

BEGINNING AT A POINT ON THE EASTERLY LINE OF SAID PARCEL 15, BEING THE MOST WESTERLY CORNER OF LOT 995 OF CARLTON HILLS UNIT NO. 5, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 4364, FILED IN THE OFFICE OF SAID COUNTY RECORDER OCTOBER 14, 1959; THENCE SOUTH 20°51'29" EAST, 69.65 FEET; THENCE SOUTH 08°54'14" EAST, 450.00 FEET TO SAID EASTERLY LINE OF PARCEL 15, BEING ALSO THE NORTHERLY LINE OF LOT 759 OF SAID MAP NO. 4196, SAID POINT ALSO BEING THE POINT OF TERMINUS.



TITLE REFERENCE

THE DATA SHOWN HEREON IS BASED ON THE PRELIMINARY TITLE REPORT PROVIDED BY FIRST AMERICAN TITLE COMPANY ORDER NO. NHSC-5140864 DATED AUGUST 23, 2019.

LEGAL DESCRIPTION (CONT.)

PARCEL 16: INTENTIONALLY DELETED

PARCEL 17: INTENTIONALLY DELETED

PARCEL 18: INTENTIONALLY DELETED

PARCEL 19: (APN'S: 378-210-01-00, 378-210-10-00, 378-210-11-00 AND 378-220-01-00)

LOTS 4, 5, 12 AND 13 IN BLOCK 20 OF CAJON PARK, ACCORDING TO THE MAP THEREOF NO. 767, FILED IN THE OFFICE OF THE RECORDER OF SAID SAN DIEGO COUNTY, NOVEMBER 27, 1893.

EXCEPT THAT PORTION FROM LOT 13 THAT WAS CONVEYED TO SANTEE COUNTY WATER DISTRICT BY DEED RECORDED FEBRUARY 9, 1960 INSTRUMENT NO. 26850 OF OFFICIAL RECORDS DESCRIBED AS FOLLOWS:

A PORTION OF LOT 13, BLOCK 20, CAJON PARK IN THE SAN DIEGO COUNTY, STATE OF CALIFORNIA, AS SHOWN ON RECORD OF SURVEY MAP NO. 4043, FILED OCTOBER 19, 1956 IN THE OFFICE OF THE RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE WEST LINE OF SAID LOT 13, BLOCK 20, DISTANT THEREON 225 FEET SOUTH OF THE NORTHWEST CORNER THEREOF; THENCE EASTERLY PARALLEL TO THE NORTH LINE OF SAID LOT 13, BLOCK 20, A DISTANCE OF 300 FEET TO THE TRUE POINT OF BEGINNING; THENCE CONTINUING EASTERLY PARALLEL WITH SAID NORTH LINE 125 FEET; THENCE SOUTHERLY PARALLEL WITH SAID WEST LINE 125 FEET; THENCE WESTERLY PARALLEL WITH SAID NORTH LINE 125 FEET; THENCE NORTHERLY PARALLEL WITH SAID WEST LINE 125 FEET TO THE TRUE POINT OF BEGINNING.

PARCEL 19A:

EASEMENTS FOR ROAD AND PUBLIC UTILITY PURPOSES OVER, UNDER, UPON AND ACROSS THAT PORTION OF SAID CAJON PARK, DESCRIBED IN PARCELS A, THROUGH J, AS FOLLOWS:

A. THAT PORTION OF SUMMIT AVENUE, LYING SOUTHERLY OF THE EASTERLY PROLONGATION OF THE NORTHERLY LINE OF THE SOUTHERLY 30.00 FEET OF LOT 9 IN BLOCK 20 OF SAID CAJON PARK.

B. THAT PORTION OF 6TH STREET, LYING WESTERLY OF THE NORTHERLY PROLONGATION OF THE EASTERLY LINE OF LOT 3 IN BLOCK 18 OF SAID CAJON PARK.

C. THAT PORTION OF THE NORTH HALF OF 6TH STREET, LYING BETWEEN THE NORTHERLY PROLONGATION OF THE EASTERLY LINE OF LOT 3 IN BLOCK 18 OF SAID CAJON PARK AND THE SOUTHERLY PROLONGATION OF THE EASTERLY LINE OF THE WEST 50.00 FEET OF LOT 28 IN BLOCK 17 OF SAID CAJON PARK.

D. THAT PORTION OF THE SOUTH HALF OF 6TH STREET, LYING BETWEEN THE NORTHERLY PROLONGATION OF THE CENTER LINE OF CENTRAL AVENUE AND THE NORTHERLY PROLONGATION OF THE WESTERLY LINE OF LOT 4 IN BLOCK 16 OF SAID CAJON PARK.

E. THAT PORTION OF THE EAST HALF OF CENTRAL AVENUE, LYING WESTERLY OF AND ADJOINING LOTS 4, 5, AND 12 IN BLOCK 16 OF SAID CAJON PARK.

ALL OF THE AFOREMENTIONED PORTIONS OF SAID STREET AND AVENUES BEING SHOWN ON SAID MAP NO. 767 AND HAVING BEEN VACATED AND CLOSED TO PUBLIC USE, ON OCTOBER 3, 1900 BY AN ORDER OF THE BOARD OF SUPERVISORS OF SAID SAN DIEGO COUNTY, AND BEING RECORDED IN BOOK 3, PAGE 95 OF THE SUPERVISORS RECORDS.

F. THAT PORTION OF THE NORTHERLY 30.00 FEET OF LOT 19 IN BLOCK 20 OF SAID CAJON PARK, LYING WESTERLY OF THE EASTERLY 30.00 FEET THEREOF.

G. THAT PORTION OF THE SOUTHERLY 30.00 FEET OF LOT 14 IN BLOCK 20 OF SAID CAJON PARK, LYING WESTERLY OF THE EASTERLY 30.00 FEET THEREOF.

H. A STRIP OF LAND 60.00 FEET OF EVEN WIDTH THE CENTER LINE OF WHICH IS DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF LOT 14 IN SAID BLOCK 20; THENCE NORTH 0° 01' 14" WEST ALONG THE EASTERN LINE OF SAID LOT, A DISTANCE OF 60.78 FEET TO THE SOUTHWEST CORNER OF LOT 10 IN SAID BLOCK 20; THENCE ALONG THE SOUTHERLY AND EASTERLY LINE OF SAID LOT 10 THE FOLLOWING COURSES: NORTH 89° 58' 20" EAST 658.45 FEET AND NORTH 0° 01' 38" WEST 653.01 FEET TO THE NORTHEAST CORNER OF LOT 10 IN SAID BLOCK 20.

I. A STRIP OF LAND 60.00 FEET OF EVEN WIDTH, THE CENTER LINE OF WHICH IS DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF LOT 6 IN BLOCK 20 OF SAID CAJON PARK; THENCE SOUTH 0° 00' 50" ALONG THE WESTERLY LINE OF SAID LOT, A DISTANCE OF 652.55 FEET; THENCE SOUTH 24° 23' 10" EAST 175.74 FEET TO THE BEGINNING OF A TANGENT 100.00 FOOT RADIUS CURVE CONCAVE NORTHEASTERLY; THENCE SOUTHEASTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 17° 07' 50" A DISTANCE OF 29.90 FEET THENCE TANGENT TO SAID CURVE, SOUTH 41° 31' 00" EAST 281.75 FEET TO THE BEGINNING OF A TANGENT 90.00 FOOT RADIUS CURVE CONCAVE WESTERLY; THENCE SOUTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 92° 39' A DISTANCE OF 145.53 FEET; THENCE TANGENT TO SAID CURVE, SOUTH 51° 08' WEST 183.26 FEET TO THE BEGINNING OF A TANGENT 35.00 FOOT RADIUS CURVE CONCAVE EASTERLY; THENCE SOUTHERLY ALONG SAID CURVE, THROUGH A CENTRAL ANGLE OF 95° 24' A DISTANCE OF 58.28 FEET; THENCE TANGENT TO SAID CURVE, SOUTH 44° 16' EAST 0.58 FEET TO THE NORTHERLY LINE OF LOT 14 IN SAID BLOCK 20; THENCE SOUTH 64° 42' 20" EAST 592.98 FEET TO THE EASTERLY LINE OF SAID LOT 14.

EXCEPTING FROM THE ABOVE DESCRIBED 60.00 FOOT STRIP, THAT PORTION INCLUDED WITHIN THE EAST 30.00 FEET OF LOT 14 IN SAID BLOCK 20.

J. A STRIP OF LAND 60.00 FEET OF EVEN WIDTH, THE CENTER LINE OF WHICH IS DESCRIBED AS FOLLOWS:

*BEGINNING AT A POINT ON THE SOUTHERLY LINE OF LOT 11 IN BLOCK 20 OF S

TITLE EXCEPTIONS

1. GENERAL AND SPECIAL TAXES AND ASSESSMENTS FOR THE FISCAL YEAR 2019-2020, A LIEN NOT YET DUE OR PAYABLE.

2. GENERAL AND SPECIAL TAXES AND ASSESSMENTS FOR THE FISCAL YEAR 2018-2019.
FIRST INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
SECOND INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
TAX RATE AREA: 16042
A. P. NO.: 378-392-61-00

THE COUNTY TAX COLLECTOR COULD NOT VERIFY THE AMOUNTS SHOWN ABOVE AT THIS TIME. PLEASE VERIFY THE AMOUNTS WITH THE COUNTY TAX COLLECTOR PRIOR TO THE CLOSE OF THE CONTEMPLATED TRANSACTION.

AFFECTS: PORTION OF PARCEL 10

3. GENERAL AND SPECIAL TAXES AND ASSESSMENTS FOR THE FISCAL YEAR 2018-2019.
FIRST INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
SECOND INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
TAX RATE AREA: 16042
A. P. NO.: 378-392-62-00

THE COUNTY TAX COLLECTOR COULD NOT VERIFY THE AMOUNTS SHOWN ABOVE AT THIS TIME. PLEASE VERIFY THE AMOUNTS WITH THE COUNTY TAX COLLECTOR PRIOR TO THE CLOSE OF THE CONTEMPLATED TRANSACTION.

AFFECTS: PORTION OF PARCEL 10

4. GENERAL AND SPECIAL TAXES AND ASSESSMENTS FOR THE FISCAL YEAR 2018-2019.
FIRST INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
SECOND INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
TAX RATE AREA: 16042
A. P. NO.: 378-391-59-00

THE COUNTY TAX COLLECTOR COULD NOT VERIFY THE AMOUNTS SHOWN ABOVE AT THIS TIME. PLEASE VERIFY THE AMOUNTS WITH THE COUNTY TAX COLLECTOR PRIOR TO THE CLOSE OF THE CONTEMPLATED TRANSACTION.

AFFECTS: PARCEL 11

5. GENERAL AND SPECIAL TAXES AND ASSESSMENTS FOR THE FISCAL YEAR 2018-2019.
FIRST INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
SECOND INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
TAX RATE AREA: 16042
A. P. NO.: 378-382-58-00

THE COUNTY TAX COLLECTOR COULD NOT VERIFY THE AMOUNTS SHOWN ABOVE AT THIS TIME. PLEASE VERIFY THE AMOUNTS WITH THE COUNTY TAX COLLECTOR PRIOR TO THE CLOSE OF THE CONTEMPLATED TRANSACTION.

AFFECTS: PARCEL 12

6. GENERAL AND SPECIAL TAXES AND ASSESSMENTS FOR THE FISCAL YEAR 2018-2019.
FIRST INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
SECOND INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
TAX RATE AREA: 16042
A. P. NO.: 378-381-49-00

THE COUNTY TAX COLLECTOR COULD NOT VERIFY THE AMOUNTS SHOWN ABOVE AT THIS TIME. PLEASE VERIFY THE AMOUNTS WITH THE COUNTY TAX COLLECTOR PRIOR TO THE CLOSE OF THE CONTEMPLATED TRANSACTION.

AFFECTS: PARCEL 13

7. GENERAL AND SPECIAL TAXES AND ASSESSMENTS FOR THE FISCAL YEAR 2018-2019.
FIRST INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
SECOND INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
TAX RATE AREA: 16016
A. P. NO.: 380-031-18-00

THE COUNTY TAX COLLECTOR COULD NOT VERIFY THE AMOUNTS SHOWN ABOVE AT THIS TIME. PLEASE VERIFY THE AMOUNTS WITH THE COUNTY TAX COLLECTOR PRIOR TO THE CLOSE OF THE CONTEMPLATED TRANSACTION.

AFFECTS: PARCEL 15

8. GENERAL AND SPECIAL TAXES AND ASSESSMENTS FOR THE FISCAL YEAR 2018-2019.

FIRST INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
SECOND INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
TAX RATE AREA: 16016
A. P. NO.: 378-020-46-00

THE COUNTY TAX COLLECTOR COULD NOT VERIFY THE AMOUNTS SHOWN ABOVE AT THIS TIME. PLEASE VERIFY THE AMOUNTS WITH THE COUNTY TAX COLLECTOR PRIOR TO THE CLOSE OF THE CONTEMPLATED TRANSACTION.

AFFECTS: PORTION OF PARCEL 15

9. GENERAL AND SPECIAL TAXES AND ASSESSMENTS FOR THE FISCAL YEAR 2018-2019.
FIRST INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
SECOND INSTALLMENT: $0.00, NO TAX DUE PENALTY: $0.00
TAX RATE AREA: 16007
A. P. NO.: 378-020-50-00

THE COUNTY TAX COLLECTOR COULD NOT VERIFY THE AMOUNTS SHOWN ABOVE AT THIS TIME. PLEASE VERIFY THE AMOUNTS WITH THE COUNTY TAX COLLECTOR PRIOR TO THE CLOSE OF THE CONTEMPLATED TRANSACTION.

AFFECTS: PORTION OF PARCEL 10

10. INTENTIONALLY DELETED

11. INTENTIONALLY DELETED

12. INTENTIONALLY DELETED

13. INTENTIONALLY DELETED

14. INTENTIONALLY DELETED

15. INTENTIONALLY DELETED

16. INTENTIONALLY DELETED

17. THE LIEN OF SUPPLEMENTAL TAXES, IF ANY, ASSESSED PURSUANT TO CHAPTER 3.5 COMMENCING WITH SECTION 75 OF THE CALIFORNIA REVENUE AND TAXATION CODE.

THE FOLLOWING MATTERS AFFECT PARCEL 1:

18. AN EASEMENT FOR DRAINAGE AND INCIDENTAL PURPOSES, RECORDED APRIL 22, 1969 AS INSTRUMENT NO. 69566 OF OFFICIAL RECORDS.
IN FAVOR OF: THE SAN DIEGO COUNTY FLOOD CONTROL DISTRICT, ZONE 2
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

19. THE EFFECT OF A MAP PURPORTING TO SHOW THE LAND AND OTHER PROPERTY, FILED MAP NO. 8279 OF RECORD OF SURVEYS.

20. AN EASEMENT FOR THE RIGHT TO CONSTRUCT, PLACE, OPERATE, INSPECT, MAINTAIN, REPAIR, REPLACE AND REMOVE SUCH UNDERGROUND COMMUNICATION STRUCTURES CONSISTING OF CABLES, CONDUITS, MANHOLES, MARKERS, PEDESTALS AND NECESSARY FIXTURES AND INCIDENTAL PURPOSES, RECORDED AUGUST 8, 1972 AS INSTRUMENT NO. 207684 OF OFFICIAL RECORDS.
IN FAVOR OF: PACIFIC TELEPHONE AND TELEGRAPH COMPANY
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

21. AN EASEMENT FOR FLOOD DRAINAGE CHANNEL AND ALL STRUCTURES AND INCIDENTAL PURPOSES, RECORDED NOVEMBER 28, 1977 AS INSTRUMENT NO. 77-489725 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT, ZONE 2
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

22. AN EASEMENT FOR INSTALLING AND MAINTAINING FENCES PLANTING, AND MAINTAINING OF TREES AND SHRUBS AND INCIDENTAL PURPOSES, RECORDED APRIL 21, 1978 AS INSTRUMENT NO. 78-161193 OF OFFICIAL RECORDS.
IN FAVOR OF: VARIOUS PARTIES OF RECORD
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

SAID EASEMENT HAS BEEN CONVEYED DOOR RESERVED IN VARIOUS OTHER INSTRUMENTS OF RECORD

23. AN EASEMENT FOR DRAINAGE AND INCIDENTAL PURPOSES, RECORDED AUGUST 9, 1978 AS INSTRUMENT NO. 78-337440 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT, ZONE 2
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

24. THE FACT THAT SAID LAND LIES WITHIN THE "CITY OF SANTEE/FIRE PROTECTION DISTRICT MERGER" AS DISCLOSED BY SAN DIEGO COUNTY LOCAL AGENCY FORMATION COMMISSION CERTIFICATE OF COMPLETION RECORDED JANUARY 16, 1985 AS INSTRUMENT NO. 85-013772 OF OFFICIAL RECORDS.

25. INTENTIONALLY DELETED

26. INTENTIONALLY DELETED

THE FOLLOWING MATTERS AFFECT PARCEL 2:

27. AN EASEMENT FOR A LINE OR INDEPENDENT LINES OF POLES AND/OR STEEL TOWERS AND WIRES AND/OR CABLES SUSPENDED THEREON AND SUPPORTED THEREBY, AND UNDERGROUND CONDUITS, CABLES, VAULTS AND MANHOLES, FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY, TOGETHER WITH THE RIGHT OF INGRESS THERETO AND EGRESS THEREFROM AND INCIDENTAL PURPOSES, RECORDED DECEMBER 19, 1958 AS BOOK 7406, PAGE 57 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

TITLE EXCEPTIONS (CONT.)

28. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED OCTOBER 14, 1966 AS INSTRUMENT NO. 165833 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

29. THE EFFECT OF A MAP PURPORTING TO SHOW THE LAND AND OTHER PROPERTY, FILED MAP NO. 8279 OF RECORD OF SURVEYS.

30. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "AGREEMENT REGARDING LIMITED AVAILABILITY OF SEWER SERVICE" RECORDED APRIL 14, 1983 AS INSTRUMENT NO. 83-119355 OF OFFICIAL RECORDS.

31. THE FACT THAT SAID LAND LIES WITHIN THE "CITY OF SANTEE/FIRE PROTECTION DISTRICT MERGER" AS DISCLOSED BY SAN DIEGO COUNTY LOCAL AGENCY FORMATION COMMISSION CERTIFICATE OF COMPLETION RECORDED JANUARY 16, 1985 AS INSTRUMENT NO. 85-013772 OF OFFICIAL RECORDS.

31a. AN EASEMENT FOR TEMPORARY TRAIL ACCESS AND INCIDENTAL PURPOSES, RECORDED MARCH 23, 2017 AS INSTRUMENT NO. 2017-0132134 OF OFFICIAL RECORDS.
IN FAVOR OF: CITY OF SANTEE, A MUNICIPAL CORPORATION
AFFECTS: AS DESCRIBED THEREIN

THE FOLLOWING MATTERS AFFECT PARCELS 3, 4, 5 AND 7:

32. THE EFFECT OF A MAP PURPORTING TO SHOW THE LAND AND OTHER PROPERTY, FILED MAP NO. 8279 OF RECORD OF SURVEYS.

33. THE FACT THAT SAID LAND LIES WITHIN THE "CITY OF SANTEE/FIRE PROTECTION DISTRICT MERGER" AS DISCLOSED BY SAN DIEGO COUNTY LOCAL AGENCY FORMATION COMMISSION CERTIFICATE OF COMPLETION RECORDED JANUARY 16, 1985 AS INSTRUMENT NO. 85-013772 OF OFFICIAL RECORDS.

33a. AN EASEMENT FOR TEMPORARY TRAIL ACCESS AND INCIDENTAL PURPOSES, RECORDED MARCH 23, 2017 AS INSTRUMENT NO. 2017-0132134 OF OFFICIAL RECORDS.
IN FAVOR OF: CITY OF SANTEE, A MUNICIPAL CORPORATION
AFFECTS: PARCEL

THE FOLLOWING MATTERS AFFECT PARCEL 6:

34. AN EASEMENT FOR A LINE OR INDEPENDENT LINES OF POLES AND/OR STEEL TOWERS AND WIRES AND/OR CABLES SUSPENDED THEREON AND SUPPORTED THEREBY, AND UNDERGROUND CONDUITS, CABLES, VAULTS AND MANHOLES, FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY, TOGETHER WITH THE RIGHT OF INGRESS THERETO AND EGRESS THEREFROM AND INCIDENTAL PURPOSES, RECORDED DECEMBER 19, 1958 AS BOOK 7406, PAGE 57 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

35. INTENTIONALLY DELETED

36. THE EFFECT OF A MAP PURPORTING TO SHOW THE LAND AND OTHER PROPERTY, FILED MAP NO. 8279 OF RECORD OF SURVEYS.

37. AN EASEMENT FOR THE INSTALLATION, CONSTRUCTION, MAINTENANCE, REPAIR, REPLACEMENT, RECONSTRUCTION AND INSPECTION OF AN ENCLOSED OR UNENCLOSED FLOOD DRAINAGE CHANNEL AND INCIDENTAL PURPOSES, RECORDED JULY 16, 1980 AS INSTRUMENT NO. 80-223596 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT, ZONE 2
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

38. AN EASEMENT FOR COUNTY HIGHWAY AND INCIDENTAL PURPOSES, RECORDED JULY 23, 1980 AS INSTRUMENT NO. 80-231419 OF OFFICIAL RECORDS.
IN FAVOR OF: THE COUNTY OF SAN DIEGO
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

SAID INSTRUMENT ALSO GRANTS THE PRIVILEGE AND RIGHT TO EXTEND AND MAINTAIN DRAINAGE STRUCTURES AND EXCAVATION AND EMBANKMENT SLOPES BEYOND THE LIMITS OF SAID RIGHT OF WAY WHERE REQUIRED FOR THE CONSTRUCTION AND MAINTENANCE THEREOF.

39. AN EASEMENT FOR FOR THE PURPOSE OF LAYING UNDERGROUND WATER PIPELINES AND LATERALS, MAIN SEWER LINES, SEWER TRUNK LINES, COLLECTION LINES AND LATERALS AND THE RIGHT OF INGRESS AND EGRESS AND INCIDENTAL PURPOSES, RECORDED OCTOBER 2, 1980 AS INSTRUMENT NO. 80-324135 OF OFFICIAL RECORDS.
IN FAVOR OF: PADRE DAM MUNICIPAL WATER DISTRICT
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

40. AN EASEMENT FOR SEWER PIPELINE AND INCIDENTAL PURPOSES, RECORDED JUNE 18, 1981 AS INSTRUMENT NO. 81-191559 OF OFFICIAL RECORDS.
IN FAVOR OF: PADRE DAM MUNICIPAL WATER DISTRICT
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

41. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "AGREEMENT REGARDING LIMITED AVAILABILITY OF SEWER SERVICE" RECORDED APRIL 14, 1983 AS INSTRUMENT NO. 83-119355 OF OFFICIAL RECORDS.

42. THE FACT THAT SAID LAND LIES WITHIN THE "CITY OF SANTEE/FIRE PROTECTION DISTRICT MERGER" AS DISCLOSED BY SAN DIEGO COUNTY LOCAL AGENCY FORMATION COMMISSION CERTIFICATE OF COMPLETION RECORDED JANUARY 16, 1985 AS INSTRUMENT NO. 85-013772 OF OFFICIAL RECORDS.

43. INTENTIONALLY DELETED

43a. AN EASEMENT FOR TEMPORARY TRAIL ACCESS AND INCIDENTAL PURPOSES, RECORDED MARCH 23, 2017 AS INSTRUMENT NO. 2017-0132134 OF OFFICIAL RECORDS.
IN FAVOR OF: CITY OF SANTEE, A MUNICIPAL CORPORATION
AFFECTS: PARCEL

THE FOLLOWING MATTERS AFFECT PARCEL 8:

44. THE EFFECT OF A MAP PURPORTING TO SHOW THE LAND AND OTHER PROPERTY, FILED MAP NO. 8279 OF RECORD OF SURVEYS.

45. AN EASEMENT FOR THE INSTALLATION, CONSTRUCTION, MAINTENANCE, REPAIR, REPLACEMENT, RECONSTRUCTION AND INSPECTION OF AN ENCLOSED OR UNENCLOSED FLOOD DRAINAGE CHANNEL AND INCIDENTAL PURPOSES, RECORDED JULY 16, 1980 AS INSTRUMENT NO. 80-223591 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT, ZONE 2
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

46. AN EASEMENT FOR THE INSTALLATION, CONSTRUCTION, MAINTENANCE, REPAIR, REPLACEMENT, RECONSTRUCTION AND INSPECTION OF AN ENCLOSED OR UNENCLOSED FLOOD DRAINAGE AND INCIDENTAL PURPOSES, RECORDED JULY 16, 1980 AS INSTRUMENT NO. 80-223598 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT, ZONE 2
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

47. AN EASEMENT FOR A PUBLIC HIGHWAY AND INCIDENTAL PURPOSES, RECORDED JULY 23, 1980 AS INSTRUMENT NO. 80-231418 OF OFFICIAL RECORDS.
IN FAVOR OF: THE COUNTY OF SAN DIEGO
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

SAID INSTRUMENT ALSO GRANTS THE PRIVILEGE AND RIGHT TO EXTEND AND MAINTAIN DRAINAGE STRUCTURES AND EXCAVATION AND EMBANKMENT SLOPES BEYOND THE LIMITS OF SAID RIGHT OF WAY WHERE REQUIRED FOR THE CONSTRUCTION AND MAINTENANCE THEREOF.

48. AN EASEMENT FOR A PUBLIC HIGHWAY AND INCIDENTAL PURPOSES, RECORDED JULY 28, 1980 AS INSTRUMENT NO. 80-237163 OF OFFICIAL RECORDS.
IN FAVOR OF: THE COUNTY OF SAN DIEGO
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

SAID INSTRUMENT ALSO GRANTS THE PRIVILEGE AND RIGHT TO EXTEND AND MAINTAIN DRAINAGE STRUCTURES AND EXCAVATION AND EMBANKMENT SLOPES BEYOND THE LIMITS OF SAID RIGHT OF WAY WHERE REQUIRED FOR THE CONSTRUCTION AND MAINTENANCE THEREOF.

49. AN EASEMENT FOR THE PURPOSE OF LAYING UNDERGROUND WATER PIPELINES AND LATERALS, MAIN SEWER LINES, SEWER TRUNK LINES, COLLECTION LINES AND LATERALS AND THE RIGHT OF INGRESS, EGRESS AND INCIDENTAL PURPOSES, RECORDED OCTOBER 2, 1980 AS INSTRUMENT NO. 80-324133 OF OFFICIAL RECORDS.
IN FAVOR OF: PADRE DAM MUNICIPAL WATER DISTRICT
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

50. AN EASEMENT FOR THE PURPOSE OF LAYING UNDERGROUND WATER PIPELINES AND LATERALS, MAIN SEWER LINES, SEWER TRUNK LINES, COLLECTION LINES AND LATERALS AND THE RIGHT OF INGRESS, EGRESS AND INCIDENTAL PURPOSES, RECORDED OCTOBER 2, 1980 AS INSTRUMENT NO. 80-324135 OF OFFICIAL RECORDS.
IN FAVOR OF: PADRE DAM MUNICIPAL WATER DISTRICT
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY
AFFECTS: THE LAND AND OTHER PROPERTY.

51. THE FACT THAT SAID LAND LIES WITHIN THE "CITY OF SANTEE/FIRE PROTECTION DISTRICT MERGER" AS DISCLOSED BY SAN DIEGO COUNTY LOCAL AGENCY FORMATION COMMISSION CERTIFICATE OF COMPLETION, RECORDED JANUARY 16, 1985 AS INSTRUMENT NO. 85-013772 OF OFFICIAL RECORDS.

52. AN EASEMENT FOR THE PURPOSE OF LAYING UNDERGROUND WATER PIPELINES AND LATERALS, MAIN SEWER LINES, SEWER TRUNK LINES, COLLECTION LINES AND LATERALS,SEWER MANHOLES AND OTHER UNDERGROUND AND SURFACE STRUCTURES APPURTENANT TO SAID WATER AND SEWER LINES, AND THE RIGHT OF INGRESS AND EGRESS AND INCIDENTAL PURPOSES, RECORDED FEBRUARY 19, 1985 AS INSTRUMENT NO. 85-054426 OF OFFICIAL RECORDS.

TITLE EXCEPTIONS (CONT.)

IN FAVOR OF: PADRE DAM MUNICIPAL WATER DISTRICT
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

53. AN EASEMENT FOR ROAD, DRAINAGE STRUCTURES, TELEMETRY CONDUITS, ABOVE AND BELOW GROUND ELECTRICAL POWER LINES, AND OTHER UTILITIES, AND FOR LAYING UNDERGROUND WATER PIPELINES AND LATERALS, MAIN SEWER LINES, SEWER TRUNK LINES, COLLECTION LINES AND LATERALS, SEWER MANHOLES AND OTHER UNDERGROUND AND SURFACE STRUCTURES APPURTENANT THERETO, HEREINAFTER REFERRED TO AS "SAID FACILITIES," TOGETHER WITH THE RIGHT TO CONSTRUCT, OPERATE, MAINTAIN, REPAIR AND REPLACE SAID FACILITIES AND / INCIDENTAL PURPOSES, RECORDED FEBRUARY 24, 1994 AS INSTRUMENT NO. 1994-0124825 OF OFFICIAL RECORDS.
IN FAVOR OF: PADRE DAM MUNICIPAL WATER DISTRICT, A PUBLIC ENTITY
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

54. AN EASEMENT FOR SLOPES, EXCAVATION, FILL AND DRAINAGE STRUCTURES AND INCIDENTAL PURPOSES, RECORDED FEBRUARY 24, 1994 AS INSTRUMENT NO. 1994-0124825 OF OFFICIAL RECORDS.
IN FAVOR OF: PADRE DAM MUNICIPAL WATER DISTRICT, A PUBLIC ENTITY
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

55. THE EFFECT OF A MAP PURPORTING TO SHOW THE LAND AND OTHER PROPERTY, FILED MAP NO. 14570 OF RECORD OF SURVEYS.

56. INTENTIONALLY DELETED

THE FOLLOWING MATTERS AFFECT PARCEL 9:

57. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED AUGUST 7, 1960 AS INSTRUMENT NO. 166692 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

58. AN EASEMENT FOR FLOOD DRAINAGE CHANNEL AND ALL STRUCTURES INCIDENTAL THERETO, AND FOR THE FLOWAGE OF ANY WATERS AND INCIDENTAL PURPOSES, RECORDED NOVEMBER 28, 1977 AS INSTRUMENT NO. 77-489725 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT, ZONE 2
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

59. THE EFFECT OF A MAP PURPORTING TO SHOW THE LAND AND OTHER PROPERTY, FILED MAP NO. 8279 OF RECORD OF SURVEYS.

60. AN EASEMENT FOR WATER PIPELINES AND INCIDENTAL PURPOSES, RECORDED MAY 27, 1982 AS INSTRUMENT NO. 82-162609 OF OFFICIAL RECORDS.
IN FAVOR OF: PADRE DAM MUNICIPAL WATER DISTRICT
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

61. THE FACT THAT SAID LAND LIES WITHIN THE "CITY OF SANTEE/FIRE PROTECTION DISTRICT MERGER" AS DISCLOSED BY SAN DIEGO COUNTY LOCAL AGENCY FORMATION COMMISSION CERTIFICATE OF COMPLETION, RECORDED JANUARY 16, 1985 AS INSTRUMENT NO. 85-013772 OF OFFICIAL RECORDS.

62. AN EASEMENT FOR INGRESS TO AND EGRESS FROM GRANTEE'S TELECOMMUNICATIONS SITE LOCATED AT THE ADJACENT CUYAMACA RESERVOIR OWNED BY PADRE DAM MUNICIPAL WATER DISTRICT AND INCIDENTAL PURPOSES, RECORDED FEBRUARY 23, 2001 AS INSTRUMENT NO. 2001-0103286 OF OFFICIAL RECORDS.
IN FAVOR OF: COX PCS ASSETS, L.L.C., A DELAWARE LIMITED LIABILITY COMPANY
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

63. INTENTIONALLY DELETED

THE FOLLOWING MATTERS AFFECT PARCELS 10 THROUGH 13 AND 15:

64. INTENTIONALLY DELETED

65. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED SEPTEMBER 27, 1960 AS INSTRUMENT NO. 193812 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
AFFECTS: PARCELS 15

66. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED JUNE 1, 1962 AS INSTRUMENT NO. 83903 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
AFFECTS: PARCELS 10 AND 15

67. AN EASEMENT FOR THE PURPOSE OF LAYING AN UNDERGROUND SEWER LINE, LATERALS OR SERVICE LINES, SEWER MANHOLES AND OTHER APPURTENANT UNDERGROUND STRUCTURES, TOGETHER WITH THE RIGHT TO CONSTRUCT, OPERATE, MAINTAIN, REPAIR AND REPLACE SAID SEWER LINE, LATERALS AND APPURTENANT STRUCTURES, AND RIGHT OF INGRESS AND EGRESS FOR SUCH PURPOSES AND INCIDENTAL PURPOSES, RECORDED JUNE 7, 1962 AS INSTRUMENT NO. 97155 OF OFFICIAL RECORDS.
IN FAVOR OF: SANTEE COUNTY WATER DISTRICT
AFFECTS: PARCEL 15

68. AN EASEMENT FOR FOR THE PURPOSE OF LAYING AN UNDERGROUND SEWER LINE, LATERALS OR SERVICE LINES, SEWER MANHOLES AND OTHER APPURTENANT UNDERGROUND STRUCTURES, TOGETHER WITH THE RIGHT TO CONSTRUCT, OPERATE, MAINTAIN, REPAIR AND REPLACE SAID SEWER LINE, LATERALS AND APPURTENANT STRUCTURES, AND RIGHT OF INGRESS AND EGRESS FOR SUCH PURPOSES AND INCIDENTAL PURPOSES, RECORDED JUNE 7, 1962 AS INSTRUMENT NO. 97156 OF OFFICIAL RECORDS.
IN FAVOR OF: SANTEE COUNTY WATER DISTRICT
AFFECTS: PARCEL 15

69. AN EASEMENT FOR ROAD PURPOSES AND FOR THE PURPOSE OF LAYING UNDERGROUND WATER PIPELINES AND LATERALS, MAIN SEWER LINES, SEWER TRUNK LINES, COLLECTION LINES AND LATERALS (ELSEWHERE HEREIN COLLECTIVELY REFERRED TO AS WATER AND SEWER LINES), AND SEWER MANHOLES AND OTHER UNDERGROUND AND SURFACE STRUCTURES APPURTENANT TO SAID WATER AND SEWER LINES, TOGETHER WITH THE RIGHT TO CONSTRUCT, OPERATE, MAINTAIN, REPAIR AND REPLACE SAID WATER AND SEWER LINES AND APPURTENANT STRUCTURES; AND RIGHT OF INGRESS AND EGRESS FOR SUCH PURPOSES AND INCIDENTAL PURPOSES IN FAVOR OF SANTEE COUNTY WATER DISTRICT AND INCIDENTAL PURPOSES, RECORDED JUNE 7, 1962 AS INSTRUMENT NO. 97157 OF OFFICIAL RECORDS.
IN FAVOR OF: SANTEE COUNTY WATER DISTRICT
AFFECTS: PARCEL 15

70. AN EASEMENT FOR LAYING AN UNDERGROUND SEWER LINE, LATERALS OR SERVICE LINES, SEWER MANHOLES AND OTHER APPURTENANT UNDERGROUND STRUCTURES, TOGETHER WITH THE RIGHT TO CONSTRUCT, OPERATE, MAINTAIN, REPAIR AND REPLACE SAID SEWER LINES, LATERALS AND APPURTENANT STRUCTURES, AND RIGHT OF INGRESS AND EGRESS FOR SUCH PURPOSES AND INCIDENTAL PURPOSES, RECORDED JUNE 7, 1962 AS INSTRUMENT NO. 97158 OF OFFICIAL RECORDS.
IN FAVOR OF: SANTEE COUNTY WATER DISTRICT
AFFECTS: PARCEL 15

70a. AN EASEMENT FOR THE PURPOSE OF LAYING UNDERGROUND WATER PIPELINES AND LATERALS, MAIN SEWER LINES, SEWER TRUNK LINES, COLLECTION LINES AND LATERALS (ELSEWHERE HEREIN COLLECTIVELY REFERRED TO AS WATER, SEWER LINES), AND SEWER MANHOLES AND OTHER UNDERGROUND AND SURFACE STRUCTURES, APPURTENANT TO SAID WATER AND SEWER LINES, TOGETHER WITH THE RIGHT TO CONSTRUCT, OPERATE, MAINTAIN, REPAIR AND REPLACE SAID WATER AND SEWER LINES, AND APPURTENANT STRUCTURES, AND RIGHT OF INGRESS, EGRESS AND INCIDENTAL PURPOSES, RECORDED JUNE 7, 1962 AS INSTRUMENT NO. 97159 OF OFFICIAL RECORDS.
IN FAVOR OF: SANTEE COUNTY WATER DISTRICT
AFFECTS: PARCEL 15

71. AN EASEMENT FOR THE PURPOSE OF LAYING UNDERGROUND WATER PIPELINES AND LATERALS, MAIN SEWER LINES, SEWER TRUNK LINES, COLLECTION LINES AND LATERALS (ELSEWHERE HEREIN COLLECTIVELY REFERRED TO AS WATER, SEWER LINES), AND SEWER MANHOLES AND OTHER UNDERGROUND AND SURFACE STRUCTURES, APPURTENANT TO SAID WATER AND SEWER LINES, TOGETHER WITH THE RIGHT TO CONSTRUCT, OPERATE, MAINTAIN, REPAIR AND REPLACE SAID WATER AND SEWER LINES, AND APPURTENANT STRUCTURES, AND RIGHT OF INGRESS, EGRESS AND INCIDENTAL PURPOSES, RECORDED JUNE 7, 1962 AS INSTRUMENT NO. 97160 OF OFFICIAL RECORDS.
IN FAVOR OF: SANTEE COUNTY WATER DISTRICT
AFFECTS: PARCELS 10, 11, 15

72. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED JUNE 8, 1962 AS INSTRUMENT NO. 98126 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
AFFECTS: PARCEL 15

73. AN EASEMENT FOR ROAD, UTILITY AND INCIDENTAL PURPOSES, RECORDED MAY 6, 1965 AS INSTRUMENT NO. 81179 OF OFFICIAL RECORDS.
IN FAVOR OF: SANTEE COUNTY WATER DISTRICT
AFFECTS: PARCEL 15

73a. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED MAY 14, 1965 AS INSTRUMENT NO. 86969 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
AFFECTS: PARCEL 15

74. AN EASEMENT FOR UTILITY AND INCIDENTAL PURPOSES, RECORDED AUGUST 23, 1966 AS INSTRUMENT NO. 137117 OF OFFICIAL RECORDS.
IN FAVOR OF: SANTEE COUNTY WATER DISTRICT
AFFECTS: PARCEL 10

TITLE EXCEPTIONS (CONT.)

75. AN EASEMENT FOR DRAINAGE AND INCIDENTAL PURPOSES, RECORDED MAY 10, 1966 AS INSTRUMENT NO. 77975 AND RE-RECORDED FEBRUARY 20, 1967 AS INSTRUMENT NO. 22787, BOTH OF OFFICIAL RECORDS.
IN FAVOR OF: SANTEE COUNTY WATER DISTRICT
AFFECTS: A PORTION OF THE HEREIN DESCRIBED PROPERTY

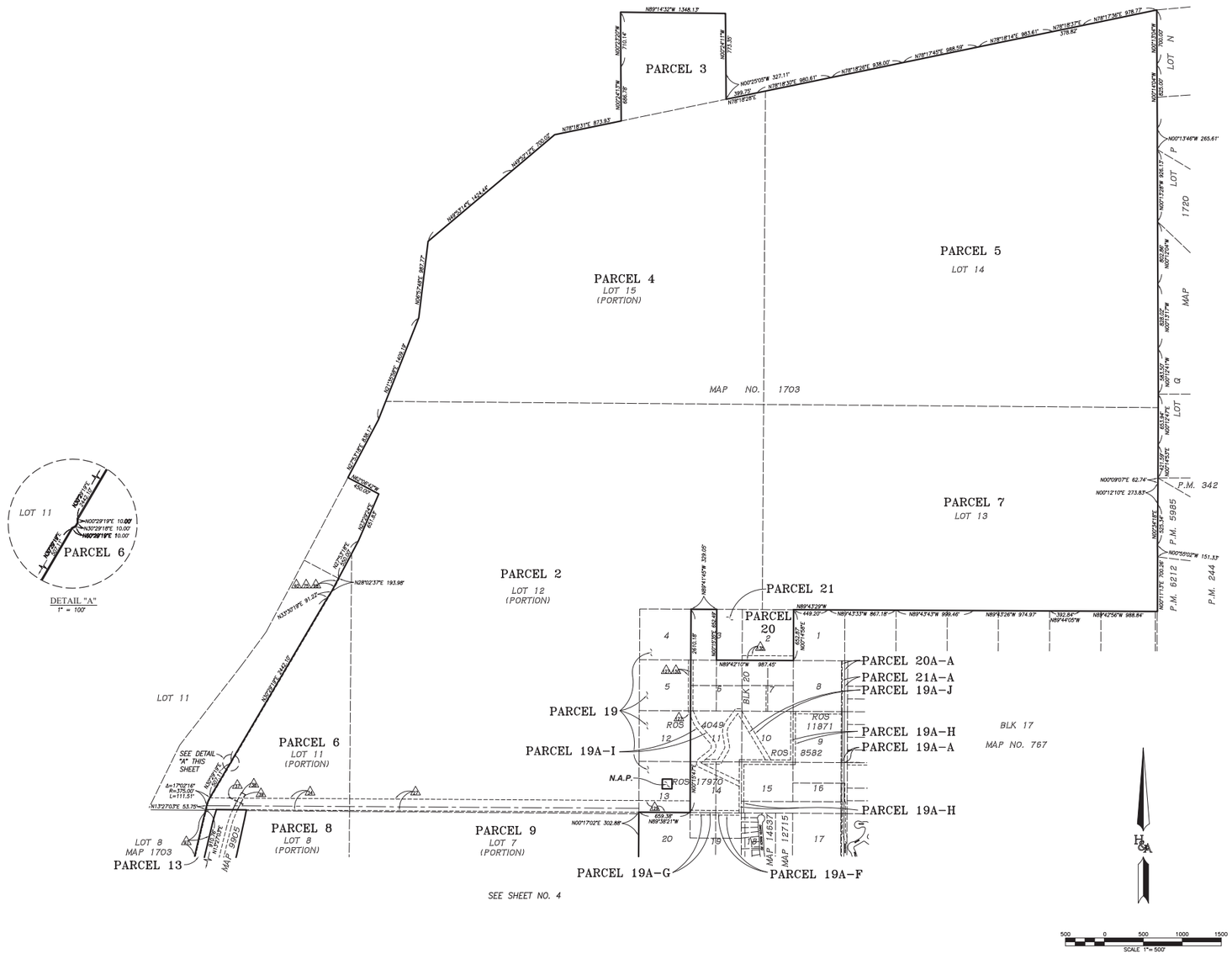
76. AN EASEMENT FOR COMMUNICATION STRUCTURES AND INCIDENTAL PURPOSES, RECORDED AUGUST 1, 1968 AS INSTRUMENT NO. 130597 OF OFFICIAL RECORDS.
IN FAVOR OF: THE PACIFIC TELEPHONE AND TELEGRAPH COMPANY
AFFECTS: PARCEL 10

77. AN EASEMENT FOR GAS PIPE LINES AND INCIDENTAL PURPOSES, RECORDED NOVEMBER 9, 1972 AS INSTRUMENT NO. 300662 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
AFFECTS: PARCEL 15

78. AN EASEMENT FOR PUBLIC UTILITIES AND INCIDENTAL PURPOSES, RECORDED JULY 8, 1974 AS INSTRUMENT NO. 74-181902 OF OFFICIAL RECORDS.
IN FAVOR OF: SAN DIEGO GAS AND ELECTRIC COMPANY
AFFECTS: PARCEL 15

79. AN EASEMENT FOR UNDERGROUND WATER PIPELINES AND LATERALS, MAIN SEWER LINES, SEWER TRUNK LINES, COLLECTION LINES AND LATERALS, SEWER MANHOLES AND OTHER UNDERGROUND AND SURFACE STRUCTURES APPURTENANT TO SAID WATER AND SEWER LINES, COLLECTION LINES AND LATERALS, SEWER MANHOLES AND OTHER UNDERGROUND AND SURFACE STRUCTURES APPURTENANT TO SAID WATER AND SEWER LINES AND INCIDENTAL PURPOSES, RECORDED AUGUST 19, 1977 AS INSTRUMENT NO. 77-341594 OF OFFICIAL RECORDS.
IN FAVOR OF: PADRE DAM MUNICIPAL WATER DISTRICT
AFFECTS: PARCEL 15

80. THE EFFECT OF A MAP PURPORT



BOUNDARY & ENCUMBRANCE DATA

PREPARED BY:
HUNSAKER & ASSOCIATES SAN DIEGO, INC.
PLANNING 9707 Waples Street
ENGINEERING San Diego, CA 92121
SURVEYING

VESTING TENTATIVE MAP/ PRELIMINARY GRADING PLAN

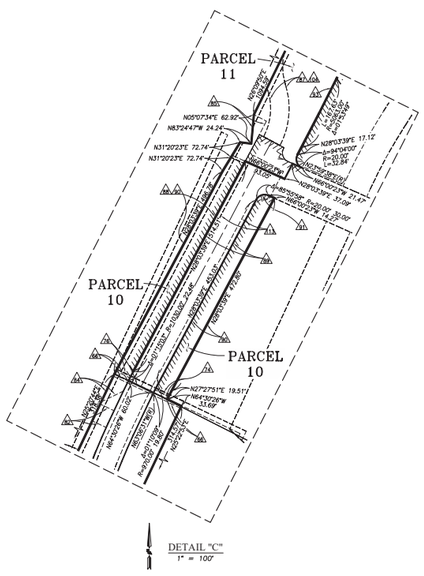
FANITA RANCH

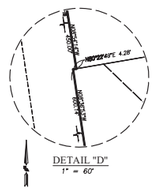
City Of Santee, California

SHEET 35 OF 37

W.O. 2395-0007

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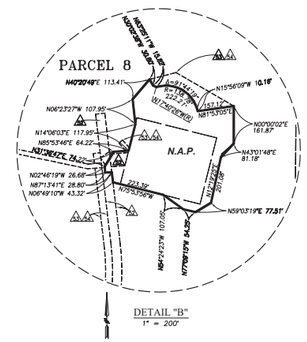






CURVE TABLE			
#	DELTA	RADIUS	LENGTH
C1	6°15'55"	1436.99'	157.14'
C2	11°55'01"	1563.00'	325.09'

LINE TABLE		
#	BEARING	DISTANCE
L1	N85°29'50"W	20.00'
L2	N23°48'39"E	72.20'
L3	N25°18'08"E	331.83'
L4	N64°36'10"W	74.59'
L5	N25°22'04"E	485.19'



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VESTING TENTATIVE MAP/ PRELIMINARY GRADING PLAN

FANITA RANCH

City Of Santee, California

SHEET 36 OF 37

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APPENDIX Q

Upland Restoration Plan

Upland Restoration Plan for the Fanita Ranch Project, City of Santee, California

Prepared for:

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MARCH 2020

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1 INTRODUCTION

The proposed Fanita Ranch Project (project) would be a new housing community in the City of Santee. Development for the proposed project would be clustered into three villages to preserve natural open space areas, drainages, and key wildlife corridors. Construction of the project would result in unavoidable temporary impacts to sensitive upland habitats. Mitigation for project impacts is required under CEQA and pursuant to the City of Santee (City) Draft Multiple Species Conservation Program (MSCP) Subarea Plan (City of Santee 2018) as outlined in the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a).

In particular, this Upland Restoration Plan (Plan) has been prepared for the proposed project in accordance with the mitigation requirements identified in the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a), specifically mitigation measures MM-BIO-2, MM-BIO-4, MM-BIO-9, and MM-BIO-12. This Plan provides guidelines for restoration activities occurring within the on-site Fanita Ranch MSCP Habitat Preserve (Habitat Preserve) to meet the project's mitigation requirements.

1.1 Project Location

The Fanita Ranch Project (project) is located in the northwest portion of the City of Santee (City) in central San Diego County, California (Figure 1, Regional Map). The project is bordered primarily by City residential neighborhoods to the south and the unincorporated residential communities of Lakeside and Eucalyptus Hills to the east. To the northeast, active mining operations occur in Slaughterhouse Canyon and are separated by a large hillside. To the north, Sycamore Canyon Open Space preserve, owned by the County of San Diego (County), and unincorporated vacant lands border the project area. Farther north lies the Goodan Ranch Regional Park, which is jointly owned by the Cities of Santee and Poway, the County, and the State of California. To the west of the project area lie the Marine Corps Air Station (MCAS) Miramar and the Santee Lakes Recreation Preserve, owned and operated by Padre Dam Municipal Water District (Figure 2, Vicinity Map).

1.2 Regulatory Requirements

Draft Santee Multiple Species Conservation Program Subarea Plan

The City has been preparing its Subarea Plan since the original approval of the MSCP Plan, and is currently in the process of completing the Santee MSCP Subarea Plan (Figure 2-2, Regional Planning Context, in Dudek 2020a). Although the Draft Santee MSCP Subarea Plan has not yet been approved or permitted, it is used as the guidance document for projects occurring within the City of Santee. The project would qualify as a hardline Covered Project under the Draft Santee

MSCP Subarea Plan, and would obtain take coverage for impacts to species through authorization from the City. The current Draft Santee MSCP Subarea Plan seeks coverage for 22 species (8 plants and 14 wildlife species) and relies on a combination of hardline preserve areas and softline criteria-based protection zones to protect species and habitat. Coverage for species is dependent on a number of factors, including multiple jurisdictional participation, adequate assembly of the preserve system, adequate protection of certain populations, permanent management funding, and other factors. Not all MSCP Covered Species occur in each jurisdiction, so the number of species covered by each subarea plan may be a subset of the total list. It should be noted that if the Santee MSCP Subarea Plan is not implemented take authorization would be provided through ESA Section 7 or an individual Section 10 permit.

The Draft Santee MSCP Subarea Plan preserve boundaries are a result of the City's efforts to refine and expand the MHPA boundaries, to better define conservation priorities within the City and to formulate a habitat conservation plan under the MSCP Plan. Implementation of the Santee MSCP Subarea Plan proposes to conserve approximately 3,060 acres (67.8%) of the remaining natural habitat within the jurisdictional boundaries of the City. Since the Draft Santee MSCP Subarea Plan is still in development, portions of the subarea plan may still change, including hardline preserve areas and Covered Species. The Subarea Plan Preserve System is divided into six subunits: San Diego River Subunit, Rattlesnake Mountain Subunit, Mission Trails Subunit, Magnolia Summit Subunit, Non-Contiguous, and Fanita Ranch Subunit (City of Santee 2018). The Fanita Ranch subunit will represent over half of the Santee MSCP Subarea Plan preserve system and includes habitat for a number of Covered Species.

Compliance with the Draft Santee MSCP Subarea Plan for Covered Species and work in or adjacent to the Draft Santee MSCP Subarea Plan Preserve areas would be achieved through adherence to the mitigation measures outlined in the project's Environmental Impact Report (EIR) and Biological Technical Report (BTR) for the Fanita Ranch Project (Dudek 2020a). Specifically, all restoration work would adhere to the BTR mitigation measure MM-BIO-2, which requires restoration of temporary impact areas. Additionally, the Plan will incorporate mitigation measure MM-BIO-4, which requires compliance with the narrow endemic species policy identified in the Draft Santee MSCP Subarea Plan, MM-BIO-9, which requires restoration/enhancement of potentially suitable habitat areas for Quino checkerspot butterfly and Hermes copper butterfly, and MM-BIO-12, which requires restoration and enhancement of coastal cactus wren habitat.

2 EXISTING CONDITIONS

Elevations within the project area range from about 320 feet above mean sea level in the southern end of Fanita Parkway to approximately 1,204 feet above mean sea level in the northeastern corner of the project area. The project area contains a series of northeast- to southwest-trending hills and valleys that form a transition between the relatively low, flat Sycamore Canyon on the western end of the project area and the foothills of the Peninsular Range to the east. Numerous large rock outcrops are also present on site, particularly in the northern and northeastern portions of the property.

The project area consists of open space supporting disturbed and undisturbed natural plant communities. The project area supports a complex system of dirt roads and trails, many of which have been created by ongoing illegal use from off-road vehicle traffic and other forms of recreation. Some of the dirt roads provide necessary access to power transmission towers.

Coastal sage scrub and its variants, chaparral, and grassland comprise the sensitive vegetation communities temporarily impacted by the proposed project. Details of each vegetation community are included in the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a). A cumulative list of all vegetation communities and common sensitive plant species observed in the project footprint area is also included in the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a). The vegetation community descriptions and species lists in the Draft Biological Technical Report for the Fanita Ranch Project (Dudek 2020a) were utilized to generate the revegetation planting and seeding pallets included herein.

The following plant and wildlife Covered Species occur within the project area: San Diego goldenstar (*Bloomeria clevelandii*), variegated dudleya (*Dudleya variegata*), San Diego barrel cactus (*Ferocactus viridescens*), willowy monardella (*Monardella viminea*), western spadefoot (*Spea hammondii*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), Blainville's horned lizard (*Phrynosoma blainvillii*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), Quino checkerspot butterfly (*Euphydryas editha quino*), and Hermes copper butterfly (*Lycaena hermes*).

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3 RESTORATION GOALS AND REVEGETATION REQUIREMENTS

The main goals of this Plan are to meet the project's mitigation requirements through implementation of the following:

- **Mitigation Measure MM-BIO-2**: Revegetate on- and off-site temporary impact areas within sensitive upland vegetation communities by restoring the areas to a pre-impact condition with similar species composition, density and percent cover.
- **Mitigation Measure MM-BIO-2**: Restore on-site temporary impact areas within non-sensitive vegetation communities (i.e., disturbed habitat) to an appropriate sensitive upland community (i.e., coastal sage, chaparral, or native grassland).
- **Mitigation Measure MM-BIO-2:** Establish adequate vegetative cover to prevent erosion in off-site temporary impact areas within non-sensitive vegetation communities (i.e., disturbed habitat).
- **Mitigation Measures MM-BIO-4, MM-BIO-9, and MM-BIO-12:** Restore currently existing disturbed habitat areas within the Habitat Preserve to meet the project's mitigation requirements and for the benefit of the City's Draft MSCP Subarea Plan Covered Species known to occur within the Habitat Preserve.

3.1 Compliance with MM-BIO-2, Temporary Impacts

All temporary impacts shall require at a minimum in-place restoration. Impacts to native grassland (i.e., valley and needlegrass grassland [including disturbed]) require a 2:1 mitigation ratio based on the City's Draft MSCP Subarea Plan (City of Santee 2018). To satisfy this mitigation requirement, a 1:1 ratio of in-place restoration in addition to a 1:1 ratio of preservation and/or creation of native grassland would be implemented within the Habitat Preserve. The 1:1 creation component would be satisfied through the conversion of disturbed habitat within the Habitat Preserve into native grassland.

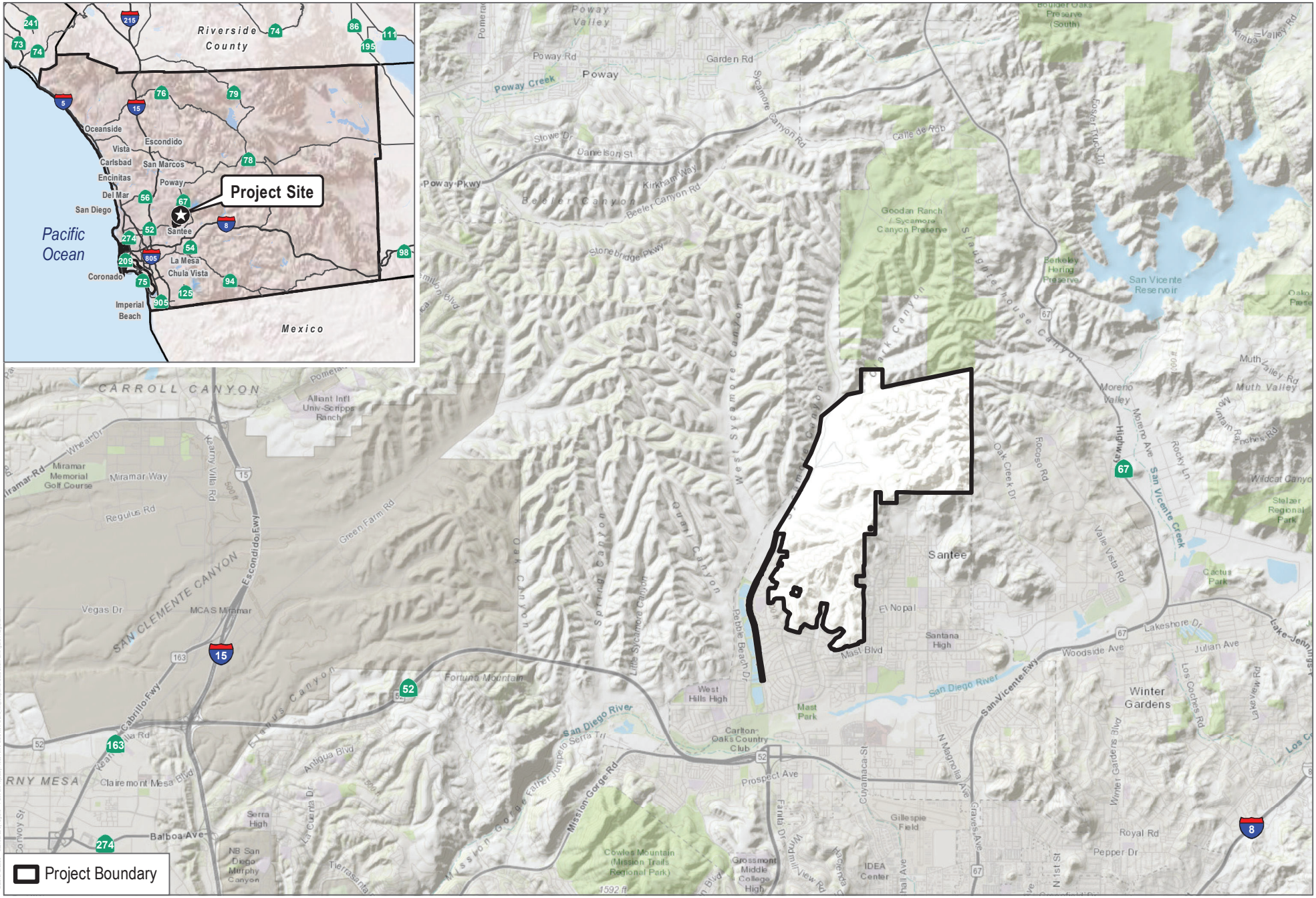
All on-site temporary impact areas shall become part of the Habitat Preserve once restored and will be managed in-perpetuity in accordance with the project's Resource Management Plan (RMP). If temporary impact areas are not considered appropriate for restoration of the sensitive native plant community that originally mapped in that area, these areas shall be considered permanently impacted and mitigated in conformance with the mitigation measure for permanent impacts to sensitive upland vegetation communities. Table 1 summarizes the restoration requirements for both on- and off-site temporary impacts to sensitive upland communities and Figure 3 shows the temporary impact areas and corresponding revegetation.

Table 1
Restoration Requirements for On- and Off-Site Temporary Impacts to Sensitive Upland Vegetation Communities within the Fanita Ranch Project Area

Vegetation Community	Temporary Impacts (On Site)	Temporary Impacts (Off Site)	Mitigation Ratio[1]	Total Restoration Requirement (Acres)
Scrub and Chaparral				
Diegan Coastal Sage Scrub	33.09	1.33	1:1	34.42
Diegan Coastal Sage Scrub (disturbed)	4.20	3.28	1:1	7.48
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland	0.50	0.09	1:1	0.60
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (disturbed)	1.48	0.94	1:1	2.41
Diegan Coastal Sage Scrub–Baccharis-dominated	0.62	—	1:1	0.62
Granitic Southern Mixed Chaparral	45.53	—	1:1	45.53
Scrub and Chaparral Subtotal	*85.43*	*5.64*	—	*91.07*
Grasslands, Vernal Pools, Meadows, and Other Herb Communities				
Valley Needlegrass Grassland	7.92	—	2:1	15.85
Valley Needlegrass Grassland (disturbed)	5.84	—	2:1	11.68
Non-native Grassland	11.40	0.21	1:1	11.61
Grasslands Subtotal	25.16	*0.21*	—	*39.14*
Total Acreage[2]	**110.59**	**5.86**	**—**	**130.21**

Notes:
1 Mitigation ratios are based on Table 5-14 in City of Santee 2018.
2 Totals may not sum due to rounding.

On-site impacts to non-sensitive vegetation communities would be restored to an appropriate sensitive upland community (i.e., coastal sage, chaparral, or native grassland) to increase the habitat value within the Habitat Preserve for Covered Species under the City's Draft MSCP Subarea Plan (City of Santee 2018). The goal for off-site impacts within non-sensitive vegetation communities is to establish adequate vegetative cover to prevent erosion.



SOURCE: SANGIS 2019; USGS Topographic World Map

DUDEK

0 1 2 Miles

FIGURE 1

Regional Map

Upland Restoration Plan for the Fanita Ranch Project

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Project Boundary

SOURCE: USGS 7.5-Minute Series El Cajon, La Mesa, Poway, San Vicente Reservoir Quadrangles

DUDEK

0 1,000 2,000 Feet

FIGURE 2

Vicinity Map

Upland Restoration Plan for the Fanita Ranch Project

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In addition to the temporary impact restoration, areas within the Habitat Preserve that contain existing disturbed habitat would be restored to meet the project's mitigation requirements and to benefit the Covered Species known to occur within the Habitat Preserve. As stated above, the 1:1 creation component of native grassland would be satisfied through the conversion of disturbed habitat within the Habitat Preserve into native grassland. Table 2 summarizes the on- and off-site temporary impacts to non-sensitive vegetation communities and the existing non-sensitive vegetation communities within the Habitat Preserve, and the corresponding revegetation and erosion control locations are shown on Figure 3.

Table 2
On- and Off-Site Temporary Impacts to Non-Sensitive Habitat Communities within the Fanita Ranch Project Area

Vegetation Type (Holland/Oberbauer Code)	Temporary Impacts		Habitat Preserve	Total Acreage[1]
	On-Site	*Off-Site*		
Disturbed Habitat (11300)	2.11	1.07	35.54	38.72
Urban/Developed (12000)	—	0.34	0.81	1.15
Total[2]	**2.11**	**1.41**	**36.35**	**39.87**

Notes:
1 Total acreage within the Habitat Preserve does not include off-site impact areas.
2 Totals may not sum due to rounding.

Revegetation and erosion control treatments will be installed within temporary disturbance areas in accordance with Section 7.3, Guidelines for Habitat Restoration, in the City's Draft MSCP Subarea Plan (City of Santee 2018). Revegetation of sensitive vegetation communities will include native species typical of the habitat in the area. Revegetation of non-sensitive vegetation communities such as disturbed habitat, landscaped areas, and/or non-native vegetation will be revegetated with an erosion control seed mix. All restoration areas will be maintained and monitored for 5 years following installation. Once restored, all on-site temporary impact areas would become part of the Habitat Preserve and would be managed in-perpetuity in accordance with the project's RMP.

3.2 Compliance with MM-BIO-4, Covered Plant Species

The Draft Santee MSCP Subarea Plan's narrow endemic species policy requires 100% conservation within open space (i.e., hardline preserve) and 80% conservation through translocation within permanent impact (i.e., take-authorized) areas. Conservation of Coulter's saltbush, although not a Covered Species, shall be treated in a manner consistent with the narrow endemic policy of the Draft Santee MSCP Subarea Plan. Implementation of this policy ensures adequate conservation of each species within the subarea, as well as regionally within the MSCP Plan area.

Based on the current project impacts, two special-status plant species (Coulter's saltbush and San Diego goldenstar) shall require translocation of individuals and/or planting to meet the 80% conservation within take-authorized areas. Mitigation requirements are summarized in Table 3 and species locations are shown on Figure 4, Covered Plant Species Occurrences.

Table 3
Mitigation Requirements for Impacts to Sensitive Plant Species

Species/Status (Federal/State/CNPS/ Draft Santee MSCP Subarea Plan)	Total Individuals	Individuals Impacted (Percent Impacted)	Habitat Preserve Individuals (Percent Conserved)	Individuals Needed to Meet the 80% Conservation Requirement	Translocation Requirement[1] (Individuals)
Coulter's Saltbush (*Atriplex coulteri*)[2] None/None/1B.2/None	65	15 (23%)	50* (77%)	52	2
San Diego Goldenstar (*Bloomeria clevelandii*)[2] None/None/1B.1/Covered	18,318	7,964 (44%)	10,354 (56%)	14,654	4,300
Variegated Dudleya (*Dudleya variegata*)[3] None/None/1B.2/Covered NE	8,942	786 (9%)	8,156 (91%)	7,154	0
San Diego Barrel Cactus (*Ferocactus viridescens*)[3] None/None/2B.1/Covered	4,856	585 (12%)	4,270 (88%)	3,885	0
Willowy Monardella (*Monardella viminea*) FE/CE/1B.1/Covered	1,622	1** (<1%)	1,621 (99%)	1,298	0

Notes: CNPS = California Native Plant Society; MSCP = Multiple Species Conservation Program.

1 The number of individuals proposed for translocation is the minimum needed to meet 80% preservation. Although, it is likely that more individuals will be translocated to ensure translocation success or optionally, to increase numbers beyond 80%.

2 Species that require translocation to meet 80% preservation.

3 This species meets the 80% preservation; however, individuals (plants or corns) occurring within the impact area will be targeted for collection.

* It should be noted that these individuals do not occur with the Habitat Preserve. However, since they occur within the Impact Neutral area and will not be impacted with project implementation they are considered preserved.

** All impacts to the 49 individuals occurring along existing retained trails and adjacent to proposed trail creation areas would be avoided through the maintenance and management of trails as outlined in the Public Access Plan (Dudek 2020b).

Status Legend
Federal
FE: Federally listed as endangered.
State
CE: State listed as endangered.
CRPR: California Rare Plant Rank (previously known as the CNPS List)
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
4: Plants of limited distribution – a watch list
Threat Rank
.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 – Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
Draft Santee MSCP Subarea Plan (City of Santee 2018)
Covered: Draft Santee MSCP Subarea Plan Covered Species

Coulter's saltbush and San Diego goldenstar require translocation or planting of impacted populations in order to adequately mitigate project impacts. Translocation requires evaluation of the donor site for suitability of translocation method and of the receptor site for suitability of sustaining Coulter's saltbush and San Diego goldenstar. This Plan includes a translocation program, approved by the City of Santee (City), and integrated with the overall uplands restoration of the project area.

This Plan discusses the appropriate methods for plant salvage and/or growing and planting; in general, the impacted population of the sensitive plant shall be targeted for salvage and translocation in order to meet the 80% minimum translocation survival rate. Where this is not feasible, germination and growing of appropriate genetic stock shall occur and be planted on site in suitable receptor sites. Success of the translocation program, within the receptor sites such that the plant and acreage goals as required in Table 3 are established, shall be measured through 5 years of monitoring and annual reporting to the City.

3.3 Compliance with MM-BIO-9, Quino Checkerspot Butterfly and Hermes Copper Butterfly

To enhance habitat for Quino checkerspot butterfly, supplemental planting of dot-seed plantain (*Plantago erecta*), Coulter's snapdragon (*Antirrhinum coulterianum*), rigid bird's beak (*Cordylanthus rigidus*), owl's clover (*Castilleja exserta*), Chinese houses (*Collinsia concolor*), and purple Chinese houses (*Collinsia heterophylla*) will be implemented during the restoration and revegetation activities. Habitat enhancement may include the addition of dot-seed plantain and other host and nectar plants in seed mixes in areas of habitat restoration within preserves and/or focused planting areas specifically for Quino checkerspot butterfly. Additional measures to ensure the enhancement of suitable habitat within the Habitat Preserve for Quino checkerspot butterfly will include removal of non-native grasses, weedy material, and thatch. Approximately 1,096.57 acres of suitable habitat, based on the most conservative 2009 extrapolation model, shall be managed for Quino checkerspot butterfly within the HabitatPreserve according to the project's Preserve Management Plan.

As described in the Draft Santee MSCP Subarea Plan, impacts to potentially suitable habitat for Hermes copper butterfly require mitigation by preservation of suitable habitat at a ratio of 1:1, or 2:1 if the suitable habitat was previously occupied. Previously occupied habitat includes areas of potentially suitable habitat within 500 feet of a previously known occurrence (but that was not identified during subsequent and more recent focused surveys) of Hermes copper butterfly.

Mitigation of suitable habitat shall occur in the following ways: preservation and management of existing suitable habitat within the Habitat Preserve, restoration/enhancement of existing suitable

habitat within the Habitat Preserve, and creation of new suitable habitat areas within the Habitat Preserve and along manufactured slopes within development areas, as appropriate. Restoration/enhancement and creation of suitable habitat areas for Hermes copper butterfly shall entail repairing degraded habitat through the control of invasive species and/or planting of appropriate native species (i.e., redberry buckthorn (*Rhamnus crocea*) within 15 feet of California buckwheat (*Eriogonum fasciculatum*)). Table 4 summarizes the mitigation requirements for impacts to potentially suitable habitat for Hermes copper butterfly and Figure 5 shows the suitable habitat.

Table 4
Mitigation Requirements for Impacts to Suitable Habitat for Hermes Copper Butterfly

Habitat Type	Impact Acreage	Mitigation Ratio[1]	Mitigation Acreage	Mitigation Acreage Credits (Habitat Preserve)
Redberry Buckthorn within 15 feet of California Buckwheat				
Potentially Suitable Habitat	44.73	1:1	44.73	79.29
Potentially Suitable Habitat, Previously Occupied	8.25	2:1	16.50	15.48
Total Acreage	**52.98**	**—**	**61.23**	**94.77[2]**

Notes:
1 Mitigation ratios are based on City of Santee 2018.
2 This acreage shall be included within the Habitat Preserve and shall be subject to long-term management and monitoring as directed by the Resource Management Plan.

3.4 Compliance with MM-BIO-12, Coastal Cactus Wren

Coastal cactus wren is a Covered Species under the Draft Santee MSCP Subarea Plan. Because suitable occupied habitat for this species will be impacted by grading and construction of the project, habitat enhancement and restoration of coastal cactus wren habitat shall occur. Based on project impacts to 0.57 acres of suitable habitat, a 2:1 mitigation ratio resulting in a total of 1.14 acres of habitat enhancement and restoration would be required for mitigation. This habitat restoration and enhancement shall be similar in extent and density as currently occupied patches to be impacted and show use by coastal cactus wren prior to clearing of currently occupied habitat. Use is minimally intended to prove that impacted coastal cactus wren have identified where these patches are located so that they can colonize them once their current habitat patches are cleared. It is anticipated that restoration and enhancement activities shall begin prior to construction, where practicable, to provide the most amount of time for maturation.

In order to enhance habitat for coastal cactus wren, appropriate areas within the Habitat Preserve shall be planted with coast prickly pear (*Opuntia littoralis*) and coastal cholla (*Cylindropuntia prolifera*) in a matrix that is optimal for coastal cactus wren. Studies performed on the Orange County Central Reserve indicate an interstitial mix of cactus and sage scrub or grasslands may be optimal. This ratio shall be implemented into this Plan as appropriate, but likely greater than 20% one-meter high cactus

cover associated with *Sambucus mexicana* will be best on this particular site. Minimally, three habitat patches shall be planted along primarily southern exposure slopes to increase the amount of suitable nesting habitat for coastal cactus wren outside of the proposed development footprint (Figure 6, Coastal Cactus Wren Occurrences and Potential Restoration Areas).

The 2-year cactus enhancement program shall be focused on improving habitat conditions for coastal cactus wren within portions of the project site that are identified for preservation and along manufactured slopes in development areas. Site selection shall be based on the following criteria:

1. Slope aspect (prioritize southern exposures and southwest-facing ridgelines)
2. Habitat quality (prioritize areas where some cacti were present, but with adequate space to support additional cacti to improve habitat quality for coastal cactus wren)
3. Soil conditions (prioritize areas with similar soil conditions compared to occupied cactus scrub habitat)
4. Proximity to occupied cactus patches (prioritize areas that are closer to documented coastal cactus wren occurrences to provide opportunities for dispersal; try to enhance areas within 200 to 1,000 meters of occupied habitat)
5. Access (prioritize areas that would be accessible to a planting and maintenance crew)
6. Cactus plantings along manufactured slope areas shall be planted so that it does not hinder fire access, but shall be clustered so that it discourages or inhibits encroachment by the public.

It is not expected that all sites will be successful or perform at equivalent levels. Therefore, a subset of planted areas shall be selected in the second year to focus maintenance efforts on sites with the greatest potential to develop into habitat suitable for coastal cactus wren occupation. The sites that develop into suitable habitat shall be monitored annually for coastal cactus wren use or occupation over a 5-year period in order to maintain a documented record of coastal cactus wren use of targeted areas for enhancement.

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4 REVEGETATION ROLES AND RESPONSIBLE PARTIES

The project proponent is HomeFed Fanita Rancho LLC located at 1903 Wright Place, Suite 220, Carlsbad, California 92008. The project proponent is responsible for the implementation, maintenance, monitoring, bonding, and success of the revegetation program.

4.1 Revegetation Team

Project Biologist

The project biologist/habitat restoration specialist (PB) shall be a qualified individual or firm with demonstrated experience performing at least three habitat restoration projects of similar type, size, and complexity in Southern California within the last 5 years. The PB shall have a four-year degree or higher degree in ecology, biology, botany, natural resources management, landscape architecture, or a closely related field. The PB shall be familiar with native plants (identification and monitoring techniques) and weed species (identification and method of control). The PB will ensure the revegetation work is installed in accordance with this revegetation plan, the final revegetation landscape construction documents, the environmental permits, and the final Environmental Impact Report. The PB will perform monitoring and reporting duties, as outlined herein and on the Landscape Construction Documents (LCDs).

Landscape Architect

The landscape architect shall be a registered landscape architect with a valid license issued by the California Architects Board, Landscape Architect's Technical Committee (LATC). The landscape architect shall work closely with the project biologist in preparation of the LCDs, including site preparation, planting, seeding, irrigation, erosion control, notes, details and specifications.

Revegetation Contractors

The Revegetation Installation Contractor (RIC) and Revegetation Maintenance Contractor (RMC) shall be a qualified person or entity that holds a valid California landscape contractor's license, Class C-27, and have experience with at least one other habitat restoration project of similar type, size and complexity in Southern California. The contractor shall be familiar with weeds and invasive species and have in-depth experience in controlling wildland weeds and invasive species within sensitive habitat areas. The contractor shall have a Qualified Pesticide Applicator's License or have a Pesticide Applicators' Certificate issued by the Department of Pesticide Regulation. The RIC and RMC shall provide verification of experience and provide copies of licenses upon request. The RIC will provide installation and 120-Day Plant Establishment Period (PEP) maintenance services. The RMC will provide revegetation maintenance services for 60 consecutive months following approval of the 120-Day PEP.

Nursery

The native plant nursery shall be located in the Southern California region, have a valid license to grow nursery stock issued by the California Department of Food and Agriculture (CDFA). The nursery shall have at least two years of verifiable experience collecting native seeds and contract growing native plant materials. The nursery shall adequately label all containers to indicate genus, species and subspecies, if applicable. The nursery shall allow inspections during the contract growing period so the project biologist can inspect plants to ensure they are the proper species, size, adequately rooted and free of pests and diseases. The supplying nursery grounds and associated container plants shall be kept free of weeds and invasive species and shall ensure all plant containers are free of Argentine ants.

Seed Suppliers

The native plant seed supplier shall be located in Southern California region, have a valid license to sell seed materials from the California Department of Food and Agriculture (CDFA) and a valid Department of Agriculture Inspection Certificate. The seed supplier shall have at least two years of verifiable experience growing, collecting and storing native seed materials. The seed supplier shall adequately store, test and label all seed to indicate genus, species and subspecies. Seed supplier shall provide seed testing data indicated in the LCDs to the City upon request. All seed shall be provided free of invasive weed species. Seed supplier shall provide seed from origins indicated herein and per the LCDs and specifications. Seed supplier(s) shall abide by the California Seed Law requirements outlined by the CDFA.

5 REVEGETATION IMPLEMENTATION

Revegetation will be achieved through a process that includes delineating the revegetation boundaries, removing trash and debris, clearing weeds and invasive species, and restoring contours to their pre-project condition. Salvaged topsoil will be replaced or the top eight inches of soil amended to provide a suitable growing medium for native plants.

Following the initial site cleanup, topsoil placement/amending and contouring, the soil will be tested for its suitability to grow native plant species. If soil testing determines soil amending is needed, it will be performed as recommended in the soil laboratory's report. Upon conclusion of soil preparation work, the revegetation areas will be planted and, or seeded using the methods and species described herein. A temporary drip irrigation system or other supplemental watering will be implemented to establish container plants where feasible. Following planting/seeding, the revegetation areas will be maintained by the RIC during the 120-day PEP and maintained by the RMC for 60 months following approval of the PEP. Each component of the implementation plan is outlined in more detail below.

5.1 Site Preparation

5.1.1 Site Access

Access to the site shall be from existing disturbed areas within the project footprint and shall not incur impacts to environmentally sensitive lands (ESL) or improvements. All proposed access routes shall be pre-approved by the City and PB. Contractor shall stake and fence access routes with orange ESA snow fencing if ESL's are adjacent. If access is in part or in whole, proposed to be gained from an adjacent property approval shall be obtained ahead of time in writing along with any necessary right-of-entry permits.

5.1.2 Revegetation Area Fencing

Revegetation areas shall be delineated with 5-foot metal t-post set 12 inches into grade. Metal t-posts will be placed at 12 feet on-center and at all vertices. T-post will be installed plumb with non-impalement caps when adjacent to paths, trails, roads, recreation areas or other human use areas. Impalement caps shall be glued onto top of t-posts. Orange "snow" fencing may be installed onto the metal t-posts with zip ties if needed to protect the revegetation areas from damage by persons, vehicles, pets, etc. The PB staff will determine if orange fencing is needed.

5.1.3 Weed Control and Trash Removal

If weeds and or invasive species are present in the revegetation areas they will be cleared outside of the migratory bird nesting season (February 1 – September 15), to the extent practical. If weeds, and or invasive species need to be removed during the nesting season, a nesting bird survey will be conducted no more than ten days beforehand to ensure there are no nesting birds. Active nests will be protected in accordance with the MBTA, and as directed by the PB. An appropriate buffer will be established around any nesting birds in consultation with the PB and the City.

The revegetation areas will be cleared of all weeds, invasive species, trash, and debris. Perennial invasive species shall be grubbed out or cut to grade and treated with the appropriate systemic herbicide. All weed slash and trash will be bagged or containerized and promptly removed from the site. All weed slash and trash will be brought to a green waste recycling or landfill facility.

5.1.4 Topsoil Salvaging

Areas slated for temporary impacts to sensitive plant communities will have the top eight inches of soil salvaged by the grading contractor. Salvaged soils will be stockpiled as near to the site as possible at a height not to exceed 5 feet, or as determined appropriate by the City. Stock-piled soil shall have silt fence placed around it and be labeled indicating where the soil came from. If stockpiles recruit weeds during storage they shall be cut or sprayed with the appropriate herbicide before the weeds begin to bloom. Weed slash and stubble may be left on stockpiles for erosion control. If stockpiles require interim erosion control they will be sprayed with the Native Erosion Control Hydroseed Mix and Slurry, as indicated in Table 5.

5.1.5 Native Plant Salvage

Populations of native cactus and succulent species that will be impacted will be salvaged as part of the pre-construction activities. The following species will be targeted for salvage of plant material along with the proposed methods:

- Variegated Dudleya corms will be salvaged in impact areas and stored in an appropriate facility where the corms can be kept cool and dry. Areas will be identified within the Habitat Preserve where these bulbs can be used to restore existing preserved populations, or where it is appropriate (soils, vegetation, topography, etc.) to establish new populations in restoration areas.
- Barrel cactus will be salvaged (by hand or with equipment) in impact areas and either taken directly to restoration sites, or taken back to a native plant nursery and temporarily cared for.

Plants taken directly to the restoration sites will be planted and watered through establishment. Plants taken to a native nursery will be planted in sterile containers (1- and 5-gallon pots) using a well-drained greenhouse soil mix appropriate for cactus and succulents. Salvaged container plants will be cared for until the appropriate time to out-plant into the restoration site. Salvaged container plants will be planted in areas appropriate for barrel cactus (south-facing slopes with moderately rocky soils) with watering basins large enough to hold 2–3 gallons of water at each watering visit, through the establishment period.

- Coastal cholla and prickly pear cactus populations that will be impacted will be salvaged (by hand or with equipment) during pre-construction activities. Salvaged cactus individuals will either be taken directly to restoration areas that are appropriate and planted directly, or they may be taken to a native plant nursery. Plants that are taken directly to restoration areas will be watered in through establishment. Where there is opportunity, small pieces of these salvage cactus plants will be cut off for additional vegetative propagation in and around the larger salvage planting areas. Plants taken to a native nursery will be planted in sterile containers (1- and 5-gallon pots), using a well-drained greenhouse soil mix appropriate for cactus and succulents. Salvaged container plants will be cared for in the nursery until the appropriate time to out-plant into the restoration site. Out-planted individuals will be watered through the establishment period. While in the nursery, small pieces of these container plant individuals will be cut off for additional vegetative propagation in and around the large salvage plants.

5.1.6 Soil Placement, Testing, Amending, Importation and Grading

Following weed and trash removal, the revegetation areas will have salvaged topsoil replaced and be contour-graded to match pre-impact conditions. If topsoil was not present, or was not able to be salvaged, the soil shall be tested by a qualified soil testing laboratory for agricultural suitability and amended per the laboratory's directions to create soil capable of growing native plant species. Soil samples for testing shall be taken at distances and depths indicated by the PB. Alternatively, Class "A" topsoil may be imported and placed at a depth of 8 inches to create the final finished grades. Following topsoil placement/amending/soil importing and final approved grading, the soil will be tilled or ripped to a depth of 12 inches. Ripping/tilling shall be performed on contour and shall leave no clods on the surface larger than 3 inches along the long axis on-grade. Ripping teeth shall be spaced no more than 10" apart. Slopes with a run:rise ratio equal to or greater than 6:1 will be track-walked upon completion of ripping work. Track-walking shall be conducted up and down slope. Any debris brought to the surface by ripping/tilling will be removed from the revegetation areas and disposed of at an appropriate landfill facility.

5.2 Revegetation Planting and Seeding Palettes

Planting and seeding palettes for the revegetation areas, including erosion control only areas, are provided in Tables 5 through 10. Plant and seed species have been selected based on species inventoried during pre-project biological surveys. Thus, the selected species have been determined to be naturally occurring within or immediately adjacent to the revegetation areas. All container plants and seed materials will have origins from the cismontane San Diego County, unless approval is granted otherwise by the PB in coordination with City staff. The seed mixes have been designed to create habitat similar to those impacted and provide interim erosion control via nurse crop species until the perennial native vegetation becomes established. Draft Santee MSCP Subarea Plan Covered Species San Diego goldenstar, variegated dudleya, San Diego barrel cactus, and willowy monardella, and one non-covered species, Coulter's saltbush (*Atriplex coulteri*), will be incorporated into seed mixes or container plant palettes as appropriate.

Many of the revegetation areas will not be irrigated with a traditional irrigation system due to the lack of water source, their remote locations, and their relatively small and scattered locations. However, planting will occur in the fall to the maximum extent practical and container plants will receive supplemental watering via a water truck, water buffalo, or similar, as outlined in the final LCDs. The revegetation locations are shown on Figure 3.

Table 5
Native Erosion Control Hydroseed Mix

Scientific Name	Common Name	Pure Live Seed (PLS)	Pounds per Acre
Artemisia californica	California sagebrush	25	1.0
Isocoma menziesii	coastal goldenbush	25	1.0
Eriogonum fasciculatum	California buckwheat	25	1.0
Eschscholzia californica	California poppy	71	5.0
Lupinus succulentus	arroyo lupine	83	3.0
Acmispon glaber	deerweed	24	3.0
Eriophyllum confertiflorum	golden yarrow	26	3.0
Sisyrinchium bellum	blue eyed grass	71	3.0
		Total	**20**

Note: This seed mix is to be used to revegetate Disturbed Habitat (DH) areas and other areas in need of erosion control, as shown on the figures.

Table 6
Diegan Coastal Sage Scrub Seed Mix

Scientific Name	Common Name	Pure Live Seed (PLS)	Pounds per Acre
Acmispon glaber	deerweed	24	2.0
Artemisia californica	California sagebrush	9	6.0
Castilleja exserta	Purple owl's clover	25	1.0
Eriogonum fasciculatum	California buckwheat	7	5.0
Eriophyllum confertiflorum	golden yarrow	26	2.0
*Eschscholzia californica**	California poppy	71	4.0
Hazardia squarrosa	Sawtooth goldenbush	2	2.0
Isocoma menziesii	coastal goldenbush	8	2.0
Peritoma arborea	bladderpod	58	2.0
Rhamnus crocea	redberry buckthorn	76	2.0
Salvia apiana	white sage	43	3.0
Salvia columbariae	chia	54	2.0
Salvia mellifera	black sage	40	4.0
Stipa pulchra	purple needlegrass	42	1.0
		Total	**38**

Note: This seed mix is to be used to revegetate areas designated as CSS and dCSS.

Table 7
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland Seed Mix

Scientific Name	Common Name	Pure Live Seed (PLS)	Pounds per Acre
Artemisia californica	California sagebrush	9	2.0
Eriogonum fasciculatum	California buckwheat	7	8.0
*Eschscholzia californica**	California poppy	71	2.0
Isocoma menziesii	coastal goldenbush	8	1.0
Lotus scoparius	deerweed	24	3.0
Salvia mellifera	black sage	40	2.0
Stipa pulchra	Purple needlegrass	76	2.0
		Total	**20**

Table 8
Valley Needlegrass Grassland Seed Mix

Scientific Name	Common Name	Pure Live Seed (PLS)	Pounds per Acre
Stipa pulchra	purple needlegrass	24	2.0
Bloomeria crocea	common goldenstar	10	8.0
Bloomeria clevelandii	San Diego goldenstar	9	5.0
Sisyrinchium bellum	blue eyed grass	76	2.0
Plantago erecta	dot-seed plantain	54	3.0
Lasthenia californica	goldfields	71	2.0
Antirrhinum coulterianum	Coulter's snapdragon	2	3.0
Cordylanthus rigidus	rigid bird's beak	NA**	1.0
Castilleja exserta	owl's clover	57	2.0
Collinsia concolor	Chinese houses	45	3.0
Collinsia heterophylla	purple Chinese houses	40	3.0
		Total	**34**

Note: This seed mix is to be used to revegetate areas designated as NG on the revegetation plan figures

* Indicates nurse crop species.

** Percent purity and germination standards not established.

Table 9
Native Grassland Seed Mix

Scientific Name	Common Name	Pure Live Seed (PLS)	Pounds per Acre
Aristida purpurea	Purple three awn	24	2.0
Bothriochloa barbinodis	Beard grass	10	10.0
Muhlenbergia microsperma	Littleseed muhly	76	2.0
Stipa pulchra	purple needlegrass	24	2.0
Bloomeria crocea	common goldenstar	10	10.0
Bloomeria clevelandii	San Diego goldenstar	76	2.0
Sisyrinchium bellum	blue eyed grass	71	2.0
Plantago erecta	dot-seed plantain	2	3.0
Lasthenia california	goldfields	71	1.0
Antirrhinum coulterianum	Coulter's snapdragon	57	2.0
Cordylanthus rigidus	rigid bird's beak	45	3.0
Castilleja exserta	owl's clover	35	2.0
Collinsia concolor	Chinese houses	35	2.0
Collinsia heterophylla	purple Chinese houses	35	2.0
		Total	**45**

Note: This seed mix is to be used to revegetate areas designated as NNG on the revegetation plan figures

Table 10
Southern Mixed Chaparral Container Plant Pallet and Seed Mix

Scientific Name	Common Name	Container Size	Qty
Adenostoma fasciculata	chamise	1 gallon	TBD
Ceanothus tomentosus	Wooly ceanothus	1 gallon	TBD
Heteromeles arbutifolia	toyon	1 gallon	TBD
Malosma laurina	laurel sumac	1 gallon	TBD
Rhamnus crocea	Redberry buckhorn	1 gallon	TBD
Rhus integrifolia	lemonadeberry	1 gallon	TBD
Yucca whipplei	Mojave yucca	1 gallon	TBD
		Total	**TBD**
Scientific Name	**Common Name**	**Pure Live Seed (PLS)**	**Pounds per Acre**
Acmispon glaber	deerweed	24	2.0
Adenostoma fasciculata	chamise	10	6.0
Stipa pulchra	purple needlegrass	76	2.0
Ceanothus tomentosus	wooly ceanothus	54	2.0
Eriogonum fasciculatum	California buckwheat	54	2.0
*Eschscholzia californica**	California poppy	71	3.0
Gutierrezia californica	matchweed	2	3.0
Helianthemum scoparium	peak rush rose	NA**	1.0
Malosma laurina	laurel sumac	57	2.0
		Total	**23**

All native hydroseed mixes above shall contain the following slurry mix slurry mix per acre:

- 2,500 pounds virgin wood fiber mulch
- Green marker dye
- 60 pounds Ecology Controls M-binder, or approved equal.
- Seed mix indicated above

5.3 Planting Techniques

Planting will normally be scheduled to occur in fall to early winter (October-January) to take advantage of the typically cooler rainy season and minimize the amount of supplemental irrigation needed. In addition, transplanting shock, stress and plant mortality is minimized when planting occurs during this time period.

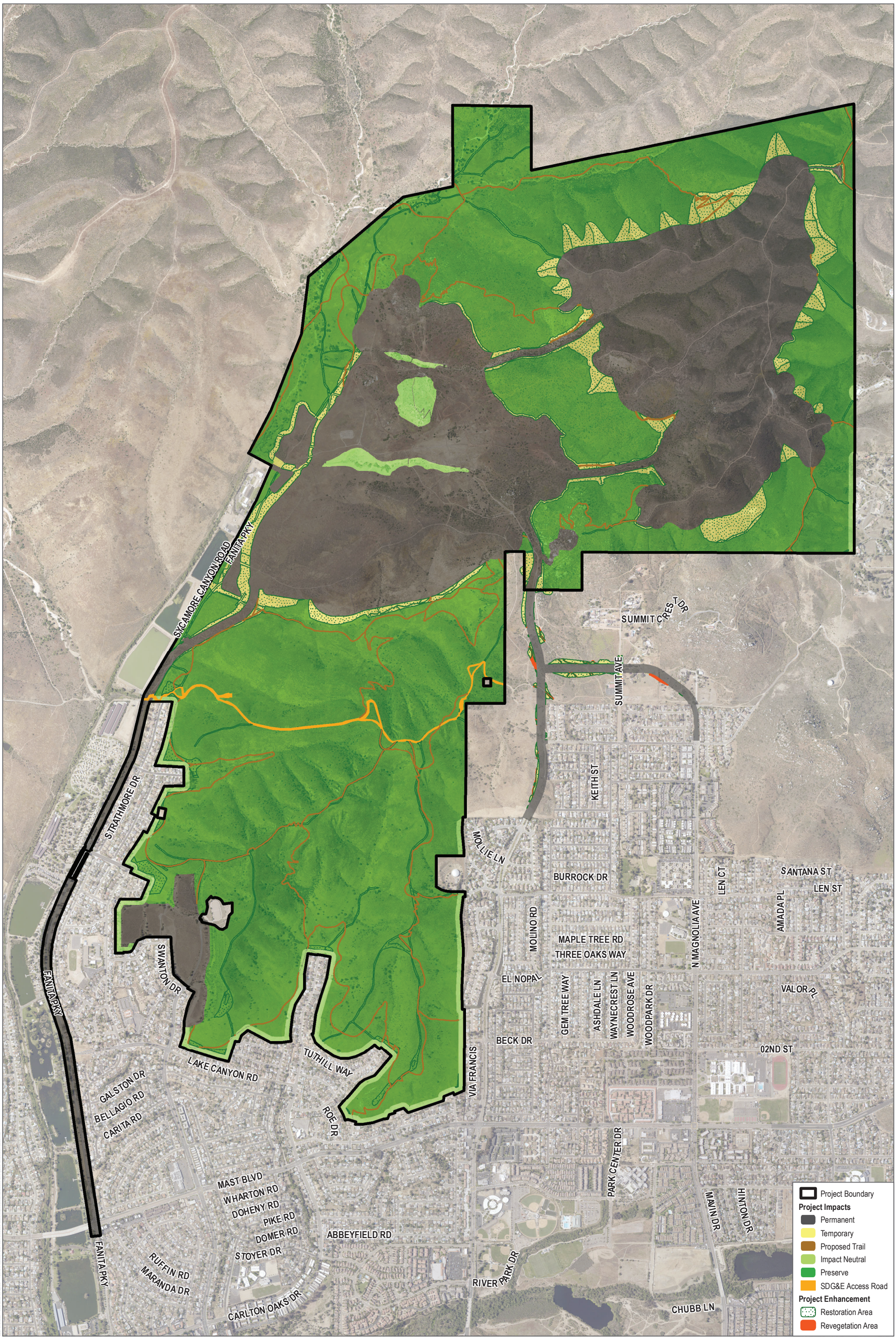
Container stock shall be inspected by the PB upon delivery to the site to ensure they are the correct species, correct size, adequately rooted, free of pests (insects such as Argentine ants and weeds) and diseases, and of appropriate quality. Container plants shall be installed using standard horticulture practices. Plants will not be installed in rows, but placed in a natural fashion, as directed by the project biologist. Planting holes two times the diameter of the root ball shall be excavated to the depth of the root ball. Each planting pit will be filled with water and allowed to drain 24 hours prior to plant installation. Planting backfill shall be native soil, amended if necessary, and based on the recommendations of the soil laboratory report. Each container plant shall have a 6-inch-tall watering basin that measures 24 inches diameter. The planting basin shall have a 4-inch-deep mulch layer to help retain moisture, keep the root zone cool, and preclude weed growth. Mulch will be specified as a 2" Mulch product. Care shall be taken to keep soil and mulch off of the trunk of the plants to avoid trunk rot. Immediately after installation each plant shall be thoroughly irrigated to the depth of the root ball.

The approach to habitat enhancement shall include planting coast prickly pear and cholla by means of pad and segment cuttings in up to 10 selected enhancement areas. Cacti plants take several years to mature to the size that can support cactus wren nesting. Therefore, the planted cuttings may be augmented with larger container plants in a subsequent year after the most successful planting sites can be determined. In addition, future pre-construction salvage of whole cactus plants and pads may be used to further enhance the structure of the cactus patch areas at the time of construction.

Proposed planting for cacti shall focus primarily on the installation of prickly pear pads and cholla segment cuttings to achieve the project goals. Cactus cuttings shall be taken from on-site cacti patches that are unoccupied by coastal cactus wren. Less than 20% of each individual plant shall be taken to allow for regrowth of cacti plants within a single growing season. Approximately 1–2-foot-long pads and segments shall be harvested from adjacent habitat within the proposed project impact footprint and allowed to callous for a period of at least 2 days prior to planting.

Before planting, an auger or shovel shall be used in the designated sites to excavate the cacti receptor holes to the appropriate depth for planting. The holes shall be thoroughly watered prior to transplanting. The segments and pads shall be planted to a depth of approximately one-third to one-half their length. After placement of the segments and pads, native soil shall be used to backfill around the cuttings. A watering basin shall be formed around each of the planted segments and pads, or groups of closely planted segments and pads. The soil shall be watered-in around the cuttings after planting to help settle the soil and remove air pockets. Native cobble, if present, shall be replaced on the surface surrounding the base of cacti.

If the salvaged cacti segments cannot be directly salvaged and planted, the segments shall be transferred to a nursery for potting and rooting until they can be planted on site.



SOURCE: Hunsaker 2020; SANGIS 2017, 2020

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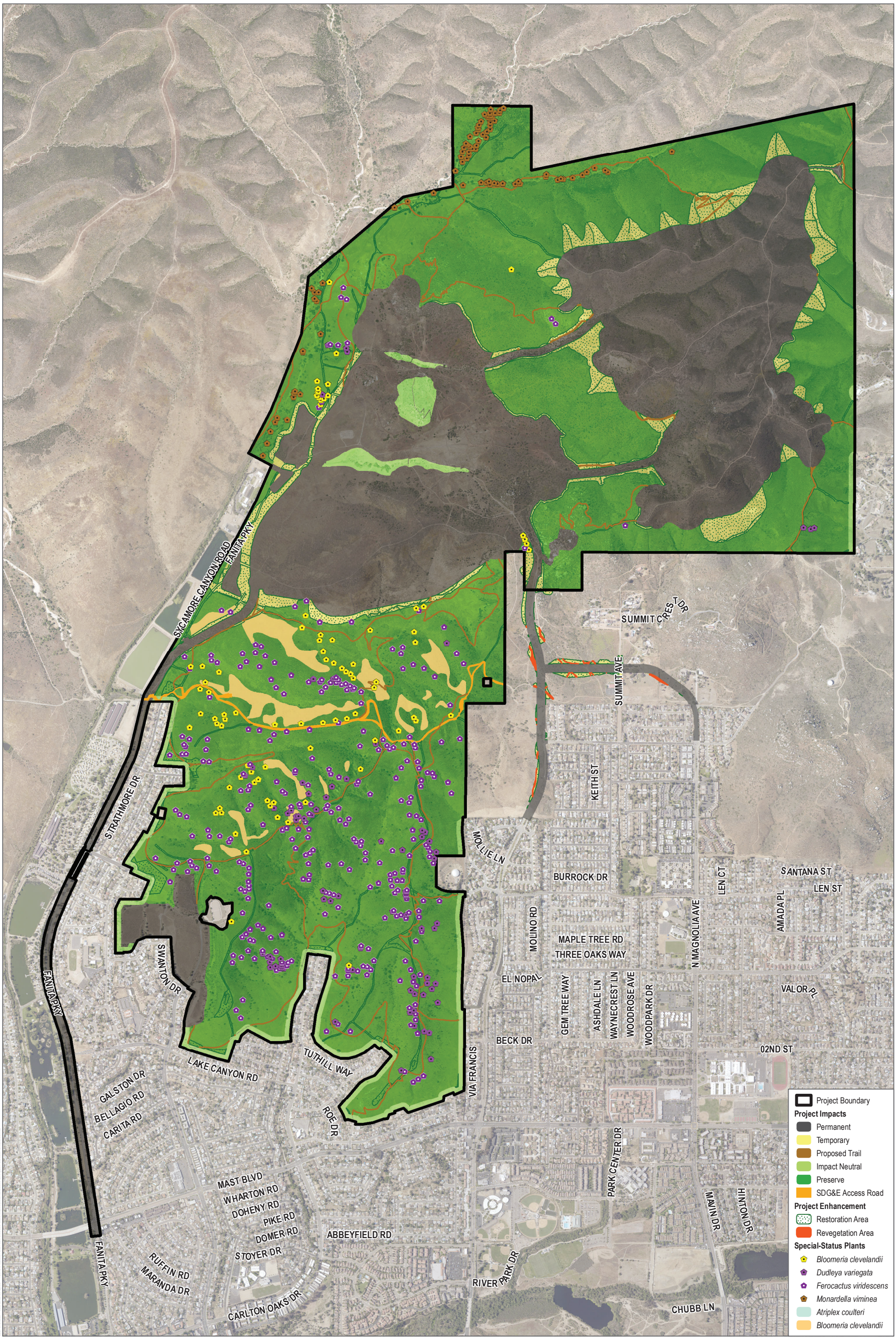
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FIGURE 3

Temporary Impacts

Upland Restoration Plan for the Fanita Ranch Project

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SOURCE: Hunsaker 2020; SANGIS 2017, 2020

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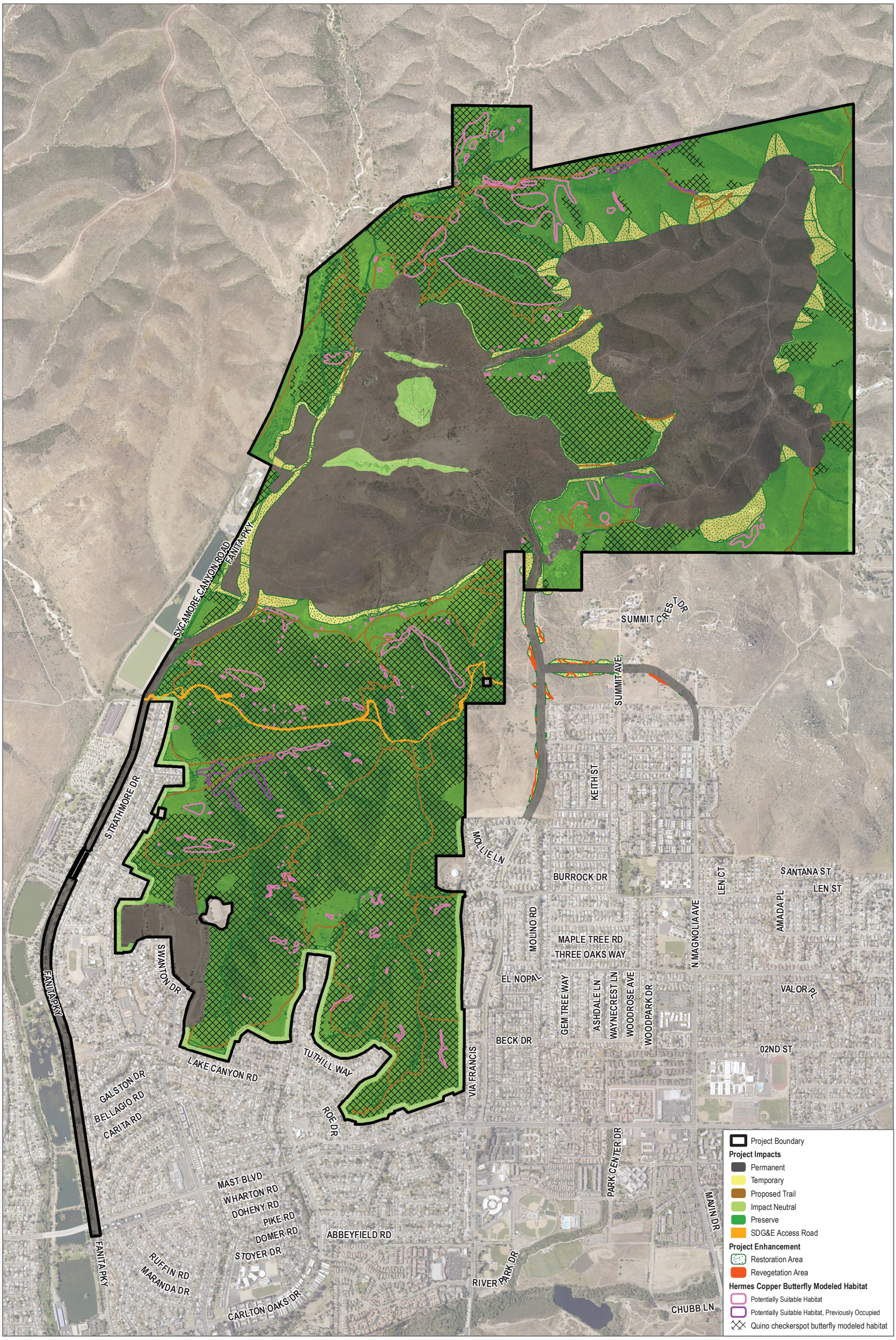
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FIGURE 4

Covered Plant Species Occurrences

Upland Restoration Plan for the Fanita Ranch Project

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SOURCE: Hunsaker 2020; SANGIS 2017, 2020

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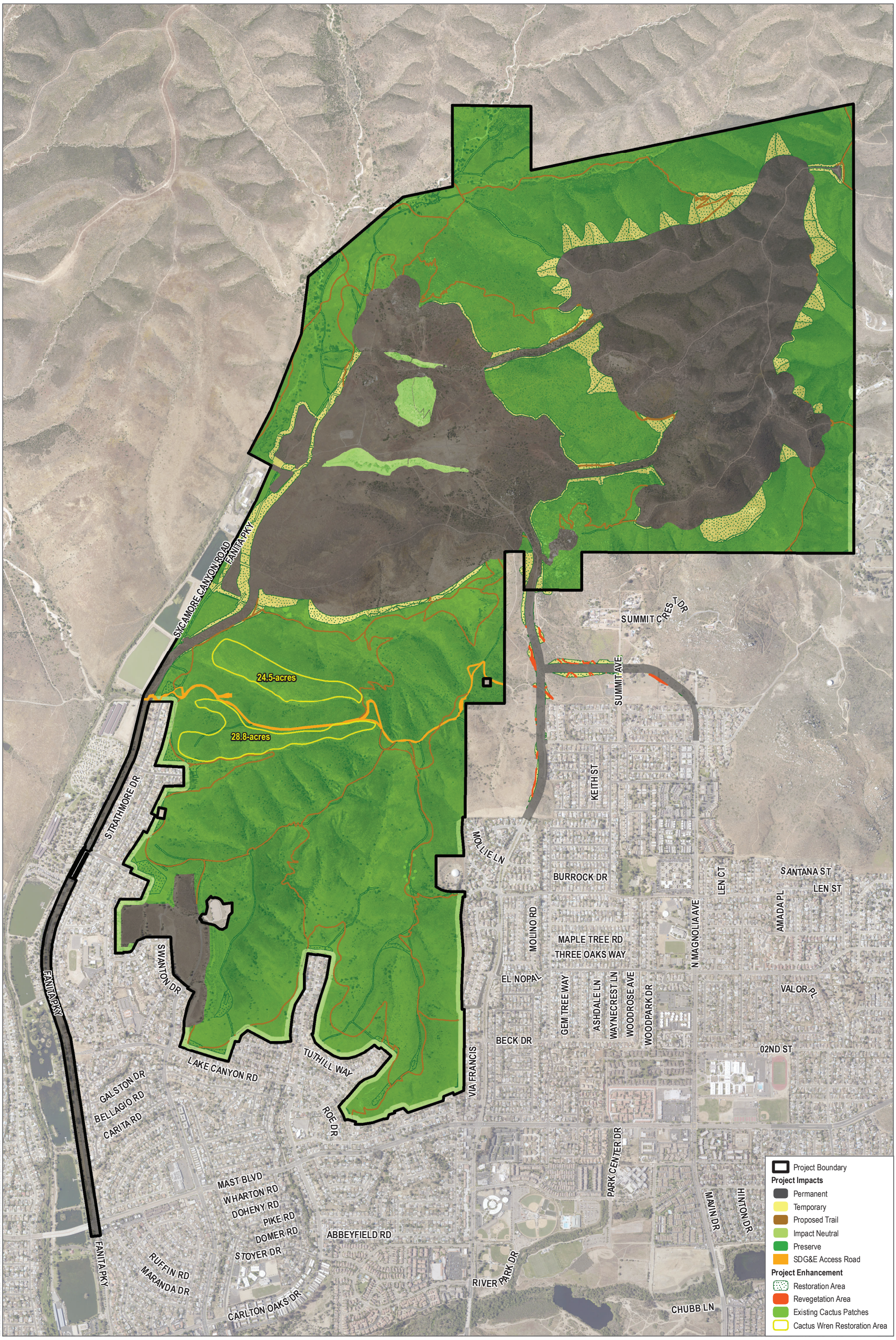
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FIGURE 5

Quino Checkerspot and Hermes Copper Butterfly Suitable Habitat

Upland Restoration Plan for the Fanita Ranch Project

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SOURCE: Hunsaker 2020; SANGIS 2017, 2020

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FIGURE 6

Coastal Cactus Wren Occurrences and Potential Restoration Areas

Upland Restoration Plan for the Fanita Ranch Project

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5.4 Seed Application

Once the container stock has been planted and all planting work has been approved, the revegetation areas will be hydroseeded with the seed mix and hydroseed slurry shown in Tables 5–11. The PB shall review the site prior to, during and after seeding work to help ensure conformance with this plan and final LCDs. The RIC shall submit to the PB the proposed seed and slurry material at least five days prior to seeding. The biologist shall verify that the proposed seed mixes and hydroseed slurry components meet the specified requirements. The revegetation areas shall be free of weeds and trash and have best management practices (BMPs) (if applicable) installed beforehand. Larger, relatively flat areas that are not slated for container planting and that do not have a source of irrigation water will be seed-imprinted to help facilitate seed germination in non-irrigated areas. The seed application method for each revegetation area will be included on the LCDs.

5.5 Irrigation

A temporary drip irrigation system will be installed for the establishment of container stock where feasible. Irrigation will be used to maximize plant survival, establishment, and to promote healthy growth.

Drip irrigation systems will include a programmable solar or battery-operated controller and master valve. Continuous pressure mainlines, ball valves, and remote control valves will be installed below grade. Lateral lines, drip distribution tubing and emitters will be staked to grade. Irrigation will be applied using water-efficient pressure compensating drip emitters. The above grade components of the irrigation system will be removed once the revegetation effort has met the performance standards and deemed complete.

Where an irrigation system is not feasible due to lack of a water source, remote location, or small size of the revegetation area, container planting will occur in fall to early winter to the extent practical. Container plants at these locations will receive supplemental watering with a water truck, water buffalo or similar equipment on an as-needed basis until the plants are capable of surviving without supplemental watering.

5.6 Erosion Control

The container plants and, or hydroseed mix will be installed promptly after site preparation work is completed and will provide erosion control. Fiber rolls or silt fence will be installed if necessary to prevent erosion. Fiber rolls will be biodegradable and encased in burlap material. They will be free of nylon/plastic netting and mesh and be certified free of noxious weeds. The location of the BMPs within revegetation areas will be determined by the PB and City, and, or in accordance with the project's Stormwater Pollution Prevention Plan (SWPPP) and Qualified Stormwater Practitioner (QSP).

5.7 Revegetation Schedule

An outline of the anticipated project installation sequence and schedule is provided in Table 11 below. Container plants will be grown at a nursery for installation according to the final construction schedule and allow for the necessary lead time for plant propagation. Weed and invasive species removal, site cleanup, topsoil placement, soil amending, grading, irrigation and BMP installation will occur prior to planting and seed installation. Container plant and seed installation is best performed between October and January in order to minimize plant mortality, maximize seed germination, and minimize irrigation usage. In general, revegetation will begin within 30 days upon inception of the grading of each phase of the project. Erosion control will be performed continually as outlined in the project SWPPP until the Notice of Termination is filed and accepted. The 60-month biological monitoring and maintenance period will commence upon successful completion of the 120-day PEP.

Table 11
Revegetation Schedule

Task Description	Anticipated Work Period
Plant and seed ordering	9–12 months prior to anticipated installation
Site preparation	Within 30 days of construction completion
Irrigation installation	Within 60 days of construction completion
Planting and seeding	Within 90 days of construction completion
120-day plant establishment and warranty period (PEP)	Commence upon approval of all installation work
60-month maintenance and monitoring program	Commence upon successful completion of 120-day PEP

6 REVEGETATION MAINTENANCE AND MONITORING

This revegetation maintenance and monitoring section provides direction for maintenance and monitoring activities to be performed during the initial 120-day PEP and the 60-month maintenance and monitoring period. The 60-month maintenance period begins when the project biologist and City certify that the revegetation installation work and 120-day PEP have been completed in substantial conformance with the final conceptual plan, LCDs, and applicable environmental documents and permits.

6.1 120-Day Plant Establishment and Warranty Period

The RIC will begin the 120-day plant-establishment, maintenance, and warranty period following completion and acceptance of the revegetation installation work. Maintenance during this time period includes controlling weeds and invasive species, litter removal, watering as needed for healthy plant establishment, irrigation system maintenance and programming, boundary fence maintenance and repair, BMP maintenance and repair, and replacing any dead container plants. At a minimum, maintenance will be performed weekly during the 120-day PEP. Dead plants shall be replaced within two weeks of their occurrence. RIC shall review the revegetation areas monthly with the project biologist. At the end of the 120-day PEP the contractor shall review the site with the City's representative and project biologist. If all work has been completed as outlined herein and per the LCDs, the City will provide deem the PEP complete.

6.2 60-Month Maintenance Period

Following successful completion of the 120-day PEP, the RMC will maintain the revegetation areas for 60 continuous months. The contractor shall review the site with the project biologist and City representative at least once every 6 months. At the end of the 60-month maintenance period the revegetation areas will be reviewed with the City and project biologist. If the revegetation maintenance work has been performed in accordance with this plan and the LCDs the City will provide an acceptance letter to the RMC. Any punch-list items must be corrected and accepted by the City prior to final approval.

Within the 60-month maintenance period, a 2-year maintenance and monitoring program shall be conducted to document the establishment and persistence of the planted cacti. Maintenance at the enhancement sites shall occur at least six times per year for the initial 2-year maintenance period. Maintenance visits shall be focused during the growing season when the need for supplemental watering and weed control will likely be the greatest.

6.2.1 Irrigation

Where an irrigation system is installed, the revegetation areas will be irrigated as-needed to keep container plants alive until they are established and acclimated to natural rainfall cycles (1 to 2 years). The contractor shall adjust the watering time and frequency as needed to ensure healthy container plant growth while avoiding erosion and over-watering. The contractor will inspect the irrigation systems regularly and make any necessary repairs and adjustments, as required, for proper system operation. Once the plants are established, the irrigation schedules will be reduced and/or terminated in consultation with the project biologist and City. The irrigation systems will be removed once the restoration has been accepted as successful.

The RMC shall water container plants in non-irrigated areas as necessary using a water truck, water buffalo or similar equipment as-needed to keep the plants alive and healthy.

Supplemental watering for the cactus enhancement program shall only be provided if natural rainfall does not provide adequate soil moisture to support establishment and persistence of the cacti cuttings. Due to highly variable rainfall expected in the region, supplemental watering is anticipated to be needed approximately four times per year during the growing season. Supplemental watering shall be provided by watering by hand utilizing a pick-up truck with a water tank and pump.

6.2.2 Weeding

Weeding shall be performed on a weekly basis.

Weed control for the cactus enhancement program will occur within the planting basins, including a 3-foot radius surrounding the basins.

6.2.3 Trash and Debris Removal

During each site visit the RMC will remove any trash and debris that has accumulated in the revegetation areas. Natural debris such as leaf drop will be left on site. Weeds slash and debris shall be removed from the site the same day it is cut and disposed of in a legal manner.

6.2.4 Boundary Fence Maintenance

During each site visit the RMC will perform fence repairs and maintenance if necessary.

6.2.5 Pest and Disease Control

Vertebrate pest control is not anticipated as part of this project, nor are insect pests expected to be severe enough to warrant control. However, if an insect pest becomes significant enough to warrant control (i.e., threatens overall plant/habitat establishment), the contractor shall implement control methods utilizing the Integrated Pest Management methodologies. If plant diseases become a problem during the 60-month maintenance period the RMC shall notify the project biologist and City to determine the appropriate control measures. Herbivory problems such as loss of plant material from herbivores such as rabbits, deer and gophers shall be brought to the immediate attention of the project biologist and city to determine the appropriate control measures.

Pest and disease control will be conducted following all applicable laws, regulations, label directions, and safety precautions. Should the contractor require specific pest control recommendations, the contractor shall consult a licensed pest control adviser. The contractor shall provide reports of all pest control measures implemented at the site, including details of methods and materials used, such as pesticide applications. Copies of any written recommendations shall also be provided.

6.2.6 Vandalism, Site Protection and Access Control

Fencing, barriers and, or signage will be installed if necessary to prevent vandalism and off-road vehicle activity in the revegetation areas. Signs shall be posted around the perimeter of the revegetation areas or at key potential access points to discourage entry into the areas. The Preserve Manager will coordinate with the Sherriff if needed to have trespassers and or homeless encampments removed from revegetation areas.

6.2.7 Remedial Work and Corrective Actions

The project biologist will make corrective recommendations, such as replacement of dead plants or seeding of sparse areas, if needed to bring the restoration areas into compliance with the performance standards. An adaptive management strategy will be employed to achieve the project goals. Due to the complexity and dynamic nature of ecosystems, and in anticipation of unexpected events or outcomes, a flexible management plan is desirable. Adaptive management involves gathering existing available information, documenting changed site conditions, exploring alternative actions, making predictions about potential outcomes, selecting one or more actions to implement, monitoring to see if the outcomes match the predictions, and then using the results to learn from and adjust future management actions. Consistent monitoring is key to effective adaptive management, to ensure that the decisions regarding future management are based on accurate assessments of the status of the resources being managed.

Treatments shall be selected based on the results of monitoring conducted in accordance with the Coastal Cactus Wren Management Plan. Potential adaptive management measures include, but are not limited to, the following:

- Installation of protective cages to discourage herbivory.
- Augmenting enhancement areas with additional cacti cuttings.
- Selecting alternative enhancement locations.
- Propagating larger cacti plants at a nursery for out-planting.
- Native seed application to improve overall habitat conditions as selected enhancement sites.
- Extended supplemental watering of planted cacti cuttings and/or container plants.

7 BIOLOGICAL MONITORING

Biological monitoring and reporting of the revegetation areas will be performed as outlined below.

7.1 Qualitative Monitoring

The project biologist will visit the revegetation areas monthly during the 120-day plant-establishment period and quarterly during the 60-month maintenance period. Qualitative surveys will assess plant health, seedling establishment, weed control, erosion control, trash accumulation, and fencing. A summary report will be submitted to the City and the Preserve Manager following each site visit. As outlined in Section 6.7 of this Plan, remedial measures, if required by the PB, Preserve Manager, and/or City, will be included in the reports.

Permanent photo viewpoints will be established so vegetation development and cover can be visually documented during the 60-month maintenance and monitoring period.

Additionally, cactus monitoring shall include semi-annual site visits to assess site health and coastal cactus wren occurrence. The evaluation of site health shall consist of estimating plant establishment success rates (percent survival), growth rates (height and width measurements of a sampling subset of 10% of planted individuals), and a review of maintenance needs (soil moisture, herbivory, vandalism, etc.).

7.2 Quantitative Monitoring

Quantitative monitoring will include conducting dead plant counts of container plant material each September and visually estimating the percent native and weed cover each year. Vegetative cover will be visually estimated using the CNPS Rapid Vegetation Assessment, relevé, or similar assessment protocol. Data will be recorded onto field forms and include percentage cover by native species, percent cover weed and invasive species, the percent bare ground, notes on surface condition (e.g., rock, sand, vegetative detritus), and overall species richness within the revegetation area boundaries.

7.3 Reporting

Annual biological reports will be prepared by the PB to document the progress of the revegetation effort, including vegetation assessment data and a comparison of the results with the performance standards outlined herein. Each annual report will include photographs from key vantage points, and make remedial recommendations if required by the PB, Preserve Manager, and/or City to meet the annual performance standards. Annual reports will be submitted to the City each year.

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8 PERFORMANCE STANDARDS

The goal of the revegetation effort is to revegetate sensitive vegetation communities temporarily impacted by the project to a condition equal to their pre-project condition. The secondary goal is to ensure non-sensitive vegetation areas (erosion control areas) are adequately revegetated to prevent erosion. The performance standards below have been established to define when the revegetation effort is judged successful and are based on the pre-project habitat assessment and conditions documented in the BRR.

If the habitat restoration specialist determines that any part of the revegetation program is not meeting the performance standards corrective measures will be recommended in the annual report. Corrective measures will include, but are not be limited to, replacing dead container plants, reseeding, applying fertilizers or other soil amendments, or making adjustments to irrigation and maintenance practices.

8.1 Annual Performance Standards for Revegetation Areas

First-Year Performance Standards

- 100% survival of planted container stock
- 30% native cover or 70% of pre-project cover
- No more than 25% weed cover
- No more than 5% cover by perennial invasive species*

Second-Year Performance Standards

- 90% survival of planted container stock
- 40% native cover or 70% of pre- project cover
- No more than 20% weed cover
- No perennial (less than 1%) invasive species present*

* Invasive species shall include all species on the California Invasive Plant Council (Cal-IPC) list of highly or moderately invasive species for the Southwest region, and the City's list of prohibited species.

Third- through Fifth-Year Performance Standards

- 80% survival of planted container stock
- 50% native cover or 75% of pre-project cover
- No more than 15% weed cover
- No perennial (less than 1%) invasive species present*

* Invasive species shall include all species on Cal-IPC's list of highly or moderately invasive species for the Southwest region, and the City's list of prohibited species.

8.2 Annual Performance Standards for Enhancement Areas for Quino Checkerspot Butterfly, Hermes Copper, Coastal Cactus Wren, and Covered Plant Species Suitable Habitat

First-Year Performance Standards

- An increase of at least 10% native cover over baseline conditions
- Less than 30% non-native species cover
- No perennial invasive species present (less than 1%)*

* Invasive species shall include all species on Cal-IPC's list of highly or moderately invasive species for the Southwest region, and the City's list of prohibited species.

Second-Year Performance Standards

- An increase of at least 20% native cover over baseline conditions
- Less than 25% non-native species cover
- No perennial invasive species present (less than 1%)*

* Invasive species shall include all species on Cal-IPC's list of highly or moderately invasive species for the Southwest region, and the City's list of prohibited species.

Third-Year Performance Standards

- An increase of at least 30% native cover over baseline conditions
- Less than 20% non-native species cover
- No perennial invasive species present (less than 1%)*

* Invasive species shall include all species on Cal-IPC's list of highly or moderately invasive species for the Southwest region, and the City's list of prohibited species.

8.3 Annual Performance Standards for Erosion Control Areas

First-Year Performance Standards

- 70% of pre-impact native vegetative cover (to meet Construction General Permit (CGP)) and SWPPP requirements and meet criteria necessary to File Notice of Termination with SWRCB to terminate GCP.
- No signs of active erosion

Second-Year Performance Standards

- 70% of pre-impact native vegetative cover (to meet Construction General Permit (CGP)) and SWPPP requirements and meet criteria necessary to File Notice of Termination with SWRCB to terminate GCP.
- No signs of active erosion

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9 COMPLETION OF REVEGETATION PROGRAM

Upon completion of 60 months of revegetation maintenance and monitoring and achievement of the performance standards, the PB, in consultation with the City will prepare a letter indicating that the revegetation program is complete. The letter will indicate that the revegetation areas are in substantial conformance with the performance standards outlined herein. Once the revegetation program is complete for the on-site temporary impact areas, these areas would be included in the project's Habitat Preserve and will be managed in-perpetuity in accordance with the project's RMP. If the project does not meet the performance standards, the PB will make recommendations to bring the project into compliance, and the maintenance-and-monitoring period will continue until the performance standards are met.

Additionally, upon the completion of the 2-year cactus enhancement program, annual maintenance and monitoring will continue based on the results of the enhancement effort to date. Depending on success rates, only a subset of the sites (e.g., those that are expected to develop into suitable habitat for coastal cactus wren) will continue to be monitored and maintained.

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10 REFERENCES

City of Santee. 2018. *Draft Santee Multiple Species Conservation Program (MSCP) Subarea Plan*. Wildlife Agency Review Draft available December 2018.

Dudek. 2020a. *Biological Technical Report for the Fanita Ranch Project*. Prepared for HomeFed Fanita Rancho LLC. Encinitas, California: Dudek. March 2020.

Dudek. 2020b. *Fanita Ranch Preserve Public Access Plan*. Prepared for HomeFed Fanita Rancho LLC. Encinitas, California: Dudek. January 2020.

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APPENDIX R

Vernal Pool Mitigation Plan

Vernal Pool Mitigation Plan for the Fanita Ranch Project
City of Santee
San Diego County, California

Prepared for:

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MAY 2020

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1 INTRODUCTION

The Fanita Ranch Project (project or proposed project) would be a new housing community in the City of Santee. Development for the proposed project would be clustered into three villages to preserve natural open space areas, drainages, and key wildlife corridors. Construction of the project would result in unavoidable impacts to vernal pool resources. Mitigation for project impacts is required under CEQA and pursuant to the City's Draft MSCP Subarea Plan (City of Santee 2018), the state Porter-Cologne Act, and Section 401 of the federal Clean Water Act, as determined by the San Diego Regional Water Quality Control Board (RWQCB).

In particular, this Vernal Pool Mitigation Plan for the Fanita Ranch Project (Mitigation Plan) includes a description of the process for implementing activities to restore, enhance, and preserve vernal pools and their surrounding upland watershed to satisfy the mitigation requirements for the project. This plan has been developed in cooperation with and incorporates input from the City, RWQCB, U.S. Army Corps of Engineers (ACOE), and US Fish and Wildlife Service (USFWS). This plan is intended to comply with Section 404 and 401 permit/certification by the ACOE and RWQCB, as well as meet with the Endangered Species Act (ESA) requirements.

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2 PROJECT DESCRIPTION

2.1 Development Project Location

The project is located in the northwest portion of the City of Santee (City) in central San Diego County, California (Figure 1, Regional Map). The project is bordered primarily by City residential neighborhoods to the south and the unincorporated residential communities of Lakeside and Eucalyptus Hills to the east. To the northeast, active mining operations occur in Slaughterhouse Canyon and are separated by a large hillside. To the north, Sycamore Canyon Open Space preserve, owned by the County of San Diego (County), and unincorporated vacant lands border the project area. Farther north lies the Goodan Ranch Regional Park, which is jointly owned by the Cities of Santee and Poway, the County, and the State of California. To the west of the project area lie the Marine Corps Air Station (MCAS) Miramar and the Santee Lakes Recreation Preserve, owned and operated by Padre Dam Municipal Water District (Figure 2, Vicinity Map).

2.2 Development Project Summary

The focus of this Mitigation Plan is on mitigation for impacts to vernal pools and their surrounding upland watershed that will occur within the project site from the housing development. The remaining portion of the project site would continue to function as open space, including a 1,650-acre open space hardline Habitat Preserve, which would include preservation, management, rehabilitation, and enhancement of existing basins and the creation of new basins. Impacts to vernal pool resources within the project site are shown on Figure 3. The project site occurs within the Draft Santee Multiple Species Conservation Program (MSCP) Subarea Plan area (City of Santee 2018).

2.3 Project Impacts and Required Mitigation

Pursuant to the Draft Santee MSCP Subarea Plan (City of Santee 2018), to the Porter-Cologne Act and Section 401 of the federal Clean Water Act, and to Section 404 of the federal Clean Water Act direct impacts to vernal pools require mitigation. Permanent and temporary impacts to 0.41 acre of vernal pools and road ruts will be mitigated to meet City, RWQCB, and ACOE requirements through restoration, enhancement, creation, and preservation of vernal pools within the project's hardline Habitat Preserve. This plan has been prepared in coordination with the ACOE to comply with Section 404 permit requirements, the RWQCB to comply with Section 401 certification requirements, and the USFWS in accordance with the Draft Santee MSCP Subarea Plan (City of Santee 2018).

Although the Draft Santee MSCP Subarea Plan has not yet been approved or permitted, development of Fanita Ranch will help contribute 1,650 acres to the targeted 171,917 acres within the MHPA for conservation (City of San Diego 1998). Therefore, mitigation occurring within the Habitat Preserve will occur within the MSCP's MHPA designated lands.

This Mitigation Plan has been prepared to be consistent with the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a), the Draft Santee MSCP Subarea Plan (City of Santee 2018), and all applicable permits for the project.

This Mitigation Plan is prepared in accordance with Mitigation Measure BIO-3 of the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a) which states:

MM-BIO-3 **Vernal Pool Mitigation Plan.** A Vernal Pool Mitigation Plan for the Fanita Ranch Project shall be prepared prior to issuance of any grading permits that shall allow disturbance of seasonal basin features (i.e., natural vernal pools and road ruts containing vernal pool indicator plant and wildlife species). The Vernal Pool Mitigation Plan shall be developed in cooperation with and incorporates input from the City of Santee, Regional Water Quality Control Board (RWQCB), U.S. Army Corps of Engineers (ACOE), U.S. Fish and Wildlife Service (USFWS), and is intended to comply with Section 404 and 401 permit/certification by the ACOE and RWQCB, as well as Section 7 and 10 consultation/permit completed by the USFWS. The Vernal Pool Mitigation Plan shall describe and identify those areas slated for preservation, rehabilitation or enhancement, and require the creation of new seasonal basin resources within the Habitat Preserve as mitigation for anticipated development impacts. The Vernal Pool Mitigation Plan shall be focused on seasonal basin features and associated upland watershed habitat enhancement opportunities and cover the following: conceptual level vernal pool design and location, planting plan (planting palettes for both vernal pool and upland watershed habitats), and supplemental water program; maintenance and monitoring guidelines; San Diego fairy shrimp and western spadefoot translocation; and ownership arrangements and long-term management strategy.

Natural vernal pools shall be mitigated at a 4:1 ratio, including preservation and management of existing pools, rehabilitation/enhancement of existing features within the Habitat Preserve and creation of new features. Constructed pools (i.e., artificial features and road ruts) shall be mitigated through rehabilitation, enhancement, and/or creation at a 3:1 or 2:1 ratio, depending on whether the feature supports plant or wildlife indicator species. Rehabilitation/enhancement will occur in existing features within the Habitat Preserve that are not included as vernal pools (i.e., road ruts lacking vernal pool indicator species). This shall entail repairing degraded features through the manipulation of surface topography to improve the overall ecological function of the vernal pool, control of invasive species, and planting of appropriate native species. Creation shall consist of establishing new vernal pools in areas where they did not previously occur and/or the returning of areas to a pre-existing condition through manipulation of surface topography to

support inundation and ponding for vernal pools. Created features shall exhibit the same or improved characteristics as those within the impact area currently supporting fairy shrimp, indicator vernal pool plant species, and western spadefoot and shall maintain comparable individual pool sizes and water sheds.

Existing permanently impacted features that support San Diego fairy shrimp and vernal pool indicator plant species shall have the top 1 to 3 inches of soil removed and set aside prior to mass grading. This soil shall be kept in a dry location until it is deposited into the new features. Once the created or enhanced pools are proven to hold water for the appropriate amount of time, they shall be inoculated with the soil from the impacted features. The acreage of surface area that shall be created shall be verified using on-site soil hydrologic properties and modeling of rainfall seasons. The target surface area acreage is 0.50 acre, based on the acreage of impacted features recorded of which 0.40 acres shall need to include creation of new pools.

The mitigation approach described in this Mitigation Plan consists of restoring, enhancing, creating, and preserving vernal pool resources and their surrounding upland watershed within the project's Habitat Preserve. This would involve re-establishment of vernal pools within degraded areas of the site where appropriate hard pan and clay soils exists, rehabilitation and enhancement of existing, low functioning vernal pools, restoration and enhancement of existing upland habitat, and preservation of the site in perpetuity. Restoration will involve reconfiguration and reconstruction of the mima mounds and basins where appropriate, removal of weedy vegetation, revegetation of the mounds with upland sage scrub and native grassland species, and inoculation of the pools with vernal pool species.

2.3.1 Vernal Pool Impacts and Mitigation

Implementation of the proposed project will result in a total of 0.41 acre of permanent and temporary impacts to vernal pools (Dudek 2020a). All mapped basins (i.e., natural pool and road ruts) were determined to be vernal pools if they contained one of the following characteristics: (1) natural pool within a mima mound formation; (2) road rut but contained a vernal pool plant indicator species; or (3) road rut but contain either San Diego fairy shrimp (*Branchinecta sandiegonensis*) or western spadefoot (*Spea hammondii*).

Protocol-level wet season surveys were conducted in the project site either during 2004, 2004/2005, and/or 2015/2016 within a total of 243 basins (229 in 2004 and 2004/2005, and 14 new basins in 2015/2016). San Diego fairy shrimp (*Branchinecta sandiegonensis*) were detected in a total of 72 basins as a result of focused surveys in 2004, 2004/2005, and 2015/2016. Vernal pool plant indicator species were evaluated during the spring of 2005 in the 229 basins identified in

2004 and 2004/2005. Six vernal pool plant indicator species were observed on site: winged water-starwort (*Callitriche marginata*), shortseed waterwort (*Elatine brachysperma*), California waterwort (*Elatine californica*), water pygmyweed (*Crassula aquatica*), annual hairgrass (*Deschampsia danthonioides*), and woolly marbles (*Psilocarphus brevissimus*) (Dudek 2020a). A complete list of the 229 basins and the species they contain is included in Appendix A. It should be noted that the 14 basins observed in 2015/2016 were not surveyed for vernal pool indicator species; however, since these basins were all considered road ruts it is unlikely that they would support vernal pool plant indicator species.

Consistent with the Draft Santee MSCP Subarea Plan (City of Santee 2018) and Mitigation Measure BIO-3 of the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a), the Habitat Preserve will provide mitigation for vernal pool impacts based on the mitigation ratios outlined in Table 1 below. Existing permanently impacted features that support San Diego fairy shrimp and vernal pool indicator plant species shall have the top 1 to 3 inches of soil removed and set aside prior to mass grading. This soil will shall be kept in a dry location until it is deposited into the new features. Once the created or enhanced pools are proven to hold water for the appropriate amount of time, they shall be inoculated with the soil from the impacted features. The acreage of surface area that will be created shall be verified using on-site soil hydrologic properties (ponding depths and surface flow indicators) and modeling of rainfall seasons.

Table 1
Vernal Pool Mitigation Requirements within the Habitat Preserve

Vernal Pool Type	Impacts (Acres)	Mitigation Ratio[1]	Mitigation Acreage	Mitigation Acreage Credits (Habitat Preserve)	Total Mitigation Requirement[2] (Acres)
Natural Vernal Pool	0.02	4:1	0.09	0.10	+<0.01
Road Rut – containing plant indicator species	0.03	3:1	0.08	0.13	+0.05
Road Rut – containing wildlife indicator species	0.36*	2:1	0.72	0.17	−0.56
Total	**0.41***	**—**	**0.90**	**0.40****	**0.50**

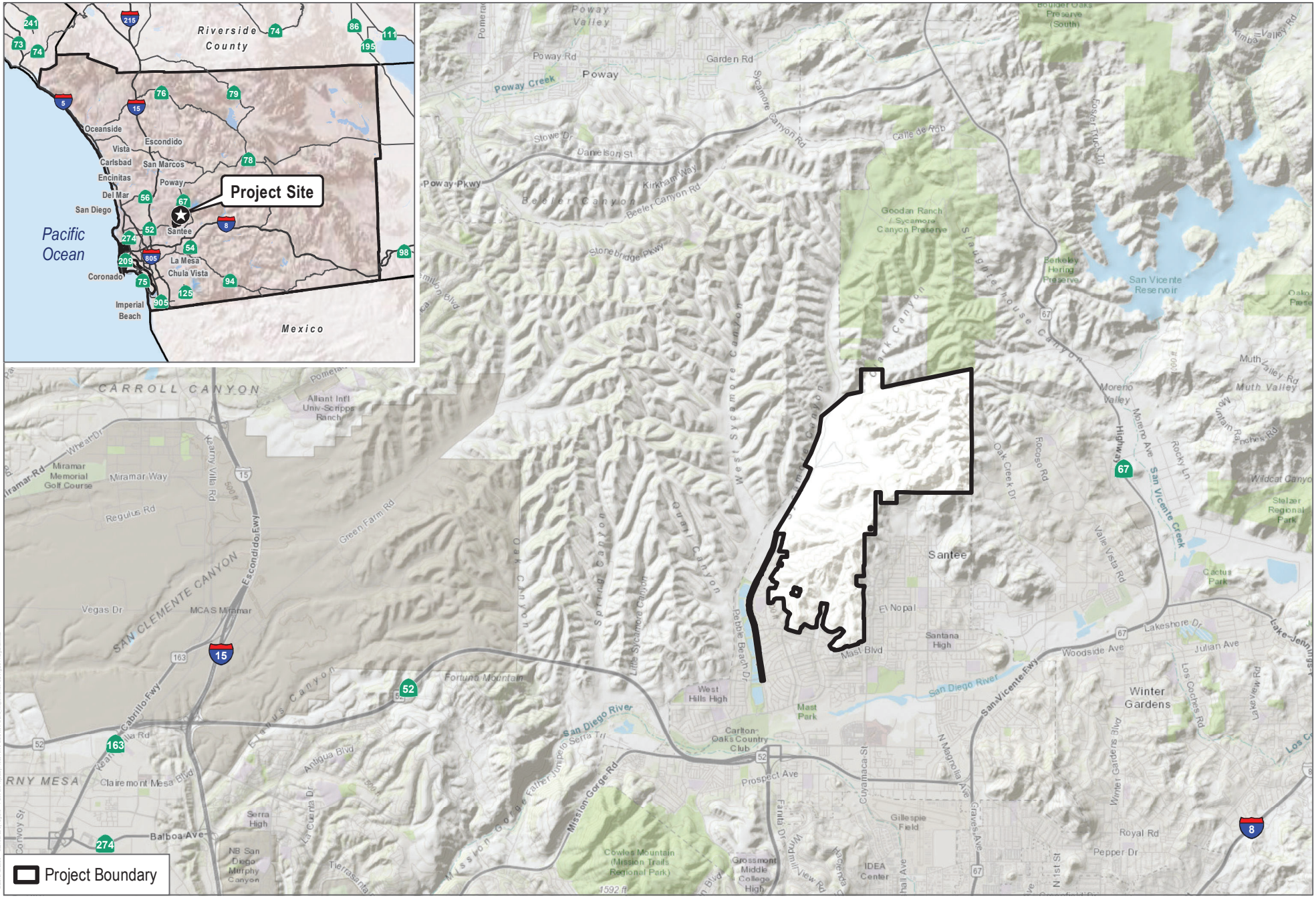
Notes: "+" = mitigation surplus provided by the Habitat Preserve; "−" = mitigation need.

1 Mitigation ratios are based on City of Santee 2018.

2 Mitigation shall include both rehabilitation/enhancement of existing features within the Habitat Preserve and creation of new features.

* This total includes 0.01 acre of off-site impacts.

** This acreage shall be included within the Habitat Preserve and shall be subject to long-term management and monitoring as directed by the Draft Santee MSCP Subarea Plan (City of Santee 2018).



SOURCE: SANGIS 2020; USGS Topographic World Map

DUDEK

0 1 2 Miles

FIGURE 1

Regional Map

Vernal Pool Mitigation Plan for the Fanita Ranch Project

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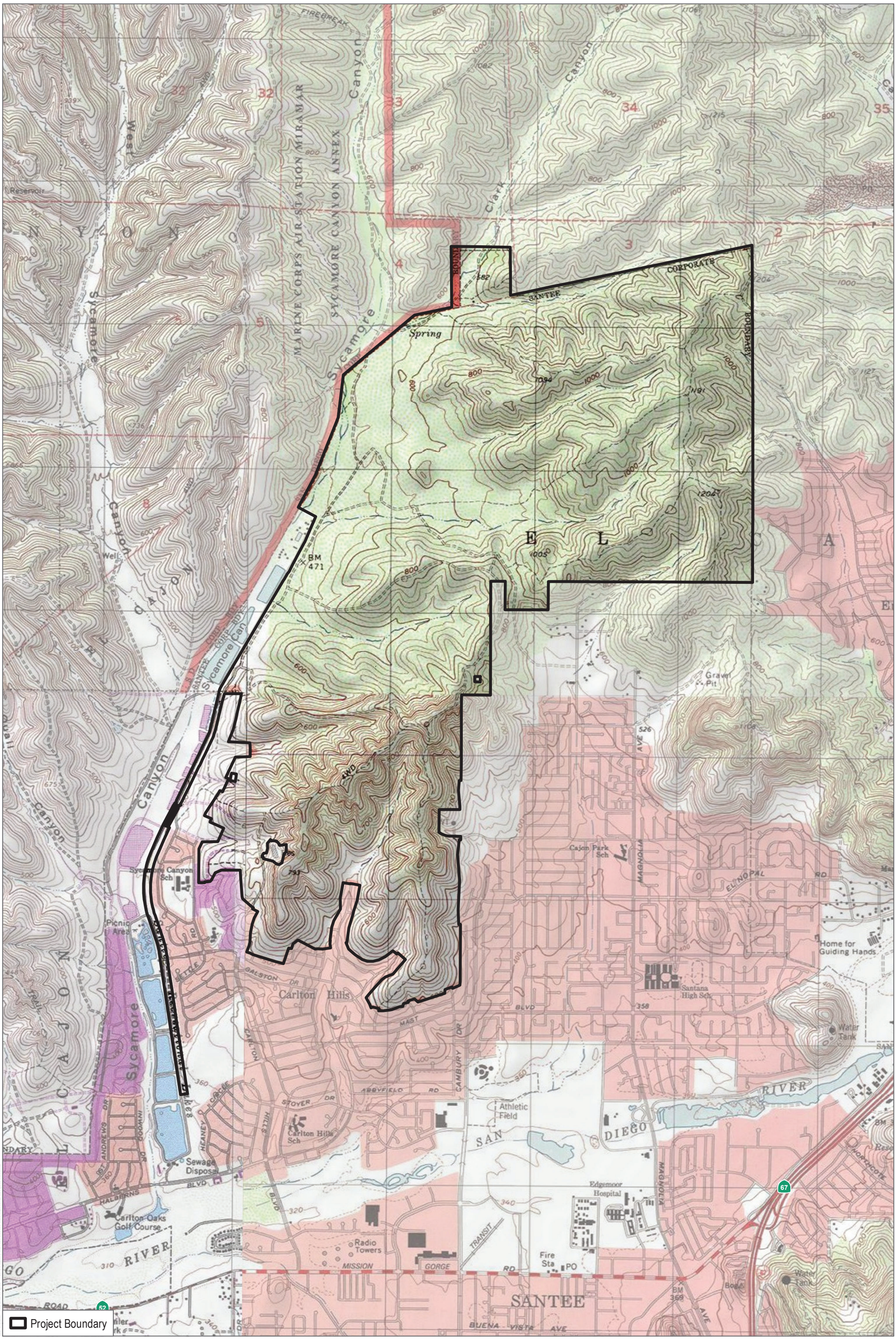
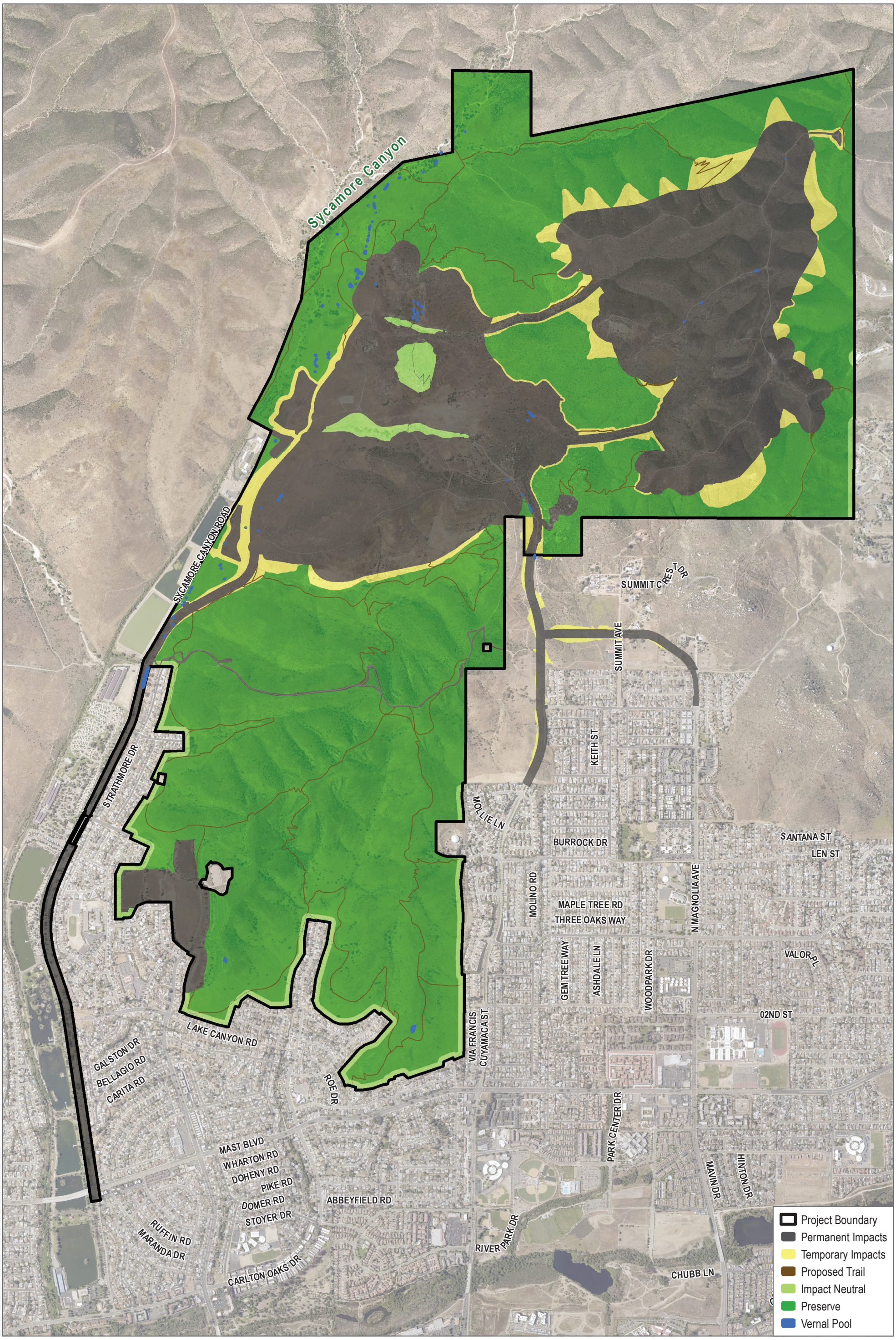


FIGURE 2

Vicinity Map

Vernal Pool Mitigation Plan for the Fanita Ranch Project

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SOURCE: Hunsaker 2020; DeLorenzo International 2019; SANGIS 2017, 2020

DUDEK

0 750 1,500 Feet

FIGURE 3

Vernal Pool Impacts

Vernal Pool Mitigation Plan for the Fanita Ranch Project

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Although only 0.50 acres is required based on project impacts, vernal pool mitigation will include preservation of 0.25 acres, rehabilitation of 0.82 acres, and establishment (creation) of 1.85 acres of vernal pool habitat within the Habitat Preserve. Inoculum sourced from San Diego fairy shrimp occupied pools within the Habitat Preserve will be spread within re-established pools with suitable conditions to support San Diego fairy shrimp life history as a voluntary measure to encourage the creation of a minimum of 0.37 acre of occupied habitat. The 0.37 acre total is based on the presence of San Diego fairy shrimp occurring within the development footprint. The total area subject to proposed vernal pool mitigation for impacts associated with the project within the Habitat Preserve is 2.92 acres, with 9% in the form of preservation and approximately 91% in the form of restoration (re-establishment and rehabilitation). Vernal pool mitigation will be performed within locations of disturbed upland and degraded vernal pool habitat within the Habitat Preserve (Figure 4).

2.3.2 Special-Status Species

Focused surveys for sensitive plant and wildlife species were conducted as described in the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a). An overview of impacts and proposed mitigation are provided below.

2.3.2.1 Impacts and Mitigation for Sensitive Plant Species

Implementation of the proposed project would result in the direct loss of special-status plant species occurring on site and along the off-site Cuyamaca Street extension. Table 2 summarizes impacts to special-status plants.

Table 2
Summary of Direct Impacts to Special-Status Plant Species within the Project Area

Plant Species	Status (Federal/State/ CNPS/Draft Santee MSCP Subarea Plan)	Impacts (Individuals)			Habitat Preserve	Impact Neutral	Total Individuals
		On Site[1]	*Off Site*	*Total Impact (Percent Impacted)*			
San Diego Sagewort (*Artemisia palmeri*)	None/None/4.2/ None	190	—	190 (86%)	30	—	220
Coulter's Saltbush (*Atriplex coulteri*)	None/None/1B.2/ None	15	—	15 (23%)	—	50	65
San Diego Goldenstar (*Bloomeria clevelandii*)	None/None/1B.1/ Covered	7,964 (67)	—	7,964 (44%)	10,354	—	18,318
Small-Flowered Morning-Glory (*Convolvulus simulans*)	None/None/4.2/ None	3	—	3 (23%)	7	3	13
Variegated Dudleya (*Dudleya variegata*)	None/None/1B.2/ Covered NE	781	5	786 (9%)	8,156	—	8,942

Table 2
Summary of Direct Impacts to Special-Status Plant Species within the Project Area

Plant Species	Status (Federal/State/ CNPS/Draft Santee MSCP Subarea Plan)	Impacts (Individuals)			Habitat Preserve	Impact Neutral	Total Individuals
		On Site[1]	*Off Site*	*Total Impact (Percent Impacted)*			
San Diego Barrel Cactus (*Ferocactus viridescens*)	None/None/2B.1/ Covered	585 (10)	—	585 (12%)	4,270	1	4,856
Palmer's Grapplinghook (*Harpagonella palmeri*)	None/None/4.2/ None	384	10	394 (86%)	16	50	460
Graceful Tarplant (*Holocarpha virgata* ssp. *elongata*)	None/None/4.2/ None	2	—	2 (33%)	4	—	6
Willowy Monardella (*Monardella viminea*)	FE/CE/1B.1/ Covered	1*	—	1* (<1%)	1,621	—	1,622
California Adder's-Tongue (*Ophioglossum californicum*)	None/None/4.2/ None	—	—	— (0%)	250	—	250
Chaparral Rein Orchid (*Piperia cooperi*)	None/None/4.2/ None	—	—	— (0%)	1	—	1
Engelmann Oak (*Quercus engelmannii*)	None/None/4.2/ None	5	—	5 (100%)	—	—	5
Ashy Spike-Moss (*Selaginella cinerascens*)	None/None/4.1/ None	*Not mapped due to low ranking and prevalence within the project area.*					
San Diego County Viguiera (*Viguiera laciniata*)	None/None/4.2/ None	84	5	89 (4%)	1,959	3	2,051

Notes: MSCP = Multiple Species Conservation Program; NE = narrow endemic.

[1] Acreage in parentheses includes the portion of the total permanently impacted by the proposed trails.

* It should be noted that there are 49 individuals occurring along existing retained trails and adjacent to proposed trail creation areas. All impacts to these individuals would be avoided through the maintenance and management of trails as outlined in the Fanita Ranch Public Access Plan (Dudek 2020b).

Status Legend

Federal

FE: Federally listed as endangered.

State

CE: State listed as endangered.

CRPR: California Rare Plant Rank (previously known as the CNPS List)

1B: Plants rare, threatened, or endangered in California and elsewhere

2B: Plants rare, threatened, or endangered in California, but more common elsewhere

4: Plants of limited distribution – a watch list

Threat Rank

.1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)

.2 – Fairly threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)

Draft Santee MSCP Subarea Plan (City of Santee 2018)

Covered: Draft Santee MSCP Subarea Plan Covered Species

Under the Draft Santee MSCP Subarea Plan, providing long-term management of comparable habitat within the Habitat Preserve at the required ratio would mitigate for the direct impacts to most sensitive species. However, direct impacts to "Covered" special-status plant species would be subject to the narrow endemic species policy identified in the Draft Santee MSCP Subarea Plan,

which requires 100% conservation within open space (i.e., hardline preserve) and 80% conservation through translocation within permanent impact (i.e., take-authorized) areas (MM-BIO-4). Special-status plant species subject to the narrow endemic species policy include the following species: Coulter's saltbush, San Diego goldenstar, variegated dudleya, San Diego barrel cactus, and willowy monardella. The translocation program shall be detailed in the Upland Restoration Plan, approved by the City of Santee, and integrated with the overall upland and wetland restoration of the Habitat Preserve.

2.3.2.2 Impacts and Mitigation for Sensitive Wildlife Species

Implementation of the proposed project would result in the direct loss of habitat, including foraging habitat, for the majority of the special-status wildlife species described in the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a). These species include the following: western spadefoot, Southern California legless lizard (*Anniella stebbinsi*), California glossy snake (*Arizona elegans occidentalis*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), red diamondback rattlesnake (*Crotalus ruber*), Blainville's horned lizard (*Phrynosoma blainvillii*), Coronado Island skink (*Plestiodon skiltonianus interparietalis*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), two-striped gartersnake (*Thamnophis hammondii*), Cooper's hawk (*Accipiter cooperii*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), grasshopper sparrow (*Ammodramus savannarum*), golden eagle (*Aquila chrysaetos*), Bell's sage sparrow (*Artemisiospiza belli belli)*, northern harrier (*Circus cyaneus*), American peregrine falcon (*Falco peregrinus anatum*), long-eared owl (*Asio otus*), oak titmouse (*Baeolophus inornatus*), coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), merlin (*Falco columbarius*), yellow-breasted chat (*Icteria virens*), prairie falcon (*Falco mexicanus*), loggerhead shrike (*Lanius ludovicianus*), coastal California gnatcatcher (*Polioptila californica californica*), rufous hummingbird (*Selasphorus rufus*), Brewer's sparrow (*Spizella breweri*), yellow warbler (*Setophaga petechial*), least Bell's vireo (*Vireo bellii pusillus*), white-tailed kite (*Elanus leucurus*), California horned lark (*Eremophila alpestris actia*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), Dulzura pocket mouse (*Chaetodipus californicus femoralis*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), San Diego desert woodrat (*Neotoma lepida intermedia*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western red bat (*Lasiurus blossevillii*), western yellow bat (*Lasiurus xanthinus*), long-eared myotis (*Myotis evotis*), western small-footed myotis (*Myotis ciliolabrum*), Yuma myotis (*Myotis yumanensis*), big free-tailed bat (*Nyctinomops macrotis*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), San Diego fairy shrimp, Quino checkerspot butterfly (*Euphydryas editha quino*), and Hermes copper butterfly (*Lycaena hermes*).

Per the Draft Santee MSCP Subarea Plan, providing long-term management of comparable habitat within the Habitat Preserve at the required ratio would mitigate for the direct impacts to all covered

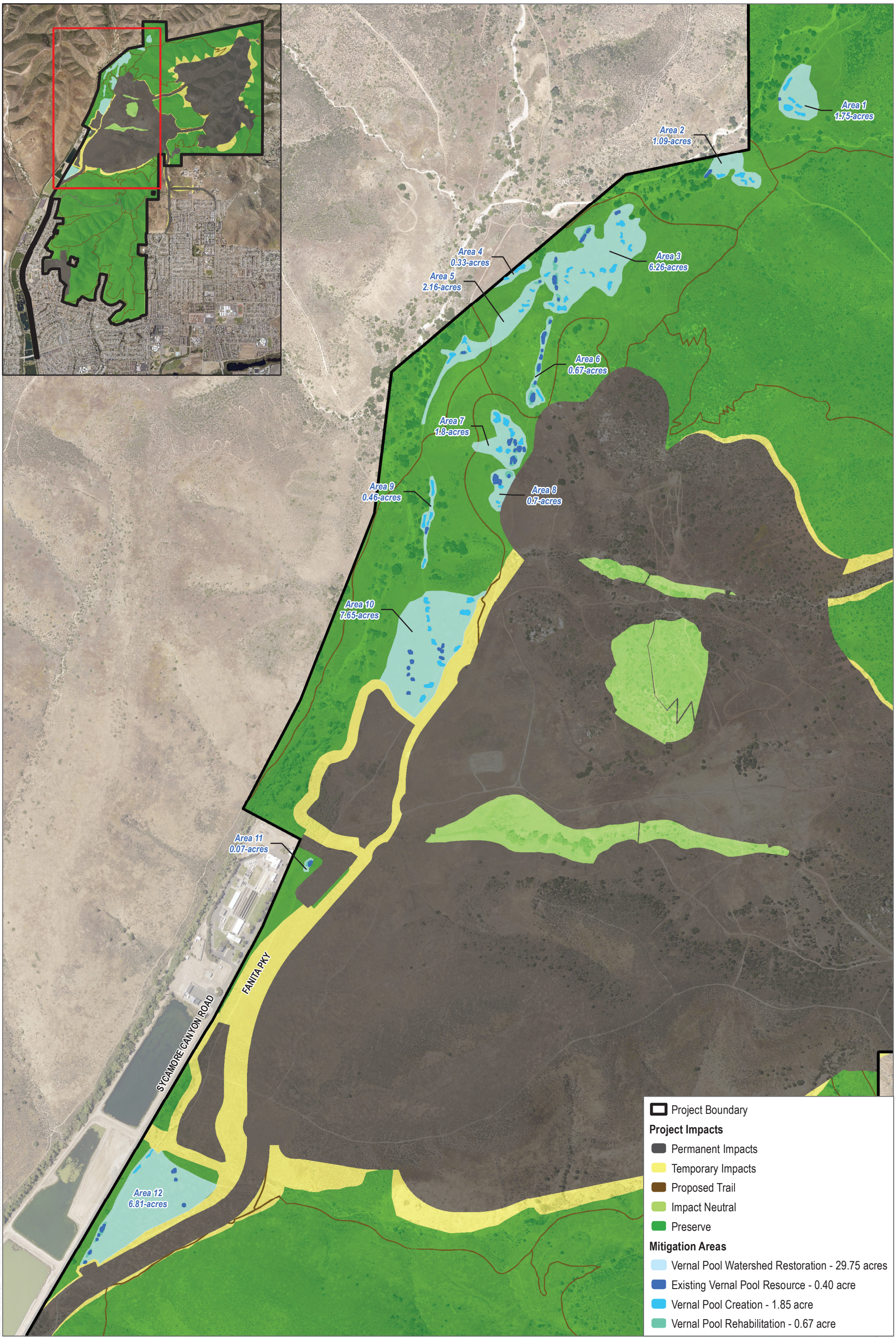
species and for most sensitive species. In addition, wildlife species-specific mitigation requirements would also be required as summarized in Section 6.3 of the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a).

2.4 Jurisdictional Status

As stated in Section 2.3.1, Vernal Pool Impacts and Mitigation, all mapped basins (i.e., natural pool and road ruts) were determined to be vernal pools if they contained one of the following characteristics: (1) natural pool within a mima mound formation; (2) road rut but contained a vernal pool plant indicator species; or (3) road rut but contain either San Diego fairy shrimp or western spadefoot. It is assumed that ACOE and RWQCB will assert jurisdiction over the vernal pools within the project area.

2.5 Functions and Services of Vernal Pool Resources

The functions and services of the vernal pool resources at the project site will be evaluated using the most recent version California Rapid Assessment Method (CRAM) for Vernal Pool Systems, version 6.1 (California Wetlands Monitoring Workgroup 2013). The existing functions and services of the impact areas will be evaluated based on a combination of quantitative measures and qualitative evaluations defined by the CRAM protocols. The purpose of the CRAM assessment is to evaluate the existing functions and services of vernal pool aquatic resources within the impact footprint in order to facilitate a comparison of functions and services to the proposed mitigation site.



SOURCE: SANGIS 2017, 2020

DUDEK

0 300 600 Feet

FIGURE 4

Vernal Pool Mitigation Sites

Vernal Pool Mitigation Plan for the Fanita Ranch Project

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2.6 Excess Mitigation Credits

Vernal pool mitigation credits produced by the implementation of this Mitigation Plan within the Habitat Preserve will exceed the amount required to mitigate the vernal pool impacts associated with the project (Table 3) (Figure 4). After the no-net-loss requirement in the Draft Santee MSCP Subarea Plan is adhered to, which means that 0.41 acres of the total 2.67-acre creation component would be used for mitigating the vernal pool impacts at a 1:1 ratio, there will be a total of 2.26 acres of excess mitigation credits available for project impacts to other jurisdictional aquatic resources.

Table 3
Mitigation Acreage Allocation for the Fanita Ranch Project

	Mitigation Required			Available On-Site			
Type	*Jurisdictional Aquatic Resource*	*Vernal Pools*	*Total*	*Jurisdictional Aquatic Resource*	*Vernal Pools*	*Total*	**Off-Site**
Preservation/Enhancement	14.26	0.09	*14.35*	9.40[1]	0.25	*9.65*	4.70[2]
Creation/Re-establishment (1:1 no-net-loss)	9.81	0.41	*10.22*	0.02	2.67	*2.69*	7.53[3]
Total	**24.07**	**0.50**	**24.57**	**9.42**	**2.92**	**12.34**	**12.23**

Notes:

1 This total includes 0.78 acres of ACOE/RWQCB habitat within the two internal drainages (impact neutral areas), and 8.62 acres within the Habitat Preserve. Total does not include 23.68 acres of CDFW-only riparian habitat, comprised mostly of coast live oak woodland (22.68 acres), within the Habitat Preserve or 2.07 acres of CDFW-only resources within the impact neutral areas.

2 Off-site preservation/enhancement may occur at the 11-acre parcel adjacent to the lower Santee lakes to satisfy the off-site preservation/enhancement requirement.

3 This is the minimum amount required based on the current aquatic resource assessment and impacts, and the no-net-loss requirement in the Draft Santee MSCP Subarea Plan.

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3 GOAL OF MITIGATION

The primary goal of the proposed mitigation within the Habitat Preserve is to compensate for the impacts to the native habitats and jurisdictional waters located within the project's development footprint. Mitigation will occur through enhancement, restoration, and preservation of vernal pools and their surrounding upland watershed. As components of the overall goal, this Mitigation Plan will provide guidance for enhancement and restoration of adjacent mima mounds, degraded upland vernal pool watershed habitat surrounding the vernal pools within the Habitat Preserve.

3.1 Restoration Definitions

Restoration is a general term for the repair and rehabilitation of natural ecosystems. The ACOE has defined restoration as "the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource" (ACOE and EPA 2008). The ACOE further subdivides the definition of restoration into two subcategories, including re-establishment and rehabilitation with the difference being the "returning" of natural/historic functions (re-establishment) or "repairing" of natural/historic functions (rehabilitation). For the purpose of this report, three categories of restoration activities are described, including re-establishment, rehabilitation, and enhancement. These terms are used herein to describe the following restoration activities:

- **Restoration**—general term to describe re-establishment and rehabilitation of vernal pools, as well as a term to describe restoring upland watershed habitats through planting and/or seeding and weed control.
- **Re-establishment**—the return to a pre-existing condition through manipulation of the surface topography to support inundation and ponding for vernal pools. Re-establishment can consist of the conversion of a currently non-wetland habitat into wetland (or other aquatic) habitat. Note: in some instances, re-establishment may consist of establishing new vernal pools where they did not previously occur. However, restrictive or impermeable soils have to be present for vernal pools to function. Therefore, vernal pool re-establishment consists of the restoration of the characteristic vernal pool topography and associated habitat.
- **Rehabilitation**—the repair of an existing, degraded vernal pool through the manipulation of the surface topography. Rehabilitation in this Mitigation Plan is used to describe repairing vernal pools that have been damaged by vehicles (e.g., road ruts and depressions) or excavations. Rehabilitation may also include expanding the inundation area of a degraded vernal pool to improve overall ecological function of the vernal pool system.
- **Enhancement**—the improvement of ecological function through control of invasive plant species and planting of appropriate native plant species.

3.2 Types of Habitat to be Restored and Enhanced

This Mitigation Plan proposes restoration of disturbed areas within the Habitat Preserve, including vernal pools and associated mima mounds, as well as degraded upland watershed. The restored habitat will consist of a mosaic of coastal scrub, and native grassland habitat, typical of vernal pool complexes in the region. The mitigation area will include vernal pools (both existing and re-established), mima mounds, and upland habitats including Diegan coastal sage scrub (including disturbed), Diegan coastal sage scrub–valley needlegrass grassland, and valley needlegrass grassland (including disturbed).

Recent biological field work and topographic analysis have identified locations for re-establishment of some additional mima mounds and vernal pools within the Habitat Preserve. The terraces and mesas have been previously disturbed (both vegetation and topography), and several areas that appear to have previously functioned as vernal pools and mima mounds are impaired and no longer functioning as such. These areas will be contoured to enhance the concave/convex attributes of vernal pool/mima mound topography. Surrounding topography will be left undisturbed. The herbaceous vegetation that currently exists is largely non-native and the intent of the Mitigation Plan is to enhance the surrounding habitat with the addition of native species. Habitat enhancement in the surrounding habitat areas will consist of weed control as well as native container plant installation and native species seeding, in some areas.

3.3 Functions and Services to be Restored

The degraded condition of the Habitat Preserve is the result of previous vehicular access, sediment accumulation from erosion, invasive plant species invasion, other prior site disturbances, and recent site disturbance (e.g., off-road activity, trash dumping). As a result of these disturbances, the area is currently functioning well below capacity relative to historic conditions.

This Mitigation Plan intends to add additional vernal pool and mima mound area through restoration, thereby increasing biological and hydrologic functions and services including vernal pool density, inundation area, structural patch richness, floral and faunal biodiversity, topographic diversity, and increased populations of sensitive species (e.g., San Diego fairy shrimp). Control of non-native vegetation in and around the existing and restored vernal pools is expected to reduce non-native species presence and thereby encourage native floral diversity and associated habitat functions. Protection of all habitats within the Habitat Preserve from future disturbances with exclusionary fencing and restoring the dirt road and trails that bisect the vernal pool complex to native habitat will increase habitat functions such as wildlife usage. Additional, adaptive, long-term management will ensure the viability of the vernal pool complex.

3.4 Time Lapse

It is expected that the restoration areas will require several years to approach the ultimate structure and composition of naturally occurring vernal pool habitat; however, within 6-year time frame established for the maintenance and monitoring period, it is anticipated that the intended hydrologic function and floral composition for the restored pools will be established sufficiently to persist under natural conditions. By the end of the 6-year maintenance and monitoring period for vernal pools, it should be apparent whether the restoration and enhancement effort has been successful at restoration and enhancement of a sustainable vernal pool and its surrounding watershed.

The success criteria outlined in Section 8 of this Mitigation Plan, which are goals to be achieved during the monitoring period, represent an intermediate stage in the development of the vernal pool. The target species composition and cover to be achieved during the 6-year period should provide an adequate foundation for the long-term development of the restored vernal pool. After the 6-year maintenance and monitoring period is completed successfully, the vernal pools and their surrounding watershed will be managed in accordance with the Draft Santee MSCP Subarea Plan in perpetuity.

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4 EXISTING CONDITIONS OF THE HABITAT PRESERVE (MITIGATION SITE)

4.1 Site Selection and Location

The Habitat Preserve occupies portions of the San Vicente Reservoir, El Cajon, La Mesa, and Poway West U.S. Geological Survey (USGS) 7.5-minute quadrangle (Figure 2). Elevations within the Habitat Preserve range from approximately 432 feet to 1,193 feet above mean sea level. The Habitat Preserve is approximately 1,650 acres in size. The Habitat Preserve contains a series of northeast- to southwest-trending hills and valleys that form a transition between the relatively low, flat Sycamore Canyon on the western end to the foothills of the Peninsular Range to the east.

As part of the planning for the project, the Habitat Preserve was assessed for biological resources (Dudek 2020a). Dudek Senior Restoration Ecologist Scott McMillan and Senior wildlife biologist Brock Ortega re-evaluated the potential for these mitigation opportunities on the project's Habitat Preserve in October 2019. The results of baseline condition surveys indicated that the Habitat Preserve is suitable for on-site mitigation for vernal pools and their surrounding upland watershed as the mitigation area includes existing vernal pool complexes occupied by San Diego fairy shrimp and western spadefoot. The Habitat Preserve is situated adjacent to the project site. The Habitat Preserve share climate, soils, and many other abiotic characteristics with the vernal pool impact site.

A total of 12 areas were identified where some form of vernal pool mitigation could be implemented above and beyond just preservation (Figure 4). These areas represent the vernal pools and the watershed areas that would need to be restored and managed to support the pools. These sites ranged in size from 0.07 acres to 7.65 acres, with a total acreage of 29.75 acres. In the 29.75 acres, there is an estimated 0.13 acres of vernal pool preservation, 0.82 acres of re-establishment and another 1.85 acres of vernal pool establishment (creation). It should be noted that there are 0.12 acres of vernal pools occurring outside the 29.75 acres of watershed areas, within the Habitat Preserve, that will be included in the preservation total. Table 4 summarizes the vernal pool mitigation proposed within the Habitat Preserve to meet the project's mitigation requirements.

Table 4
Vernal Pool Mitigation within the Habitat Preserve

Mitigation Type	Total Acreage
Preservation only	0.25
Preservation and Re-establishment	0.82
Preservation and Establishment (Creation)	1.85
Total Acreage	**2.92**

4.2 Soils

Soil type is a critical factor in the formation of vernal pools, and vernal pool soils generally contain a nearly impermeable surface or subsurface soil layer (USFWS 1997). According to the USDA Web Soil Survey, soils within the Habitat Preserve are underlain by the following soil types: Bosanko clay (Bsc), Cieneba rocky coarse sandy loam (CmE2), Cieneba very rocky coarse sandy loam (CmrG), Diablo clay (DaE), Diablo-Olivenhain complex clay (DoE), Las Flores loamy fine sand (LeC), Las Posas stony fine sandy loam (LrE, LrG), Linne clay loam (LsE), Redding gravelly loam (RdC), Redding cobbly loam (ReE, RfF), Redding-Urban land complex (RhC), Visalia gravelly sandy loam (VbB), and Wyman loam (WmC) (USDA 2019). Stony land (SvE) is present along the western edge of the Habitat Preserve, associated with the historic floodplain of the Sycamore Creek.

The existing vernal pools within the Habitat Preserve occur within Cieneba rocky coarse sandy loam, Linne clay loam, Redding gravelly loam, Redding cobbly loam, Stony land, and Visalia gravelly sandy loam. The soil types for the proposed vernal pool mitigation locations include Bosanko clay, Cieneba rocky coarse sandy loam, Redding gravelly loam, Redding cobbly loam, Stony land, and Visalia gravelly sandy loam. The soil types underlying the vernal pools being impacted include the following: Las Flores loamy fine sand, Las Posas stony fine sandy loam, Redding gravelly loam, Redding cobbly loam, Visalia gravelly sandy loam, and Wyman loam. The Bosanko clay, Las Flores loamy fine sand, Las Posas stony fine sandy loam, and Redding gravelly loam soil types are known to support vernal pools and certain rare plant species.

4.3 Jurisdictional Status

The RWQCB may assert jurisdiction over all the vernal pools within the Habitat Preserve as wetland waters of the state under the Porter Cologne Water Quality Control Act. A portion of the vernal pools meet the three-parameter criteria to be considered ACOE-jurisdictional. The Habitat Preserve contains a portion of Sycamore Canyon Creek, which flows from north to south along the western edge of Fanita Ranch and the majority of the project area drains towards it. Sycamore Creek and adjacent storm drain systems discharge to the San Diego River. Therefore, Sycamore Creek may provide connectivity of surface flows from the vernal pool complexes on site to an USACEACOE-jurisdictional waterbody.

4.4 Status of Existing Vegetation Communities

Existing vegetation communities and land cover types are summarized in Table 5. Overall, the general character of the Habitat Preserve includes mainly native vegetation communities, but historic site disturbances from previous unauthorized off-road vehicular activity and human activities have degraded portions of the habitats on site.

Table 5
Vegetation Communities Present within the Habitat Preserve

Vegetation Type (Holland/Oberbauer Code)	Impacts[1]			Habitat Preserve	Total Acreage
	Proposed Trail	*Temporary*	*SDG&E Access Road*		
Disturbed and Developed Areas					
Disturbed Habitat (11300)	1.94	2.11	6.70	35.54	46.29
Disturbed Wetland[2] (11200)	—	—	—	0.06	0.06
Non-native Vegetation (11000)	—	—	—	0.60	0.60
Urban/Developed (12000)	<0.01	—	—	0.81	0.81
Disturbed and Developed Areas Subtotal[3]	*1.94*	*2.11*	*6.70*	*37.01*	*47.77*
Scrub and Chaparral					
Diegan Coastal Sage Scrub[2] (32500)	3.28	33.09	0.11	751.93	788.41
Diegan Coastal Sage Scrub (disturbed)[2] (32500)	1.38	4.20	0.07	168.46	174.10
Diegan Coastal Sage Scrub (fire recovered)[2] (32500)	—	—	—	1.29	1.29
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland[2] (32500/42110)	0.15	0.50	—	54.36	55.01
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (disturbed)[2] (32500/42110)	0.22	1.48	—	28.56	30.26
Diegan Coastal Sage Scrub–Non-native Grassland (disturbed)[2] (32500/42200)	0.09	—	—	8.28	8.38
Diegan Coastal Sage Scrub–Baccharis-dominated[2] (32530)	0.01	0.62	—	4.74	5.38
Granitic Southern Mixed Chaparral[2] (37121)	0.96	45.54	—	246.03	292.53
Scrub and Chaparral Subtotal[3]	*6.09*	*85.43*	*0.18*	*1,263.65*	*1,354.06*
Grasslands, Vernal Pools, Meadows, and Other Herb Communities					
Valley Needlegrass Grassland[2] (42110)	0.65	7.92	—	64.18	72.75
Valley Needlegrass Grassland (disturbed)[2] (42110)	0.57	5.84	—	36.03	42.45
Non-native Grassland[2] (42200)	1.15	11.40	—	81.31	93.85
Vernal Pool[2] (44000)	—	0.01	—	0.40	0.40
Grasslands, Vernal Pools, Meadows, and Other Herb Communities Subtotal[3]	*2.36*	*25.17*	—	*181.91*	*209.44*
Riparian and Bottomland Habitat					
Arundo-Dominated Riparian[4] (65100)	—	0.44	—	0.02	0.46
Mulefat Scrub[2] (63310)	—	0.40	—	1.16	1.56
Non-vegetated Channel or Floodway[2] (64200)	0.04	0.83	—	5.84	6.71
Southern Arroyo Willow Riparian Forest[2] (61320)	—	—	—	1.54	1.54
Southern Sycamore–Alder Riparian Woodland[2] (62400)	—	0.04	—	0.96	1.00
Southern Willow Scrub[2] (63320)	—	0.03	—	0.04	0.07
Riparian and Bottomland Habitat Subtotal[3]	*0.04*	*1.73*	—	*9.57*	*11.34*
Woodland					
Coast Live Oak Woodland[2] (71160)	0.09	0.03	—	26.36	26.48
Woodland Subtotal[3]	*0.09*	*0.03*	—	*26.36*	*26.48*
Sensitive Vegetation (including Wetlands) Subtotal[3]	*8.58*	*112.36*	*0.18*	*1,481.55*	*1,602.67*
Grand Total[3]	**10.52**	**114.47**	**6.88**	**1,518.50**	**1,650.38**

Notes: SDG&E = San Diego Gas & Electric.

[1] This column summarizes the impact areas to be included within the final Habitat Preserve boundary. Impacts include those from the proposed trails (permanent) and temporary impacts that would be restored to pre-existing conditions. If temporary impact areas are not

considered appropriate for restoration of the sensitive native plant community that originally was mapped in that area, these areas shall be considered permanently impacted and mitigated in conformance with the Draft Santee MSCP Subarea Plan.

[2] Sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

[3] Totals may not sum due to rounding.

[4] This is a non-native vegetation community and only considered sensitive because it is a regulated habitat under CDFW jurisdiction.

4.5 Special-Status Species

A total of 18 special-status wildlife species are known to occur within the Fanita Ranch Habitat Preserve. The two species specifically addressed in this plan are San Diego fairy shrimp, a federally listed endangered species, and western spadefoot, a California designated Species of Special Concern. Wet season surveys within the Habitat Preserve identified 38 pools (0.21 acre) containing San Diego fairy shrimp. Western spadefoot toad has been observed by Dudek within 24 features located in the Fanita Ranch Habitat Preserve and 38 overall features on the property.

Twelve special-status plant species have been observed within the Fanita Ranch Habitat Preserve, including San Diego sagewort (*Artemisia palmeri;* CRPR 4.2), San Diego goldenstar (*Bloomeria clevelandii;* CRPR 1B.1), small flowered morning-glory (*Convolvulus simulans*; CRPR 4.2), variegated dudleya (*Dudleya variegata*; CRPR 1B.2), San Diego barrel cactus (*Ferocactus viridescens*; CRPR 2B.1), Palmer's grapplinghook (*Harpagonella palmeri*; CRPR 4.2), graceful tarplant (*Holocarpha virgata* ssp. *elongate;* CRPR 4.2), willowy monardella (*Monardella viminea*; FE/CE/CRPR 1B.1), California adder's tongue (*Ophioglossum californicum*; CRPR 4.2), chaparral rein orchid (*Piperia cooperi;* CRPR 4.2), ashy spike-moss (*Selaginella cinerascens*; CRPR 4.1), and San Diego County Viguiera (*Viguiera laciniata*; CRPR 4.2).

4.6 Cultural Resources

A cultural resources inventory was conducted for the Fanita Ranch Habitat Preserve and resources were identified on site. See the Fanita Ranch Environmental Impact Report for details.

4.7 Existing and Proposed Uses

The Habitat Preserve is currently in an unimproved state and subject to frequent illegal off-road vehicular traffic and unauthorized human activities that have been detrimental to the sensitive habitats. Proposed use of the Habitat Preserve will be for plant and wildlife habitat and as a preservation area for mima mound and vernal pools, including their surrounding upland watershed. The restored vernal pool area and adjacent upland watershed will be preserved and managed in perpetuity, consistent with the preservation of vernal pool resources and other natural habitats on site. The elimination and restoration of the illegal roads and foot paths, and the enhancement of upland vegetation surrounding the restored vernal pools will help provide an added buffer to the vernal pool habitat and will help eliminate future disturbance.

4.8 Vernal Pool Restoration Capacity

Vernal pool area required for mitigation totals to 0.50 acres. However, this Mitigation Plan would restore up to a total of 2.67 acres of vernal pools, including 0.82 acre of re-establishment and 1.85 acre of establishment (creation) (Figure 4). Preservation would occur at the existing vernal pools, encompassing approximately 0.25 acre (Table 6).

Table 6
Vernal Pool Restoration and Enhancement Capacity

Mitigation Type	Acreage
Preservation	0.25
Restoration (Re-establishment)	0.82
Restoration (Establishment)	1.85
Total	**2.92**

The combined area identified for potential vernal pool restoration includes areas that have a range of suitability, with some appearing to be ideal locations with excellent potential and others less ideal requiring more significant land surface modifications. This Mitigation Plan has designated all 2.67 acres for restoration (re-establishment and rehabilitation).

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5 IMPLEMENTATION PLAN

The following section describes the necessary implementation measures for restoring habitat and implementing the restoration and enhancement program. Construction documents for the mitigation area shall be in coordination with the project biologist, and will implement the biological program outlined in this document. The project biologist/restoration specialist will supervise implementation of the mitigation and monitoring program.

5.1 Rationale for Expecting Implementation Success

Implementation success for the vernal pools, and upland watershed habitat within the Fanita Ranch Habitat Preserve is described below.

Vernal Pools

The probability for successful restoration of vernal pools is increased when the pools to be restored are located near existing pools (USFWS 1997). The fact that the proposed vernal pool restoration locations are adjacent to, and within, existing vernal pool habitat, provides assurance that the locations are suitable, and also improves the likelihood that the appropriate vernal pool species will be able to persist at the mitigation site.

The vernal pools within the Fanita Ranch Habitat Preserve vernal pool complex experience seasonal inundation for a long enough period to support vernal pool habitat (e.g., depressions with vernal pool plant indicator species). However, many of these vernal pools are degraded from anthropogenic disturbance, including road ruts. Repairing and enhancing degraded vernal pool habitat has a high likelihood of success due to the presence of suitable soil conditions, including an impermeable clay layer.

The locations designated for vernal pool re-establishment currently consist of insufficient depressions, or too much disturbance to currently support prolonged inundation to develop vernal pool conditions. Some of the locations are believed to have existed as functioning vernal pools in the past prior to site disturbance. While they are not currently functioning as vernal pools, they are part of the historical vernal pool landscape which includes the overall topographic patterns of hummocks (mima mounds) and depressions on a soil type known to support vernal pools (e.g., Redding gravelly loam).

Grading plans and construction documents are currently in production that outline the biological intent described by this Mitigation Plan. Through topographical modification (i.e., either mechanical and/or by hand), the drainage patterns within the restoration site will be altered sufficiently to help retain hydrologic input within the restored basins consistent with appropriate vernal pool topography. The hydrologic input to existing basins will not be significantly altered.

The entire vernal pool complex will also be enhanced through weed management and native seeding to help improve the adjacent upland habitat areas. The exact location of seeding will be shown on the final construction documents. Enhancement of the upland buffer area will help increase the success of the restored vernal pools by limiting the input of non-native plant propagules into the vernal pool complex. Enhancement of all additional areas will improve the biological function of the site and its value to wildlife.

Vernal pools are not homogeneous throughout San Diego County due to differences in climate, topography, and soils (USFWS 1997). Therefore, the native plant species composition of the surrounding vernal pool habitat will be used as the model for the restoration effort. Native seed and inoculum will be collected from donor pools within the Fanita Ranch Habitat Preserve by the project biologist. The donor pools will be the highest functioning vernal pools within the complex of pools on site. Seed for the upland habitat enhancement will be collected from local sources within 25 miles of the coast. The use of local seed and inoculum improves the chances for successful restoration because the species are locally adapted to the conditions present at the site.

Upland Habitat

Upland habitat restoration and enhancement also depends on adequate treatment of pervasive annual weeds to aid establishment of native annual and perennial species. Container plants will be installed to jump start the expansion of perennial native plant species on site. Species included in the container planting palettes have been observed on site and have been highly successful in habitat restoration projects in the project vicinity. Applied seed mixes include an appropriate mix of annual and perennial native plant species to provide initial colonization of seeded areas with native plant species and long-term stability of native habitat generation. Irrigation in the form of drip emitters will be supplied to container plants during the appropriate time of year to aid their establishment. Irrigation will be performed in a biologically appropriate manner to provide the greatest benefit possible.

Implementation of the requirements of this Mitigation Plan will commence during the dry season (fall) or concurrent with, or immediately subsequent to the initiation of impacts for the project. Implementation will be conducted under the direction of a qualified biologist, with at least five years of vernal pool restoration experience, approved by the City, CDFW, and USFWS.

5.2 Preliminary Design Consideration and Site Modifications

Previous detailed mapping of the existing vernal pools within the Fanita Ranch vernal pool complex was utilized to evaluate the existing spatial distribution of vernal pools and mima mounds within the target mitigation/restoration area (Figure 4). The general location and quantity of the potential vernal pool re-establishment and rehabilitation sites are based upon surveys of the area

conducted in spring 2019 by Dudek habitat restoration specialists Scott McMillan. The site was evaluated relative to the mitigation needs for the project and overall site potential.

The site encompasses sufficient area to support the intended restoration effort, and has adequate watershed area to support the additional vernal pool basins, without adversely affecting the existing vernal pools. Final vernal pool density is intended to mimic nearby vernal pool complexes within the Fanita Ranch Habitat Preserve and at MCAS Miramar. Re-established pools will not impact the watersheds of extant pools except as appropriate to establish hydrologic connections between re-established and extant pools.

The preliminary plan view layout for the vernal pool restoration area is shown on Figure 4. This plan shows the locations of the proposed vernal pool restoration areas in relation to the existing pools in the Fanita Ranch Habitat Preserve. The exact locations, sizes, and shapes of the restored vernal pools are conceptual at this point, and will need to be finalized in the Detailed Plan.

Existing mima mounds between the proposed vernal pool restoration areas will be heightened with the excavated material from the basin bottoms. If not already present, new mima mounds will be created to frame the restored vernal pool locations and help develop micro-watershed catchments. An important design consideration for the mima mound alterations is the presence of existing native plant resources. If existing mima mound vegetation is largely native and undisturbed, it will be unmodified. Mima mounds with an abundance of non-native plants and exhibiting a disturbed character will be modified and revegetated with native species.

The initial site preparation work necessary to prepare the restoration area for the intended revegetation effort will include the removal of invasive plant and tree species and general weed control, removal of asphalt and concrete debris from the limits of the mitigation site, including the adjacent upland watershed, and removal of trash and non-native debris piles. Disposal of these materials shall be at an acceptable off-site source or landfill facility. If determined by the project biologist to be likely to succeed, native perennials within the vernal pool and mima mound restoration areas (i.e., limits of disturbance), would be salvaged prior to grade modification and would later be transplanted into the improved upland mima mound and transitional upland areas.

Hydrological data of the restored vernal pool and mima mound area will be collected following grading and will determine whether additional excavation or contouring may be necessary to attain the desired vernal pool hydrology of ponding for at least 14 days during an average rain year (unoccupied by San Diego Fairy Shrimp), or 21 to 28 days during an average rain year (occupied by San Diego Fairy Shrimp), which is the average time needed to support successful San Diego fairy shrimp reproduction.

5.3 General Avoidance and Minimization Measures

The following measure will avoid or minimize adverse effects to vernal pools and of covered species. While the intent of these measures is more applicable to construction or development projects, many of these avoidance and minimization measures would be applicable during implementation of the vernal pool restoration project. Covered projects shall require temporary fencing (with silt barriers) of the limits of project impacts (including construction staging areas and access routes) to prevent additional vernal pool impacts and prevent the spread of silt from the construction zone into adjacent vernal pools. Fencing shall be installed in a manner that does not impact habitats to be avoided. Final construction plans shall include photographs that show the fenced limits of impact and all areas of vernal pools to be impacted or avoided. If work inadvertently occurs beyond the fenced or demarcated limits of impact, all work shall cease until the problem has been remedied. Temporary construction fencing shall be removed upon project completion.

1. Impacts from fugitive dust that may occur during construction grading shall be avoided and minimized through watering and other appropriate measures.
2. A qualified monitoring biologist shall be on site during project construction activities to ensure compliance with all mitigation measures identified in the CEQA environmental document. The biologist shall be knowledgeable of vernal pool species biology and ecology.

   The biologist shall perform the following duties:

   a. Oversee installation of and inspect the fencing and erosion control measures within or upslope of vernal pool restoration and/or preservation areas a minimum of once per week and daily during all rain events to ensure that any breaks in the fence or erosion control measures are repaired immediately.

   b. Periodically monitor the work area to ensure that work activities do not generate excessive amounts of dust.

   c. Train all contractors and construction personnel on the biological resources associated with this project and ensure that training is implemented by construction personnel. At a minimum, training shall include (1) the purpose for resource protection; (2) a description of the vernal pool species and their habitat(s); (3) the conservation measures that must be implemented during project construction to conserve the vernal pool species, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced project footprint to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing); (4) environmentally responsible construction practices as outlined in measures 5, 6, and 7; (5) the protocol to resolve conflicts that may arise at any time during the construction process; and (6) the general provisions of the project's mitigation monitoring and reporting program.

d. Halt work, if necessary, and ensure the proper implementation of species and habitat protection measures.

e. The final report shall include as-built construction drawings with an overlay of habitat that was impacted and avoided, photographs of habitat areas that were avoided, and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conservation measures was achieved.

3. The following conditions shall be implemented during project construction:

   a. Employees shall strictly limit their activities, vehicles, equipment, and construction materials to the fenced project footprint.

   b. The project site shall be kept as clean of debris as possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from the site.

   c. Disposal or temporary placement of excess fill, brush, or other debris shall be limited to areas within the fenced project footprint.

4. All equipment maintenance, staging, parking, and dispensing of fuel, oil, coolant, or any other such activities shall occur in designated areas within the fenced project impact limits. These designated areas shall be located in previously compacted and disturbed areas to the maximum extent practicable in such a manner as to prevent any runoff from entering the vernal pools or their watersheds, and shall be shown on the construction plans. Fueling of equipment shall take place within existing paved areas greater than 100 feet from the vernal pools or their watersheds. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary. A spill kit for each piece of construction equipment shall be on site and must be used in the event of a spill. "No fueling zones" shall be designated on construction plans.

5. Grading activities immediately adjacent to vernal pools shall be timed to avoid wet weather to minimize potential impacts (e.g., siltation) to the vernal pools unless the area to be graded is at an elevation below the pools. To achieve this goal, grading adjacent to avoided pools shall comply with the following:

   a. Grading shall occur only when the soil is dry to the touch both at the surface and 1 inch below. A visual check for color differences (i.e., darker soil indicating moisture) in the soil between the surface and 1 inch below indicates the soil is dry.

   b. After a rain of greater than 0.2 inch, grading shall occur only after the soil surface has dried sufficiently as described above, and no sooner than 2 days (48 hours) after the rain event ends.

c. To prevent erosion and siltation from stormwater runoff due to unexpected rains, best management practices (BMPs) (e.g., silt fences) shall be implemented as needed during grading.

d. If rain occurs during grading, work shall stop and resume only after soils are dry, as described above.

e. Grading shall be done in a manner to prevent runoff from entering preserved vernal pools.

f. If necessary, water spraying will be conducted at a level sufficient to control fugitive dust but not to cause runoff into vernal pools.

g. If mechanized grading is necessary, grading will be performed in a manner to minimize soil compaction (i.e., use the smallest type of equipment needed to feasibly accomplish the work).

6. Permanent protective fencing shall be used along any interface with developed areas and/or other measures.. Fencing shall be shown on the development plans and should have no gates (accept to allow access for maintenance and monitoring of the biological conservation easement areas) and be designed to prevent intrusion by pets. Signage for the biological conservation easement area shall be posted and maintained at conspicuous locations. The requirement for fencing and/or other preventative measures shall be included in the project's mitigation program.

5.4 Resource Avoidance and Minimization

Resource avoidance and minimization measures shall be applied to the implementation stage and maintenance program, as applicable.

5.4.1 Western Spadefoot

Western spadefoot has been observed within 24 of the basins within the Habitat Preserve and 38 basins within the property. Adult western spadefoots burrow within clay soil cracks where they stay for much of the year, emerging to breed after significant rainfall events. Western spadefoots will be temporarily translocated from the project grading area during the rainy season prior to implementation and excluded from the project grading area during the construction period with exclusion fencing (see Section 5.5, Implementation Procedures [Sequence of Tasks]).

5.4.2 Biological Soil Crust

The site supports patches of biological (or cryptogamic) soil crust. Biological soil crust is typically composed of a complex of lichens, bryophytes, cyanobacteria, fungi and/or algae on the soil surface that functions to protect the soil surface from erosion and weed invasions. Some biological soil crusts can support special-status species, such as ashy spike-moss. The biological soil crust on site shall be

avoided during implementation, to the extent feasible. Equipment access routes and mima mound locations shall be sited to avoid undisturbed areas of biological soil crust. Where undisturbed, contiguous patches of biological soil crust occur within proposed vernal pool restoration areas, the soil crust shall be salvaged (top approximately one inch), temporarily stockpiled, and replaced on the soil surface after grading or contouring. The salvaged soil crust shall be tamped into place to form a compacted flat surface, comparable to pre-existing conditions.

5.4.3 Special-Status Plant Species

Special-status plant species shall be avoided during implementation and site maintenance. The site supports 12 special-status plant species (see Section 4.5, Special-Status Species). Ashy spike-moss is a main component of biological soil crust, and will be addressed with the avoidance and minimization measures for biological soil crust outlined above in Section 5.4.2. San Diego County Viguiera, San Diego sagewort, small flowered morning-glory, Palmer's grappling hook, willowy monardella, California adder's tongue, and chaparral rein orchid occur in areas that will not be subject to disturbance. San Diego barrel cactus and variegated dudleya are perennial species that are visible year-round and shall be avoided during implementation. San Diego goldenstar is a bulb that is typically only visible during the growing season, and best detected while blooming (usually April–May). Graceful tarplant is an annual herb that is typically visible from May through November. Areas documented to support San Diego goldenstar and graceful tarplant shall be avoided during implementation and maintenance activities. San Diego goldenstar occurs in one of the existing vernal pools slated for habitat enhancement. The habitat enhancement efforts for this basin include invasive species control, but no ground disturbance. Maintenance staff shall be trained to recognize San Diego goldenstar so that it is not disturbed during invasive species control efforts.

5.4.4 Cultural Resources

Cultural resource surveys have been conducted within the Fanita Ranch Habitat Preserve, and resources were identified. Mitigation Measure CUL-9 would avoid and mitigate potential impacts to cultural and tribal cultural resources during restoration activities conducted within the Habitat Preserve. An archaeological and Native American monitor shall be retained to monitor all ground disturbance associated with the biological restoration effort, including plant removal, seeding/planting, grading and contouring work associated with the restoration effort. The qualified archaeologist shall determine the length of monitoring which may be concluded prior to the completion of ground disturbing activities in the event the supervising archaeologist in consultation with the Native American monitor determines that monitoring is no longer required. In the event of an inadvertent cultural resource discovery at a restoration location, restoration work at that location shall be halted and the cultural resource and Mitigation Measure CUL-7 established for unanticipated discovery of cultural resources shall be followed.

5.4.5 New MSCP Covered Species Discoveries

In the event that a new occurrence of a sensitive species is identified (i.e., previously undocumented) within an area to be impacted by the project, mitigation shall be required in the form of salvage and restoration for the impact to the new occurrence. Mitigation shall occur consistent with the Draft Santee MSCP Subarea Plan.

5.5 Implementation Procedures (Sequence of Tasks)

Implementation of this Mitigation Plan will commence prior to, or concurrent with, the initiation of impacts for the Fanita Ranch project. The sequence of implementation tasks for vernal pool and upland habitats is outlined in Table 7. Initial treatment of target invasive species will occur during the growing season immediately following commencement of the Fanita Ranch project.

Table 7
Anticipated Vernal Pool and Upland Habitat Implementation Schedule

Site Preparation and Grading	Start	End
Spadefoot Toad Exclusion	TBD	TBD
Inoculum/Seed Salvage and Collection	TBD	TBD
Vernal Pool Native Plant Seed Collection	TBD	TBD
Vernal Pool Native Plant Seed Bulking Program	TBD	TBD
Site Preparation (Fence Installation, Dethatching, Invasive Removal, etc.)	TBD	TBD
Debris and Trash Removal	TBD	TBD
Plant Salvage (As Needed)	TBD	TBD
Site Contouring and Grading	TBD	TBD
Installation	**Start**	**End**
Container Planting (Vernal Pool Watersheds and Uplands)	TBD	TBD
Upland Seeding	TBD	TBD
Hydrological Testing	TBD	TBD
Introduction of Vernal Pool Flora and Fauna (Inoculum) and Seed Application	TBD	TBD
120-day Plant Establishment Period	TBD	TBD

Notes: TBD = to be determined based on the results of the hydrologic testing and agency approval.

Implementation Tasks:

1. A preconstruction survey for spadefoot toad will be conducted prior to soil disturbance by a qualified biologist using methodology acceptable to the City and CDFW. Any spadefoot toads encountered will be temporarily translocated from the project grading area. The perimeter of the work area shall be delineated with exclusion fencing (e.g., trenched silt fence) to prevent spadefoot from re-entering the grading area during grading. The exclusion fencing shall be maintained until construction begins and through the duration of the construction period.

2. The project biologist will collect vernal pool inoculum from the donor pools at the Fanita Ranch project site. No more than 10% of the surface of each donor basin will be collected to a depth of no more than 2 inches. The collected soil from fairy shrimp occupied donor pools will be kept separate. All other inoculum will be combined to increase the diversity of plant species within the inoculum. The intent of mixing the inoculum soil is to promote the maximum diversity of vernal pool endemic plant species to be expressed in the restored pools. The soil from each basin will be stored individually in labeled boxes that are adequately ventilated and kept dry. During grading activities, the boxes will be temporarily stored off site at an appropriate facility. The soil will be divided for inoculation based on the general size of the restoration pools. Thus, larger restoration pools will receive a greater quantity of inoculum soil than the smaller restoration pools. The City, CDFW, and USFWS shall approve grading prior to spreading inoculum. Inoculum from San Diego Fairy Shrimp occupied pools will be spread only once pools are demonstrated to retain water for at least 21 to 28 days and they have been surveyed for versatile fairy shrimp to the satisfaction of the City, CDFW, and USFWS. Inoculum soil will be spread evenly, no more than 0.25 inch deep, across the deeper portions of each restored pool. Inoculum shall be placed into the bottoms of the restored/enhanced pools in a manner that preserves, to the maximum extent possible, the viability of plant seeds within the surface layer of soil (e.g., collected inoculum shall be shallowly distributed within the pond so that seeds have the potential to germinate upon inundation).
3. Native seed collection from vernal pool indicator species will be conducted by the project biologist at the mitigation site prior to any dethatching, clearing, or grading of the site. The collected seed will be cleaned, dried, and temporarily stored until site preparation and grading are complete. At that point, the seed will be used to revegetate the mitigation site or will be used to propagate plants in the greenhouse.
4. Perimeter fencing and signage will be installed as discussed in Section 5.7, Fencing and Signage, and as designated on the final construction documents.
5. Native vegetation, within the limits of grading for the restored vernal pools will be salvaged and/or cut and mulched as deemed appropriate by the project biologist, for reuse within the restoration area.
6. The entire mitigation site (uplands, vernal pools, etc.) will be weeded by the restoration contractor using chemical, mechanical, or other means approved by the Project Biologist and City prior to grading to control non-native plant species. Following initial weed control, non-native thatch and weed material will be removed and disposed of off site. Weed management procedures will be continued for the duration of project installation until deemed by the project biologist as being appropriately controlled for seeding.

7. Prior to any grading/excavation, temporary T-post and rope fencing and biodegradable fiber rolls will be installed around the perimeter of the existing vernal pools to prevent inadvertent disturbance and deposition of soil and dust within the existing vernal pools.
8. The re-establishment basins will be excavated (mechanical and/or by hand) and the adjacent mima mound topography will be restored. The basins and mima mounds will be contoured to have a natural form as shown on the grading plans and construction documents, which is comparable to that of the existing basins and mima mounds on the Fanita Ranch project site.
9. The rehabilitation basins will be contoured to remove road ruts and slightly deepen and shape vernal pools to develop a natural form as shown on the grading plans.
10. Soil compaction analysis will be performed on re-establishment and rehabilitation pools and compare against existing pools. Soil compaction within the restored pool will be similar to the soil compaction within the existing pools (i.e., no more than a 5% variation).
11. After soil compaction analysis, it may be necessary to further compact the soil within the restored vernal pool basins to the appropriate level. Soil will be compacted using a hand tamper or mechanical compactor. Subsequent soil compaction analyses shall follow to verify that the appropriate compaction has been achieved.
12. Larger cobbles will be placed in basins to be used as stepping stones during monitoring.
13. The dirt access road and foot paths within the mitigation area will be ripped, with the exception of the proposed vernal pool restoration sites. The soils will be ripped to a 12-inch depth as possible to facilitate decompaction and revegetation.
14. The silt fence barrier installed as part of spadefoot toad exclusions will be removed.
15. Container plants will be installed in uplands and on mima mounds in accordance with the planting plans.
16. Native seed mix will be applied and container plants will be installed on newly restored mima mounds. Also, native seed mix will be applied within designated enhancement areas within the surrounding upland habitat.
17. The salvaged vernal pool inoculum will be applied to the restored vernal pools once ponding is observed for a minimum of 21 days.
18. Upon successful completion of the initial restoration phase, biological monitoring and maintenance will be initiated and continued for 5-6 years as described later in this Mitigation Plan.

Note: The actual dates for implementation of these tasks will be determined based on seasonal weather constraints and through coordination with the City and resource agencies. All restoration

work involving soil manipulation shall be conducted during the dry season prior to the onset of the rainy season. See Table 7 above for details on implementation of tasks.

5.6 Topographic Reconstruction

The capacity to capture and store water has been compromised in locations proposed for vernal pool restoration. These areas will be contoured to enhance the attributes of vernal pool/mima mound topography. Surrounding topography will be left undisturbed. Topographic grading plans with 0.5-foot contours were prepared for the vernal pool area as part of the final restoration construction document package.

Excavation (mechanical and/or hand) of the bottom of the vernal pool restoration areas will function to increase the water holding capacity of the individual basins. In addition, soil compaction analysis will be conducted on the existing pools and the restored pools to determine optimal soil conditions to facilitate long-term water retention to support the desired vernal pool habitat. In order to restore the water holding capacity of the restored pools to that of the existing pools, the soils within the restored pool may need to be compacted in order to match the soil compaction within the existing pools.

A qualified biologist/habitat restoration specialist will supervise the restoration grading activities. Grading of the restoration site will be conducted during the summer and early fall in order to minimize soil disturbance during the rainy season when vernal pools fill with water. The grading plans will identify the limits of grading, as well as those areas of existing habitat that are not to be impacted by the restoration activities and that would be protected/preserved.

Vernal pool restoration areas shall be defined by temporary markers (staking, flagging, silt fencing, etc.) prior to initiation of the grading activities. Silt fencing will be installed around the perimeter of adjacent existing vernal pools during construction and during the weed control procedures, to help protect the pools from wind-blown seed invasion and siltation. The silt fencing will be removed after all initial weed control and installation procedures are complete.

5.7 Fencing and Signage

In accordance with the Draft Santee MSCP Subarea Plan, site-appropriate fencing and access controls will be installed to protect the resources on site. Exclusionary fencing will be installed and maintained, beginning with the commencement of grading to ensure the exclusion of disturbances including off-road vehicles, foot traffic, transient activity, and/or mountain bikes through the mitigation area. Fencing will consist of chain link fencing with gated access points. No vehicular access will be allowed through the mitigation area after completion of restoration work.

If problems are identified, recommendations for repair or replacement will be made and implemented (e.g., replacement of locks, gates, signs, or fence repairs).

5.8 Final Landscape and Revegetation Plans

A final set of landscape construction documents including a grading plan, irrigation plan, planting plan, and details and specifications acceptable for construction have been prepared by a registered landscape architect with experience designing vernal pool restoration projects. The final plans will be submitted to the City and resource agencies prior to implementation of the mitigation program. Implementation of the landscape construction documents will be coordinated among the resource agencies, City, project biologist, landscape architect, landscape contractor, and plant material suppliers.

The contracting nursery and seed collectors will be given the maximum possible lead time (i.e., no less than 12 months prior to actual seed application) to salvage, collect seed, store and to prepare plant material for the project in order to assure availability and minimize cost. No more than 5% of seed shall be collected from plants that will be undisturbed. In areas that will be disturbed due to proposed restoration activities (e.g., restored vernal pools and associated mima mound locations), 100% of native seed may be collected. Field coordination shall be provided by the revegetation specialist or project biologist to verify the sources for plant material propagation and for construction of the restoration areas. Coordination also will be essential for successful salvage, storage, and eventual replanting of salvaged native plant materials.

The selection of species to be planted within the Fanita Ranch Habitat Preserve is based on the known native plant species currently present within the site as well as native species expected on site based on the site location. Species to be seeded in the restored coastal sage areas are shown on Table 8. Species to be seeded in valley needlegrass grassland and coastal sage scrub – valley needlegrass grassland areas are shown in Tables 9 and 10. Species to be seeded in vernal pools are shown in Table 11.

Table 8
Diegan Coastal Sage Scrub Seed Mix

Scientific Name	Common Name	Pure Live Seed	Pounds per Acre
Acmispon glaber	deerweed	24	2.0
Artemisia californica	California sagebrush	9	6.0
Castilleja exserta	purple owl's clover	25	1.0
Eriogonum fasciculatum	California buckwheat	7	5.0
Eriophyllum confertiflorum	golden yarrow	26	2.0
Eschscholzia californica	California poppy	71	4.0
Hazardia squarrosa	sawtooth goldenbush	2	2.0
Isocoma menziesii	coastal goldenbush	8	2.0

Table 8
Diegan Coastal Sage Scrub Seed Mix

Scientific Name	Common Name	Pure Live Seed	Pounds per Acre
Peritoma arborea	bladderpod	58	2.0
Rhamnus crocea	redberry buckthorn	76	2.0
Salvia apiana	white sage	43	3.0
Salvia columbariae	chia	54	2.0
Salvia mellifera	black sage	40	4.0
Stipa pulchra	purple needlegrass	42	1.0
		Total	**38**

Note: The Diegan coastal sage scrub seed palette will be used in locations of upland enhancement within existing Diegan coastal sage scrub habitat.

Table 9
Valley Needlegrass Grassland Seed Mix

Scientific Name	Common Name	Pure Live Seed	Pounds per Acre
Stipa pulchra	purple needlegrass	24	2.0
Bloomeria crocea	common goldenstar	10	8.0
Bloomeria clevelandii	San Diego goldenstar	9	5.0
Sisyrinchium bellum	blue eyed grass	76	2.0
Plantago erecta	dot-seed plantain	54	3.0
Lasthenia californica	goldfields	71	2.0
Antirrhinum coulterianum	Coulter's snapdragon	2	3.0
Cordylanthus rigidus	rigid bird's beak	57	1.0
Castilleja exserta	owl's clover	57	2.0
Collinsia concolor	Chinese houses	45	3.0
Collinsia heterophylla	purple Chinese houses	40	3.0
		Total	**34**

Table 10
Diegan Coastal Sage Scrub–Valley Needlegrass Grassland Seed Mix

Scientific Name	Common Name	Pure Live Seed	Pounds per Acre
Artemisia californica	California sagebrush	9	2.0
Eriogonum fasciculatum	California buckwheat	7	8.0
Eschscholzia californica	California poppy	71	2.0
Isocoma menziesii	coastal goldenbush	8	1.0
Lotus scoparius	deerweed	24	3.0
Salvia mellifera	black sage	40	2.0
Stipa pulchra	purple needlegrass	76	2.0
		Total	**20**

Table 11
Vernal Pool Seed Mix

Botanical Name	Common Name	Pounds/Acre[1]
Callitriche marginata	water starwort	1.0
Crassula aquatica	common pygmy-weed	0.5
Deschampsia danthonioides	graceful hairgrass	4.0
Elatine brachysperma	waterwort	1.0
Elatine californica	waterwort	1.0
Eleocharis macrostachya	pale spikerush	0.5
Juncus bufonius	toadrush	0.1
Plantago elongata (bigelovii)	vernal pool plantain	0.5
Pogogyne abramsii	San Diego mesa mint	0.5
Psilocarphus brevissimus	woolly marbles	2.0
	Total	**11.1**

Notes:
[1] Seed from vernal pool species will be collected locally and opportunistically. Therefore, seed purity and germination percentage will not be determined for these species. Additionally, the recommended pounds per acre should only be used as a guide, as not all of these species or quantities may be available on site or at approved locations nearby.

Inoculum from the Fanita Ranch project site donor vernal pools will be collected by the project biologist for redistribution within the restored vernal pools when the grading and contouring of the restored basins is complete. The inoculum is expected to contain propagules of vernal pool endemic plant species and vernal pool crustaceans. If initial seed collections and inoculum are not sufficient to develop the target vernal pool flora, seed collection from native vernal pool indicator species and seed bulking programs will be implemented as an adaptive management measure. All seed collection from existing vernal pools will be overseen by a qualified biologist or habitat restoration specialist to ensure the collection of appropriate desirable species. The source and proof of local origin of all plant material and seed shall be provided to the habitat restoration specialist.

Planting at the site will be accomplished during the late fall of the implementation year prior to winter rainfall. Any native plant material salvaged prior to grading will be transplanted onto the new mima mounds and adjacent uplands. Organic mulch shall be used around all salvaged/relocated plant material. The new and enhanced mima mounds will be seeded with seed collected from local sources within 25 miles of the coast (southwest San Diego County). The species list was compiled based on the composition of existing pools and adjacent native upland vegetation. Seeding, planting, and inoculum distribution shall be timed to take advantage of seasonal rainfall patterns and will be performed ideally between November 1 and January 1.

A seed supplier specializing in native species, such as S&S Seeds in Carpinteria, or an approved equal, will be contracted to supply the necessary upland plant species seed. The City or the designated restoration contractor shall make these arrangements with sufficient lead time for the anticipated implementation date.

5.9 As-Built Conditions

An initial completion report documenting as-built conditions will be submitted to the City within 6 weeks of completion of the installation. The report will include a marked-up duplicate copy of the planting plan drawing showing the final configuration of the restoration area. Photographs also will be included to document the final "as-built" field conditions. A final GPS map showing the final boundaries of all restoration areas shall also be provided. This map would also be used as a reference figure during the long-term maintenance and monitoring period.

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6 MAINTENANCE DURING MONITORING PERIOD

The purpose of the maintenance program is to provide guidelines for maintenance of the restored habitats during an initial 120-day plant establishment period and then throughout the 6-year maintenance and monitoring period. Because the goal of the restoration program is to create a natural system that can ultimately support itself with minimal maintenance, the primary effort of the maintenance program is concentrated in the first few seasons of growth to control non-native plant species and to help the desired species become established. Maintenance will focus initially on addressing remedial measures to help achieve the success standards. Maintenance of the fencing and signage on the perimeter of the site will be required throughout the 6-year maintenance period.

6.1 Maintenance Activities

Non-native plant species are common within the proposed restoration area. The predominant maintenance work effort will be related to management and control of non-native plant species. Weed control efforts will include a combination of physical removal, and/or herbicide applications where appropriate and legal according to herbicide restrictions. Any weeding within or adjacent to vernal pools will be performed by hand. All workers conducting weed removal activities shall be educated to distinguish between native and non-native species so that local native plants are not inadvertently killed by weed removal activities. Any herbicide use shall be under the direction of a licensed pest control advisor, applied by a licensed applicator, and coordinated with the project biologist to ensure that vernal pools and desirable vegetation is not inadvertently damaged from herbicide overspray. Any herbicide use shall be consistent with the standard restrictions, which require low pressure application, restrict use when wind speed is greater than 5 miles per hour, and require a 10-foot buffer between concentrations of sensitive plant species. Additionally, the application of herbicide shall not occur if rain is projected within 24 hours of the scheduled application. When vernal pools are ponding or close to saturation, only hand herbicide application (i.e., saturated glove technique) shall be used in and around the edges of pools by specially trained herbicide applicators under the direct supervision of the vernal pool restoration specialist. When vernal pools are not ponding or close to saturation, herbicide may be sprayed but applicators must stay at least 3 feet from the edge of the pools.

The non-native plant species within Table 12 are documented at the Fanita Ranch project site. All of non-native species documented in existing vernal pools are annuals; therefore, effective control will rely on minimizing seed production. Many of these species are ubiquitous, and complete control will not be feasible (e.g., filaree, rattail fescue). Further, some of these species may not pose a considerable threat to the establishment and successful function of the vernal pool and mima mound habitat (e.g., narrow-leaf cottonrose [*Logfia gallica*]). While maintenance efforts will attempt to address all non-native species, the focus of the weed control efforts shall be on those species that present the greatest threat to the success of the project. Those species include those

listed on the California Invasive Plant Council's (Cal-IPC) California Invasive Plant Inventory Database (Cal-IPC 2017) that have a moderate to high rating for threat to natural lands (Table 12).

Table 12
Non-Native Plant Species Documented within the Habitat Preserve

Scientific Name	Common Name	Cal-IPC Rating
Carpobrotus edulis	hottentot fig	High
Dittrichia graveolens	stinkwort	Moderate
Festuca myuros	rattail sixweeks grass	Moderate
Bromus hordeaceus	soft chess brome	Limited
Erodium cicutarium	red stemmed filaree	Limited
Hypochaeris glabra	smooth cat's ear	Limited
Lythrum hyssopifolium	hyssop loosestrife	Limited
Polypogon monspeliensis	annual beard grass	Limited
Bromus madritensis	foxtail brome	Not Listed
Logfia gallica	narrowleaf cottonrose	Not Listed

Note: Cal-IPC = California Invasive Plant Council.

Weed control efforts will be conducted early in the growing season prior to seed set and dispersal. Thus, the maintenance visits will be closely spaced during the winter and early spring when the annual weed species are developing seed. Weed control efforts will likely be minimal in summer and fall when the annual weeds have died.

Supplemental watering through the temporary irrigation system may occur in the uplands and vernal pool watershed areas. Supplemental watering to hydrate the vernal pools is not anticipated. However, in the event that natural rain is inadequate to support plant establishment, artificial watering of the restored/enhanced pools and their watersheds may be done upon approval by the City, CDFW and USFWS in order to establish plants but not hydrate fairy shrimp. Any artificial watering shall be done in a manner that prevents ponding in the pools. Any water to be used shall be identified and documented to be free of contaminants that could harm the pools.

The fencing and signage will be checked and repaired as necessary, and any trash and debris present in the mitigation area will be removed on a quarterly basis.

6.2 Responsible Parties

HomeFed is responsible for initiating and funding all maintenance and monitoring requirements during the 6-year program. They shall be responsible for hiring a qualified landscape maintenance contractor to carry out all maintenance work and for hiring a qualified biological monitor to carry out the monitoring program for the duration of the 6-year period.

6.3 Schedule

Maintenance activities will be conducted monthly during the initial 120-day plant establishment period, at a minimum, and then a minimum of four times per year thereafter for the remainder of the 6-year maintenance and monitoring period for vernal pools. Maintenance visits will be timed to be conducted during the most productive and effective time of year for weed control (e.g., winter and early spring).

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7 MONITORING PLAN

The following monitoring methods shall be implemented as part of the long-term biological monitoring program. The monitoring period is planned for seven years.

7.1 Qualitative Monitoring

Qualitative monitoring of vernal pools, associated upland habitats will consist of general site assessments, inspection of vegetation health and establishment, special status wildlife use, and documentation of disturbance. Qualitative monitoring will occur every two weeks during the 120 day establishment period, monthly during the growing season (approximately February through June) and quarterly during the dormant season of the first and second year. Qualitative monitoring will occur quarterly in years 3 through 7.

Site assessments will include photo documentation from permanent photo documentation stations. Permanent photo documentation stations will be located at the reference pools and all restored (re-established and rehabilitated) pools.

Color photographs will be taken throughout the five year monitoring period to record establishment in accordance with the following schedule:

- Prior to planting/seeding
- Immediately after planting/seeding
- After the first heavy rain leading to vernal pool ponding/inundation
- Once annually during the flowering period of vernal pool indicator species

These photographs will be included in the annual reports.

Qualitative monitoring will also produce maintenance recommendations for the restoration contractor. Maintenance notes will include the health of container plants, status of seed mix establishment, status of ponding, pest problems, erosion issues, disturbance, and non-native species occurrence. The results of qualitative monitoring events and relevant maintenance observations and/or recommendations will be recorded in a site observation report, and distributed to the City and the approved maintenance contractor. All significant observations will be included in the annual monitoring report.

7.2 Quantitative Monitoring

Quantitative monitoring will be used to assess vegetation establishment within the restored vernal pools, upland watershed areas, as well as the hydrologic function of the restored vernal pools.

Additionally, to ensure that the implementation of the restoration project does not adversely affect the existing vernal pools on site, monitoring shall be conducted within the enhanced vernal pools to verify that avoidance measures were successful and determine whether the restoration project is negatively affecting the hydrology of, or causing erosion and sediment delivery to, the existing vernal pools (based on preconstruction conditions).

7.2.1 Vernal Pools

Species richness, presence of indicator species, and cover of native and non-native plant species will be monitored within the reference and restored/enhanced vernal pools on an annual basis during peak phenology of vernal pool plant species. Each pool will be assigned a unique code, marked in the field, and mapped using a GPS unit. Permanent transects will be established within each reference and restored/enhanced vernal pool, extending from one end to the other and passing through the deepest section. Quadrats will be placed every other meter along each transect to estimate percent cover by species to the nearest 5%. Annual monitoring of vernal pool plant species will be done at the peak of the vernal pool plant growing season once soils are dry enough that pedestrian traffic is unlikely to damage vernal pool microtopography.

7.2.1.1 Hydrology

A battery-operated electronic rain gauge shall be installed on site to derive local precipitation data. Additionally, precipitation measurements will be determined from the closest reliable regional location to verify on-site results. The precipitation levels for each season shall be calculated on an annual basis from October 1 through September 30. Daily precipitation measurements shall be collected and recorded in a project database.

Water depth, ponding duration, frequency of inundation, and water quality (e.g., pH, temperature, total dissolved solids, and salinity) will be monitored within the reference pools and compared with the restored and enhanced pools. The restored/enhanced pools will be mapped with a GPS unit to determine the extent of potential water inundation. In addition, a depth gauge will be temporarily installed at the lowest elevation of the restored pools to measure maximum retained water depth. The gauge will be marked so that water depth can be read from the pool edge. Within 48 hours of each rainfall event of more than 0.5 inch, the pool water depth will be recorded, unless additional rainfall occurs within the 48-hour period. While the basins are inundated, the water depth will be recorded weekly until the pools dry out. Measurement instruments (e.g., thermochron iButtons) may be used to supplement physical site visits and water inundation data collection.

Each year, a water-depth versus time graph will be prepared for each of the reference pools and the restored/enhanced vernal pools. This should provide an adequate comparison regarding the hydrologic functioning of the existing and restored/enhanced vernal pools and provide an average of the period of typical inundation.

7.2.1.2 Fairy Shrimp

The baseline fairy shrimp population shall be evaluated prior to re-habilitation and enhancement activities to the occupied pools on site. During the wet season prior to disturbance, the fairy shrimp population in the occupied pools shall be evaluated to determine the density of hatched fairy shrimp (per unit volume sampled) and the gravid female density (as a percentage of the total). Additionally, during the dry season prior to disturbance, dry season samples shall be collected from within the occupied basins to estimate average density of viable cysts in the soils. These measurements will form the baseline estimate of the fairy shrimp presence. If the basins do not stay inundated for a long enough period for fairy shrimp to hatch, the baseline for fairy shrimp presence will be established from the dry season samples prior to implementation. These same measurements shall be conducted at the six occupied pools each year of the monitoring program to document persistence of the fairy shrimp population.

Presence or absence of fairy shrimp in re-establishment pools that receive inoculum from on-site San Diego fairy shrimp occupied pools will be recorded during each wet season and included in each annual report.

7.2.2 Upland Watershed Areas

Point intercept transects will be used to collect species richness, and cover of native and non-native plant species. Ten transects measuring 25-meters in length will be randomly placed throughout the upland restoration and enhancement areas (stratified by habitat type). Transects will be permanently marked in the field using t-posts or rebar stakes, and their endpoints will be recorded using a GPS. All species occurring within a 4-meter species richness belt, 2 meters on either side of the transect tape, will be recorded for inclusion in species richness data. Native cover, non-native cover, and species richness will be calculated for upland areas.

7.3 Adaptive Management

If annual success criteria are not being met, or the project biologist observes that some aspect of the mitigation program requires attention, adaptive measures will be implemented by the restoration contractor. Adaptive measures for vernal pool restoration include but are not limited to: collecting and adding additional vernal pool soil inoculum, recontouring of non-functioning pools, improving weed control execution, and re-seeding or replanting. Any adaptive measures with potential impacts to vernal pools (i.e., recontouring) must be approved by the resource agencies prior to implementation. Adaptive measures not requiring agency approval shall be implemented immediately and no later than 60-days of the recommendation by the project biologist.

7.4 Annual Reports

Annual reports will include information regarding all persons involved in the collection of data and the preparation of the reports. The report shall include a copy of all pertinent permits which may be required, including any special conditions and/or modifications. The reports will contain analysis of all monitoring data relative to success criteria, photos from permanent photo points, and GPS maps/figures showing the mitigation site. The annual reports will be submitted at the annual anniversary of installation in each monitoring year, so there is adequate lead time to implement remedial recommendation prior to the next growing season.

8 FINAL SUCCESS CRITERIA AND PERFORMANCE STANDARDS

The final success criteria and interim performance standards outlined herein will be used to determine fulfillment of the project's mitigation obligations. Fulfillment of these criteria and standards should help demonstrate that the mitigation area is progressing toward the habitat types, functions, and values that constitute the long-term goals of the mitigation effort.

8.1 Target Habitat Functions

The goal of the restoration and enhancement effort is to create self-sustaining vernal pools, associated vernal pool watersheds, and upland habitat, which exhibit improved functions and services compared to the existing vernal pools and upland habitat within the Fanita Ranch Habitat Preserve. Upland habitat will be improved through initial removal of invasive plant species and continued maintenance to encourage development of higher quality habitat dominated by native species. The mitigation program intends to modify topography on the mesa to support vernal pool hydrology and the intended vernal pool target species.

Measurement of the improved functions and services for vernal pools will be completed using CRAM. Target function and services.

8.2 Target Vernal Pool Hydrological Regime

Previous habitat disturbances, including vehicular activity, illegal dumping, human visitation, and non-native plant invasion, have reduced the extent and biological functions of the assumed former vernal pool and mima mound area within the Fanita Ranch Habitat Preserve. The degraded areas at the intended restoration sites do not currently retain sufficient water, nor stay in an undisturbed condition for a sufficient period, to support vernal pool plant species. As described previously, the existing depressions will be excavated to remove sediment and the excavated material will be used to supplement or form new mima mounds adjacent to the restored vernal pools. It is anticipated that the restoration of the vernal pool basins and adjacent mima mound topography will result in improved hydrologic conditions, with better retention of surface water within the restored basins for greater than 14 days, a period sufficient to sustain the vernal pool target species.

8.3 Target Vernal Pool Mitigation Acreage

The Habitat Preserve has a capacity for approximately 2.92 acres of vernal pool mitigation, including 0.82 acre of re-establishment and 1.85 acres of establishment. Implementation of the Mitigation Plan will restore and enhance the full capacity of vernal pool habitat at the Fanita Ranch site. These acreage estimates may be modified during the preparation of construction documents when the site capacity for grading, soil excavations, and mounding are carefully calculated and designed in the context of sensitive resources and existing vernal pools. However, the target mitigation acreage is approximately 2.92 acres as described in this Mitigation Plan.

8.4 Performance Standards

The variability of seasonal rainfall patterns in the project region and the dependence of the vernal pool communities on precipitation and inundation for an appropriate period to encourage plant growth, makes it likely that the vernal pools will progress toward the final performance standards on average, but with significant inter-annual variability during the 6-year program. The annual performance standards proposed herein are both quantitative and qualitative, with an emphasis on vernal pool hydrology and achievement of vernal pool plant associations similar to the conditions of the existing pools within the Fanita Ranch Habitat Preserve. At the completion of each field season, hydrology and species cover will be evaluated to determine the progress towards plant establishment and the achievement of the final success criteria. The final assessment of the success of the restored vernal pool and mima mound habitat will be based on the achievement of the target performance criteria/standards and a determination of plant establishment within the mitigation area. This approach represents an adaptive restoration strategy that would be responsive to natural variation. The mitigation, maintenance, and monitoring program would be altered as necessary to respond to changing conditions and to help guide the project in an appropriate direction to help assure success.

The following target performance standards are guidelines to assess the success of the restored vernal pool and mima mound habitat, and adjacent upland habitat. These performance standards may be modified in coordination with the regulatory agencies if needed. This program requires that all vernal pools to be avoided and their watersheds are enhanced, as deemed appropriate by CDFW and USFWS, to achieve the same success criteria or better as the restored pools. Therefore the success criteria apply to all vernal pools that will be enhanced and restored.

8.4.1 Vernal Pool Habitat Performance Standards and Success Criteria

Performance standards for the vernal pool habitat will be evaluated with CRAM (for ecological functions and services) and with traditional species composition and native cover goals. Ecological performance standards, species composition, and cover goals are provided in Table 13.

Table 13
Summary of Interim Performance Standards and
Final Success Criteria for Restored Vernal Pools

Year	Minimum No. of Vernal Pool Indicator Species Present on Average for Restored Pools (Species Richness)[1]	Native Cover Relative to Reference Pools on Average for Restored and Enhanced Pools	Non-native Species Cover
1	1	30%	• <5% total relative cover in pool basins • <10% total relative cover in pool watersheds • <1% Cal-IPC rated high or moderate

Table 13
Summary of Interim Performance Standards and
Final Success Criteria for Restored Vernal Pools

Year	Minimum No. of Vernal Pool Indicator Species Present on Average for Restored Pools (Species Richness)[1]	Native Cover Relative to Reference Pools on Average for Restored and Enhanced Pools	Non-native Species Cover
2	2	40%	• <5% total relative cover in pool basins • <10% total relative cover in pool watersheds • <1% Cal-IPC rated high or moderate
3	3	50%	• <5% total relative cover in pool basins • <10% total relative cover in pool watersheds • <1% Cal-IPC rated high or moderate
4	3	60%	• <5% total relative cover in pool basins • <10% total relative cover in pool watersheds • <1% Cal-IPC rated high or moderate
5	3	70%	• <5% total relative cover in pool basins • <10% total relative cover in pool watersheds • <1% Cal-IPC rated high or moderate
6	4	70%	• <5% total relative cover in pool basins • <10% total relative cover in pool watersheds • <1% Cal-IPC rated high or moderate
7	4	70%	• <5% total relative cover in pool basins • <10% total relative cover in pool watersheds • <1% Cal-IPC rated high or moderate

Note:
[1] A minimum of two vernal pool indicator species will be required within each restored pool by year seven. Floral and faunal indicators are counted toward this criteria.

The pool hydrology, (i.e., water retention and water depth) of the restored vernal pools shall be similar to that of the highest functioning existing vernal pools within the Fanita Ranch Habitat Preserve. The restored pools shall pond for a period of time similarly to reference vernal pools during an average rainfall year. At a minimum, the re-established vernal pools must be documented to stay inundated for a period of 14 consecutive days for 3 years during the monitoring period, should a minimum of 3 years of average or above average rainfall occur during the monitoring period.

The basis for the threshold quantity of vernal pool indicator species will be derived from analyzing the data from the existing reference vernal pools. These will be determined during finalization of this Mitigation Plan.

For the vernal pools subject to enhancement efforts, performance standards are the same as the restored vernal pools in terms of percent native cover and percent non-native cover. Performance standards for vernal pool indicator species and hydrology do not apply to the vernal pools to be enhanced since enhancement actions are only expected to have a meaningful effect on native and non-native plant species cover.

The final success criteria are expected to be met by Year 5 of the maintenance and monitoring period. However, the maintenance and monitoring period extends through Year 7 as shown in Table 13. Therefore, the performance standards in Years 6 and 7 are the same as the final success criteria. The final 2 years of maintenance and monitoring are intended to assure that the vernal pool mitigation is sustainable in accordance with requirements from the RWQCB.

8.4.2 San Diego Fairy Shrimp Performance Standards

San Diego fairy shrimp have been documented in 38 of the 131 basins within the Habitat Preserve. Five of these occur within a dirt road and have been identified for re-habilitation, and the sixth consists of a constructed trench, which has also been identified for re-habilitation. Therefore, San Diego fairy shrimp performance standards are included to address the vernal pools where San Diego fairy shrimp are present. In addition to the existing occupied pools, inoculum sourced from San Diego fairy shrimp occupied pools on the Fanita Ranch site will be spread within re-established pools with suitable conditions to support San Diego fairy shrimp life history. Status of San Diego Fairy Shrimp in inoculated pools will be included in each annual report. Follow up voluntary inoculation effort may be performed at the discretion of the Project Biologist and City in coordination with the Wildlife Agencies.

Baseline measurements of the on-site fairy shrimp population are described in Section 7, Monitoring Plan. Dry sampling shall occur in the first year of the restoration monitoring program to establish a baseline, and the last year to identify changes to viable cyst density. After implementation of the vernal pool restoration, hatched fairy shrimp and gravid female density of the occupied vernal pools must not be significantly ($p < 0.05$) less than the baseline measurements of these parameters within these same pools for at least three wet seasons. Additionally, average viable cyst density of the occupied pools must not be significantly ($p < 0.05$) less than the baseline measurement of this same parameter at the end of the monitoring period.

8.4.3 Western Spadefoot Performance Standards

Western spadefoot have been documented in 24 of the 131 basins within the Habitat Preserve and 14 of the 111 impacted basins. This translates into a maximum occupation of 16% of the basins, as not all basins were occupied every year. During the wet season prior to grading or contouring operations, biologists shall collect western spadefoot adults from areas within 300 meters of known occupied

pools. Adults shall either be held by a Wildlife Agency approved biologist to be released back into the site after construction activities using standard methods, or they shall be relocated to another area on the Fanita Ranch Project site that has suitable breeding habitat and few or no western spadefoot individuals. The goal is to maintain a breeding western spadefoot toad population within a similar ratio of basins by the end of the 6-year monitoring period (i.e., at least 16% of the basins).

Monitoring will include sampling of the basins during the yearly monitoring efforts. This is a simple occupation determination and density determinations are not required. Adults, juveniles, larvae, and eggs clutches all are indicators of use. If after the survey, at least 16% of the filled basins are not used/occupied by western spadefoot, then a review of the pools will be made to determine the possible reasons for not meeting the goal. Measures will be taken to correct the perceived issue during that dry season and monitoring will continue the following year. It may take some time for western spadefoot to locate and use the full extent of the basin area after enhancement and creations occur. Therefore, no actual management should occur until after the third year of not meeting the 16% criteria. Success is identified after 16% of the basins are occupied for at least 2 years within a 5-year period.

Any basins that are found to support African clawed frogs or bullfrogs will be immediately controlled. Control will include manual removal of non-native amphibian egg masses, larvae, and adults. Care will be taken to protect native amphibians (See Section 4.2.7.2 in the Preserve Management Plan, Appendix P, of the Biological Technical Report for the Fanita Ranch Project (Dudek 2020a)).

8.4.4 Upland Watershed Habitat Performance Standards

The stated performance standards for upland habitat are intended to be achieved with a 5-year maintenance and monitoring period. Upland habitat development, including the mima mounds forming vernal pool watersheds, will be evaluated annually to determine conformance to goals for species richness, native cover, and non-native cover. If upland performance standards are not achieved with a 5-year period, maintenance and monitoring will be extended until success criteria are achieved. Native species cover success criteria for "Container Planting Areas" are relevant to locations that receive container planting in addition to seed. "Seeding Areas" native species cover criteria are relevant for locations that receive only native seed. Native species richness and non-native species cover requirements are relevant to all areas that receive seed or container plants. Success criteria are provided in Table 14.

Table 14
Summary of Upland Habitat Restoration Success Criteria

Year	Native Species Richness	Native Species Cover (Absolute) Container Planting Areas	Native Species Cover (Absolute) Seeding Areas	Container Plant Survival	Non-Native Species Cover
1	5	20%	10%	100%[1]	<10% total relative cover 0% Cal-IPC rated high or moderate
2	6	30%	15%	100%[1]	<10% total relative cover 0% Cal-IPC rated high or moderate
3	7	40%	20%	90%	<10% total relative cover 0% Cal-IPC rated high or moderate
4	8	50%	25%	80%	<10% total relative cover 0% Cal-IPC rated high or moderate
5	8	60%	30%	80%	<10% total relative cover 0% Cal-IPC rated high or moderate

Notes: Cal-IPC = California Invasive Plant Council.
[1] Natural recruitment of native perennial species may be counted toward the survival goal if adequate replacement of container plant function has occurred.

9 COMPLETION OF MITIGATION

When monitoring indicates the project has met the final performance criteria for the site, HomeFed will notify the resource agencies upon submitting the last annual report and request written approval of the project. Any corresponding mitigation-related bonds will be requested to be released.

9.1 Notification of Completion

Upon completion of the maintenance and monitoring period, if the target success criteria and performance standards have been achieved (6-year for vernal pool restoration areas and 5-year for upland restoration areas), notification of completion will be included within the final annual report submitted to the City. The final report also will include documentation that the vernal pool restoration success criteria have been met. The City will confirm if success criteria have been adequately achieved and if the maintenance and monitoring period can be discontinued. The City, CDFW, RWQCB, ACOE, and USFWS shall provide written concurrence of project completion as appropriate.

If a performance criterion is not met for any of the restored/enhanced vernal pools, or upland habitat in any year, or if the final success criteria are not met, the project proponent shall prepare an analysis of the cause(s) of failure and, if deemed necessary by the City, CDFW, RWQCB, ACOE or USFWS, propose remedial actions for approval. If any of the restored/enhanced vernal pools, or upland habitat has not met a performance criterion during the initial monitoring and maintenance period, the maintenance and monitoring obligations shall continue until the City, CDFW, RWQCB ACOE and USFWS deem the restoration/enhancement successful. Contingency measures may be required by the City, CDFW, RWQCB, ACOE and/or USFWS. Restoration/enhancement shall not be deemed successful until success criteria are achieved. If contingency measures are required, restoration/enhancement shall not be deemed successful until at least 2 years after any required contingency measures are implemented, as determined by the City and regulatory and Wildlife Agencies.

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10 LONG-TERM MANAGEMENT

Since the mitigation site occurs within the project's Habitat Preserve, which will be designated through a formal conservation easement as part of the MSCP open space, management activities within the Habitat Preserve will be conducted in perpetuity by the Preserve Manager in accordance with the Preserve Management Plan (PMP). Preparation of the PMP will describe the management actions to maintain the functions and values of the mitigation sites in perpetuity and define the costs associated with implementation. An estimate of long-term management costs will be prepared using PAR software, which will form the basis for estimating the monetary value of a non-wasting endowment or comparable funding source. The endowment will create enough funds annually through appropriate investment to pay for management actions. A qualified easement holder that is approved by City, USFWS, ACOE, and CDFW will hold the conservation easement. The Preserve Manager will be responsible for providing habitat management services and for the successful implementation of the long-term PMP.

The entire mitigation area within the Fanita Ranch Habitat Preserve is within the Draft Santee MSCP Subarea Plan hardline preserve area and requires long-term management. Long-term management will be conducted in accordance with the approved RMP for the Fanita Ranch Habitat Preserve and with the Draft Santee MSCP Subarea Plan as summarized below.

10.1 Long-Term Management and Monitoring of Vernal Pool Habitats

The management and monitoring approach for vernal pools within the Habitat Preserve will be completed in a manner consistent with the methodologies established in the City of San Diego VPHCP (City of San Diego 2017). To assess the status and need for management actions, the following standards will be implemented and monitored:

- Annually identify threats (invasive species, trampling, OHV activity, etc.) to all pools monitored, as well as to overall watershed integrity, and implement actions to prevent or reduce those threats.
- Prevent an average decline of at least one cover class of any covered plant species within vernal pools over 3 years for years having at least 55% average rainfall.
- Prevent a 20% decline in the density of the covered shrimp species over 3 years (average within complex).
- At complexes with 10% or greater average total non-native species cover, prevent an increase in one cover class for non-native cover over 3 consecutive years, regardless of rainfall.
- Maintain vernal pool watershed and hydrologic network (i.e., inlet and outlet features) and water storage (maximum depth within +/-10% of baseline) functions.

The Draft Santee MSCP Subarea Plan Vernal Pool Conservation Standards outlines a tiered three-level approach for adaptive monitoring and management of vernal pools and vernal pool complexes that are protected within the Draft Santee MSCP Subarea Plan Preserve System (see Appendix G of the Draft Santee MSCP Subarea Plan for more detail). The monitoring and management actions required at each level are determined by achievement of the Draft Santee MSCP Subarea Plan vernal pool standards and triggers.

11 REFERENCES

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APPENDIX A

Vernal Pool Species List

	Unique Seasonal Basin ID Numbers																																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	14	15	16	17	18	19	20	21	22	23	25	26	27	28	29	30	31	32	34	35	36	37	38
Ambrosia psiolstachya																																					
Anagalis arvensis				x	x																																
Anemopsis californica																																					
Avena barbata																																					
Baccharis salicifolia	x																																				
Baccharis sarothroidies	x			x	x																																
Brodiaea jolonensis																																					
Bromus hordeaceus							x													x												x	x	x	x	x	
Bromus madritensis ssp. rubens																																					
Callitriche marginata																																					
Capsella bursa pustoris																																					
Castilleja exserta																																					
Centaurea melitensis																																					
Chamomila suaveolens				x				x																													
Chlorgalum parviflorum																																					
Cotula australis																																					
Cotula coronopifolia												x																									
Crassula aquatica																																					
Crassula connata																x																					
Cryptantha intermedia																								x													
Cyperus involucratus																																					
Deinandra fasiculata																	x		x				x	x				x				x		x		x	
Deschampsia danthonioides																																					
Distichlis spicata															x																			x			
Dodecatheon clevelandii ssp. clevelandii																																					
Elatine brachysperma															***x***																						
Elatine californica																																					
Eleocharis acicularis																																					
Eleocharis macrostachya	x	x																																		x	
Eremocarpus setigerus																																					
Erodium cicutarium																	x		x					x		x		x								x	
Filago gallica																													x				x			x	
Gastridium venustum																													x								
Hedynopsis crete																																					
Hirschfeldia incana					x										x																						
Holocarpha virgata																												x				x					
Hordeum murinum						x				x	x	x	x	x				x						x	x		x	x			x				x		x	
Hypochaeris glabra																																					
Juncus bufonius var. bufonius																																					
Juncus triformius													x	x		x		x	x		x		x	x				x	x		x		x	x	x		
Juncus xiphoidies																																		x			
Lamarkia aurea																																					
Lepidium strictum																																					
Lolium multiflorum			x			x		x	x	x	x	x	x	x	x	x			x		x		x	x	x	x	x	x	x		x			x	x	x	
Lotus scoparius																																					
Lotus strigosus																																					
Lythrum hyssopifolia	x	x		x	x	x			x	x	x	x	x	x	x	x		x		x			x	x	x	x	x		x	x	x	x		x	x	x	x
Medicago indica																																					
Microseris douglasii																																					
Mimulus brevipes																																					
Muilla clevelandii																																					
Navarettia hamata																																					
Plantago erecta																																					
Polygonum arenastrum	x																																				
Polypogon monspelinensis	x	x		x			x	x								x				x															x		
Populus fremontii	x																																				
Portulaca oleracea																																					
Psilocarphus brevissiumus																***x***											***x***										
Rumex crispus		x																									x			x							
Salix gooddingii	x																																				
Silene gallica																																				x	
Spergularia platensis						x				x	x		x	x		x			x		x		x		x	x			x		x	x	x	x		x	x
Trifolim wildenovii																																					
Vulpia myuros var. myuros																																					

	Unique Seasonal Basin ID Numbers																																				
	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
Ambrosia psiolstachya																																					
Anagalis arvensis																												x									
Anemopsis californica																																					
Avena barbata																																				x	
Baccharis salicifolia																																					
Baccharis sarothroidies																																		x			
Brodiaea jolonensis																																					
Bromus hordeaceus							x																x			x											x
Bromus madritensis ssp. rubens																				x			x											x			
Callitriche marginata																																					
Capsella bursa pustoris																																					
Castilleja exserta																																					
Centaurea melitensis																																					
Chamomila suaveolens																																					
Chlorgalum parviflorum																																					
Cotula australis																																					
Cotula coronopifolia																																					
Crassula aquatica																							***x***														
Crassula connata																				x								x		x							
Cryptantha intermedia									x																												
Cyperus involucratus																																					
Deinandra fasiculata												x	x			x																	x			x	x
Deschampsia danthonioides																																					
Distichlis spicata																																					
Dodecatheon clevelandii ssp. clevelandii																																					
Elatine brachysperma																																					
Elatine californica																																					
Eleocharis acicularis												x																									
Eleocharis macrostachya	x	x																																			
Eremocarpus setigerus																																					
Erodium cicutarium												x					x						x										x	x	x	x	x
Filago gallica																		x	x	x			x					x	x	x				x	x		
Gastridium venustum											x									x																	
Hedynopsis crete																																					
Hirschfeldia incana																																					
Holocarpha virgata											x																										
Hordeum murinum												x	x	x	x																						
Hypochaeris glabra																							x										x				
Juncus bufonius var. bufonius																																				x	x
Juncus triformius	x					x			x	x	x	x	x		x				x	x			x		x	x	x		x	x							
Juncus xiphoidies												x																									
Lamarkia aurea																																					
Lepidium strictum																																					
Lolium multiflorum	x				x		x		x	x	x	x	x	x	x	x					x				x	x	x				x				x	x
Lotus scoparius																																					
Lotus strigosus																																					
Lythrum hyssopifolia	x	x	x	x	x	x	x		x	x	x	x	x		x										x	x					x						
Medicago indica																																					
Microseris douglasii																													x							x	x
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Polypogon monspelinensis	x										x																										
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Portulaca oleracea																																					
Psilocarphus brevissiumus																																					
Rumex crispus	x				x							x	x												x												
Salix gooddingii																																					
Silene gallica																																					
Spergularia platensis	x				x	x	x	x		x		x	x					x	x	x			x						x		x			x			
Trifolim wildenovii																																					
Vulpia myuros var. myuros																							x						x						x		

	Unique Seasonal Basin ID Numbers																																							
	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
Ambrosia psiolstachya																																				
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Avena barbata				x																					x										
Baccharis salicifolia																																				
Baccharis sarothroidies																																				
Brodiaea jolonensis																																				
Bromus hordeaceus		x	x		x				x				x	x	x	x			x				x		x						x					
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Callitriche marginata																					***x***															
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Castilleja exserta																		x														x				
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Eleocharis macrostachya												x																x								
Eremocarpus setigerus																																				
Erodium cicutarium		x		x	x			x					x				x								x	x			x	x	x	x	x	x	x	
Filago gallica				x						x	x												x					x	x			x				
Gastridium venustum														x				x					x									x				
Hedynopsis crete			x																																	
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Hordeum murinum	x	x						x																												
Hypochaeris glabra																																	x			
Juncus bufonius var. bufonius																																				
Juncus triformius					x		x	x		x			x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	
Juncus xiphoidies																																				
Lamarkia aurea				x						x																										
Lepidium strictum																																				
Lolium multiflorum				x	x		x	x	x		x	x	x		x	x				x		x			x	x		x	x					x	x	x
Lotus scoparius																																				
Lotus strigosus																																				
Lythrum hyssopifolia							x	x			x	x	x	x					x	x	x	x	x	x		x		x		x		x	x	x	x	
Medicago indica																																				
Microseris douglasii										x					x																					
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Psilocarphus brevissiumus																																				
Rumex crispus																												x								
Salix gooddingii																																				
Silene gallica																																	x			
Spergularia platensis		x			x		x		x	x														x		x	x	x				x		x		x
Trifolim wildenovii																			x																	
Vulpia myuros var. myuros										x																		x								

	Unique Seasonal Basin ID Numbers																																					
	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147
Ambrosia psiolstachya																																				
Anagalis arvensis																																				
Anemopsis californica																																				
Avena barbata			x								x							x																		
Baccharis salicifolia																																				
Baccharis sarothroidies																																				
Brodiaea jolonensis																																				
Bromus hordeaceus	x	x	x					x				x			x				x			x	x										x		
Bromus madritensis ssp. rubens																																		x		
Callitriche marginata																																				
Capsella bursa pustoris																																				
Castilleja exserta																																				
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Crassula aquatica																																				
Crassula connata						x																														
Cryptantha intermedia																																				
Cyperus involucratus							x																													
Deinandra fasiculata	x		x								x		x				x			x	x														x	x
Deschampsia danthonioides																																				
Distichlis spicata	x		x								x																									
Dodecatheon clevelandii ssp. clevelandii						x																														
Elatine brachysperma																																				
Elatine californica																																				
Eleocharis acicularis																																				
Eleocharis macrostachya																																				x
Eremocarpus setigerus																						x														
Erodium cicutarium	x	x				x					x	x	x				x				x															x
Filago gallica														x																				x		
Gastridium venustum														x							x															
Hedynopsis crete																	x																			
Hirschfeldia incana																																				
Holocarpha virgata											x																									
Hordeum murinum				x	x						x																								x	x
Hypochaeris glabra																																				
Juncus bufonius var. bufonius																																				
Juncus triformius	x	x	x			x		x		x	x	x	x	x		x	x			x		x		x		x	x		x	x	x	x	x	x	x	x
Juncus xiphoidies																																				
Lamarkia aurea																																				
Lepidium strictum																																				
Lolium multiflorum	x		x	x	x	x	x			x	x			x	x	x	x	x	x		x	x	x						x				x		x	x
Lotus scoparius																																				
Lotus strigosus																																				
Lythrum hyssopifolia	x	x	x			x	x			x	x		x	x		x	x		x	x	x		x	x						x	x	x	x		x	x
Medicago indica																		x																		
Microseris douglasii																																				
Mimulus brevipes																																				
Muilla clevelandii																																				
Navarettia hamata																																				
Plantago erecta																																				
Polygonum arenastrum																																				
Polypogon monspelinensis	x						x																						x						
Populus fremontii																																				
Portulaca oleracea																																				
Psilocarphus brevissiumus																																				
Rumex crispus			x																x																	
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Bromus hordeaceus	x			x	x	x		x	x	x	x				x		x	x				x		x	x	x		x		x			x			
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Hordeum murinum		x	x	x			x					x	x				x	x																		
Hypochaeris glabra																																				
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Microseris douglasii							x	x			x		x					x			x	x				x										
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Spergularia platensis	x																x														x					
Trifolim wildenovii																																				
Vulpia myuros var. myuros	x	x																x				x					x				x					x

	Unique Seasonal Basin ID Numbers									
	220	221	222	223	224	225	226	227	228	229
Ambrosia psiolstachya										
Anagalis arvensis										
Anemopsis californica										
Avena barbata										
Baccharis salicifolia										
Baccharis sarothroidies										
Brodiaea jolonensis					x		x	x	x	
Bromus hordeaceus				x	x					
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Centaurea melitensis										
Chamomila suaveolens										
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Crassula aquatica						***x***				
Crassula connata					x					
Cryptantha intermedia										
Cyperus involucratus										
Deinandra fasiculata	x	x				x				
Deschampsia danthonioides					***x***					
Distichlis spicata										
Dodecatheon clevelandii ssp. clevelandii							x	x	x	
Elatine brachysperma										
Elatine californica				***x***			***x***	***x***	***x***	
Eleocharis acicularis										
Eleocharis macrostachya	x								x	
Eremocarpus setigerus	x									
Erodium cicutarium	x	x							x	
Filago gallica										
Gastridium venustum		x		x	x					
Hedynopsis crete										
Hirschfeldia incana										
Holocarpha virgata			x							
Hordeum murinum										
Hypochaeris glabra										
Juncus bufonius var. bufonius	x									
Juncus triformius	x	x	x	x	x	x		x	x	
Juncus xiphoidies										
Lamarkia aurea										
Lepidium strictum										
Lolium multiflorum		x	x				x		x	x
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Populus fremontii										
Portulaca oleracea	x									
Psilocarphus brevissiumus		***x***								
Rumex crispus	x									
Salix gooddingii										
Silene gallica										
Spergularia platensis			x				x			
Trifolim wildenovii										
Vulpia myuros var. myuros						x	x	x		

APPENDIX S

Wetland Mitigation Plan

Wetland Mitigation Plan for the Fanita Ranch Project City of Santee San Diego County, California U.S. Army Corps of Engineers Regional Water Quality Control Board 401 Certification California Department of Fish and Wildlife SAA

Prepared for:

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MAY 2020

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1 INTRODUCTION

The proposed Fanita Ranch Project (project) would be a new housing community in the City of Santee. Development for the proposed project would be clustered into three villages to preserve natural open space areas, drainages, and key wildlife corridors. Construction of the project would result in unavoidable temporary and permanent impacts to jurisdictional aquatic resources. Mitigation for project impacts is required under CEQA and pursuant to the City of Santee (City) Draft Multiple Species Conservation Program (MSCP) Subarea Plan (City of Santee 2018), the state Porter-Cologne Water Quality Control Act, and Section 404 and 401 of the federal Clean Water Act, as determined by the U.S. Army Corps of Engineers (ACOE) and the San Diego Regional Water Quality Control Board (RWQCB).

In particular, this Wetland Mitigation Plan for the Fanita Ranch Project (Mitigation Plan) includes a description of the process for implementing activities to restore, enhance, and preserve jurisdictional aquatic resources to satisfy the mitigation requirements for the project. This Mitigation Plan has been developed in cooperation with and incorporates input from the City, RWQCB, ACOE, and U.S. Fish and Wildlife Service (USFWS). This Mitigation Plan is intended to comply with Section 404 and 401 permit/certification by the ACOE and RWQCB, Section 1602 streambed agreement requirement by the California Department of Fish and Wildlife (CDFW), as well as Section 7 and 10 consultation/permit completed by the USFWS.

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2 PROJECT DESCRIPTION

2.1 Project Location

The project is located in the northwest portion of the City of Santee (City) in central San Diego County, California (Figure 1, Regional Map). The project is bordered primarily by City residential neighborhoods to the south and the unincorporated residential communities of Lakeside and Eucalyptus Hills to the east. To the northeast, active mining operations occur in Slaughterhouse Canyon and are separated by a large hillside. To the north, Sycamore Canyon Open Space preserve, owned by the County of San Diego (County), and unincorporated vacant lands border the project area. Farther north lies the Goodan Ranch Regional Park, which is jointly owned by the Cities of Santee and Poway, the County, and the State of California. To the west of the project area lie the Marine Corps Air Station (MCAS) Miramar and the Santee Lakes Recreation Preserve, owned and operated by Padre Dam Municipal Water District (Figure 2, Vicinity Map).

2.2 Project Summary

The focus of this Mitigation Plan is on mitigation for impacts to jurisdictional aquatic resources that will occur within the project site from the proposed housing development. The remaining portion of the project site would continue to function as open space, including a 1,650-acre open space hardline Habitat Preserve, which would include preservation, management, and enhancement of existing jurisdictional aquatic resources. Although the Draft Santee MSCP Subarea Plan has not yet been approved or permitted, development of Fanita Ranch will help contribute 1,650 acres to the targeted 171,917 acres within the MHPA for conservation (City of San Diego 1998). Therefore, mitigation occurring within the Habitat Preserve will occur within the MSCP's MHPA designated lands.

This Mitigation Plan has been prepared in coordination with the ACOE to comply with Section 404 permit requirements, the RWQCB to comply with Section 401 certification requirements, CDFW to comply with Section 1602 requirements, and the USFWS in accordance with the Draft Santee MSCP Subarea Plan (City of Santee 2018). Impacts to jurisdictional aquatic resources within the project site are shown on Figure 3. The project site occurs within the City's Draft Multiple Species Conservation Program (MSCP) Subarea Plan (Draft Santee MSCP Subarea Plan) (City of Santee 2018).

2.3 Project Impacts and Required Mitigation

This Mitigation Plan has been prepared to be consistent with the Draft Santee MSCP Subarea Plan (City of Santee 2018), all applicable permits for the project, and the Biological Technical Report for the Fanita Ranch Project (Dudek 2020). Pursuant to the Draft Santee MSCP Subarea Plan (City of Santee 2018), to the Porter-Cologne Act and Section 401 of the federal Clean Water Act, Section 404

of the federal Clean Water Act, and to CDFW Section 1602 requirements direct impacts to jurisdictional aquatic resources require mitigation. A total of 8.04 acres of permanent impacts and 1.77 acres of temporary impacts to jurisdictional aquatic resources will be mitigated to meet City, ACOE, RWQCB, and CDFW requirements through restoration, enhancement, creation, and preservation of jurisdictional aquatic resources within the project's hardline Habitat Preserve. Table 1 summarizes the project impacts and required mitigation ratios.

Table 1
Mitigation Requirements for Impacts to Jurisdictional Aquatic Resources

Wetlands Vegetation Community	Permanent Impact Acreage (linear feet)	Temporary Impact Acreage (linear feet)	Total Impact Acreage	Mitigation Ratio[1,2]	Total Mitigation Requirement (Acres)	Habitat Preserve Mitigation Credit Acreage (linear feet)
ACOE/RWQCB Wetlands and CDFW Riparian Areas						
Disturbed Wetlands	0.01 (57)	—	0.01 (57)	2:1	0.02	+0.06 (89)
Coastal and Valley Freshwater Marsh	0.02 (52)	—	0.02 (52)	2:1	0.05	—
Disturbed Coastal and Valley Freshwater Marsh	0.12 (346)	—	0.12 (346)	2:1	0.24	—
Mulefat Scrub	0.11 (242)	0.34 (474)	0.45 (717)	3:1	1.35	+1.13 (1,381)
Southern Arroyo Willow Riparian Forest	—	—	—	3:1	—	+1.54 (1,416)
Southern Willow Scrub	0.72 (1,228)	0.03 (100)	0.74 (1,329)	3:1	2.23	+0.04 (244)
Disturbed Southern Willow Scrub	0.48 (402)	—	0.48 (402)	3:1	1.45	—
ACOE/RWQCB/CDFW Subtotal	*1.46 (2,328)*	*0.37 (574)*	*1.83 (2,903)*	—	*5.33*	*+2.78 (3,129)*
ACOE/RWQCB Non-Wetland Waters and CDFW Streambed						
Non-Vegetated Channel or Floodway	2.98 (46,160)	0.85 (14,389)	3.82 (60,549)	2:1	7.64	+5.84 (67,011)
ACOE/RWQCB Non-Wetland Waters and CDFW Riparian Habitat						
Disturbed Wetlands	0.02 (64)	—	0.02 (64)	2:1	0.03	—
CDFW Only Riparian Habitat						
Arundo-Dominated Riparian	0.95 (1,046)	0.44 (459)	1.38 (1,505)	2:1	2.77	+0.02 (66)
Coast Live Oak Woodland	2.37 (935)	0.03 (42)	2.40 (978)	3:1	7.19	+22.68 (11,731)
Mulefat Scrub	0.04 (87)	0.06 (86)	0.10 (174)	3:1	0.29	+0.03 (51)
Southern Sycamore–Alder Riparian Woodland	0.17 (967)	0.04 (175)	0.21 (1,142)	3:1	0.62	+0.96 (979)

Table 1
Mitigation Requirements for Impacts to Jurisdictional Aquatic Resources

Wetlands Vegetation Community	Permanent Impact Acreage (linear feet)	Temporary Impact Acreage (linear feet)	Total Impact Acreage	Mitigation Ratio[1,2]	Total Mitigation Requirement (Acres)	Habitat Preserve Mitigation Credit Acreage (linear feet)
Southern Willow Scrub	0.07 (96)	—	0.07 (96)	3:1	0.20	—
CDFW Only Subtotal	*3.59 (3,132)*	*0.56 (762)*	*4.15 (3,895)*	—	*11.07*	*+23.70 (12,827)*
Total Acreage	**8.04 (50,941)**	**1.77 (15,385)**	**9.81 (67,410)**	—	**24.07**	**+32.31 (82,967)**

Notes: ACOE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.
1 Mitigation ratios are based on City of Santee (2018).
2 Temporary impacts would occur from the grading buffer and manufactured slopes, which are unlikely to provide in-place restoration. Therefore, temporary impacts shall be considered permanent and mitigated accordingly.

This Mitigation Plan provides guidelines for the re-establishment and enhancement of on-site wetland resources as compensatory mitigation for these impacts. To fulfill mitigation requirements for impacts to wetlands, additional off-site mitigation will be required. The off-site mitigation will provide wetland habitat through of a combination of habitat preservation, enhancement, restoration, and creation. With this off-site program, wetland habitat that is comparable in habitat type and quality to the impact area will be enhanced, restored, or created within the City of Santee's jurisdiction, and within the San Diego River and/or its tributaries. The off-site preservation and enhancement program will be subject to the same standards and rules as the on-site mitigation program, including management of access control, invasive species, native vegetation cover and diversity, and wildlife use. Off-site restoration will include these management efforts, as well as a program of revegetation of wetland species with planting and seeding. The off-site habitat creation will also include potential topographic alteration to expand and create bed and bank areas appropriate for the establishment of new wetland habitat. At least 7.53 acres of off-site mitigation will be habitat restoration and/or creation. This total is based on the current aquatic resource assessment and impacts, and the no-net-loss requirement in the Draft Santee MSCP Subarea Plan.

Table 2 summarizes the location where mitigation will occur based on the current aquatic resource assessment and impacts.

Table 2
Mitigation Requirement Summary

Type	Mitigation Required			Available Acreage On-Site			Off-Site
	Jurisdictional Aquatic Resource	Vernal Pools	Total	Jurisdictional Aquatic Resource	Vernal Pools	Total	
Preservation/Enhancement	14.26	0.09	**14.35**	9.40[1]	0.25	**9.65**	4.70[2]
Creation/Re-establishment (1:1 no-net-loss)	9.81	0.41	**10.22**	0.02	2.67	**2.69**	7.53[3]
Total	**24.07**	**0.50**	**24.57**	**9.42**	**2.92**	**12.34**	**12.23**

Notes:

1 This total includes 0.78 acres of ACOE/RWQCB habitat within the two internal drainages (impact neutral areas), and 8.62 acres within the Habitat Preserve. Total does not include 23.68 acres of CDFW-only riparian habitat, comprised mostly of coast live oak woodland (22.68 acres), within the Habitat Preserve or 2.07 acres of CDFW-only resources within the impact neutral areas.

2 Off-site preservation/enhancement may occur at the 11-acre parcel, owned by the project applicant, adjacent to the lower Santee lakes to satisfy the off-site preservation/enhancement requirement.

3 This is the minimum amount required based on the current aquatic resource assessment and impacts, and the no-net-loss requirement in the Draft Santee MSCP Subarea Plan. The City of Santee has agreed to allow the remaining creation/re-establishment mitigation to be completed within City-owned lands in the same hydrologic unit, next to the San Diego River. Based on preliminary evaluations, several opportunities have been identified to provide off-site mitigation for the remaining creation/re-establishment mitigation component, indicating that it is feasible to accomplish the off-site compensatory mitigation.

2.3.1 Mitigation for Temporary Impacts

The project would result in temporary impacts to 0.85 acres of non-vegetated channel under the jurisdiction of the ACOE, RWQCB, and CDFW; 0.37 acres of ACOE/RWQCB wetlands and CDFW riparian habitat; and 0.56 acres of CDFW riparian habitat, including arundo-dominated riparian, coast live oak woodland, mulefat scrub, and southern sycamore-alder riparian woodland. However, since the temporary impact areas are not appropriate for in-place restoration of jurisdictional resources, these areas shall be considered permanently impacted and mitigated in conformance with the mitigation ratios for permanent impacts to jurisdictional resources. Temporary impacts are therefore included as permanent and discussed in Section 2.3.2.

2.3.2 Mitigation for Permanent Impacts

ACOE/RWQCB Mitigation

As indicated in Table 1, the project will result in direct, permanent impacts to 3.84 acres of non-wetland waters of the United States/waters of the state and 1.83 acres of ACOE/RWQCB wetlands. The impacts to the 3.84 acres of non-wetland waters will be mitigated at a 2:1 ratio, and the 1.83 acres of wetlands will be mitigated at a 3:1 ratio for the mulefat scrub and southern willow scrub (including disturbed) communities, and at a 2:1 ratio for the disturbed wetlands and coastal and valley freshwater march (including disturbed) communities. The total mitigation for permanent impacts to wetlands and waters under ACOE and RWQCB jurisdiction is 13.00 acres.

CDFW Mitigation

As indicated in Table 1, CDFW jurisdiction coincides with the ACOE/RWQCB jurisdictional resources described in the paragraph above, as well as those resources under CDFW-only jurisdiction. Permanent impacts to CDFW-only jurisdictional resources include: 1.38 acres of arundo-dominated riparian, 2.40 acres of coast live oak woodland, 0.10 acres of mulefat scrub, 0.21 acres of southern sycamore-alder riparian woodland, and 0.07 acres of southern willow scrub. The impacts to CDFW streambeds would be mitigated at a 2:1 ratio, and the impacts to riparian vegetation will be mitigated at a 3:1 or 2:1 ratio depending on the vegetation community. The total mitigation requirement for permanent impacts to CDFW jurisdictional resources is 24.07 acres.

CDFW and City Tree Impacts

As stated in Mitigation Measure (MM) BIO-5 in the Biological Technical Report for the Fanita Ranch Project (Dudek 2020), all impacts to the 17 individual mature oak trees (i.e., oak trees with at least one trunk of 6-inch or more diameter at breast height [DBH] or multi-trunked native oak trees with aggregate diameter of 10-inch DBH) occurring within the coast live oak woodland vegetation community or the 5 individual Engelmann oak trees that meet the City's DBH criteria would be reduced to less than significant through replanting seedling oak trees at a 3:1 ratio. Therefore, a total of 66 oak trees shall be planted to meet the 3:1 mitigation ratio requirement.

Summary

This Mitigation Plan provides guidelines for the re-establishment and enhancement of on-site wetland resources as compensatory mitigation for these impacts. This Mitigation Plan addresses the compensatory mitigation for permanent and temporary impacts under the jurisdiction of multiple resource agencies through a mitigation program that will enhance, re-establish, and preserve non-wetland waters, wetland waters, and riparian vegetation.

2.4 Determination of Mitigation Credits

Determination of mitigation ratios was based on the Table 5-14 in the Draft Santee MSCP Subarea Plan. Although the Draft Santee MSCP Subarea Plan has not yet been approved or permitted, it is used as the guidance document for projects occurring within the City of Santee.

2.5 Site Selection

Dudek Senior Habitat Restoration Ecologist Scott McMillan conducted on-site evaluations within the Fanita Ranch Habitat Preserve in October 2019 to identify potential wetland compensatory mitigation sites. Included in the assessment were the preserved aquatic resources associated with the Sycamore Canyon drainage (including Clark Canyon and unnamed eastern tributary) in the northern

portion of the preserve, the two preserved drainage areas within the project footprint, and the 11-acre parcel adjacent to the lower Santee Lakes (Figure 4, Site Selection Areas). The potential mitigation sites described below offer enhancement mitigation where the aquatic functions and services of existing drainages may be enhanced through various mitigation treatments, as well as vernal pool establishment mitigation to increase ACOE- and RWQCB-jurisdictional area. These mitigation opportunities were assessed for suitability as compensatory mitigation. Each of these areas is described below and a rationale is provided for final site selection.

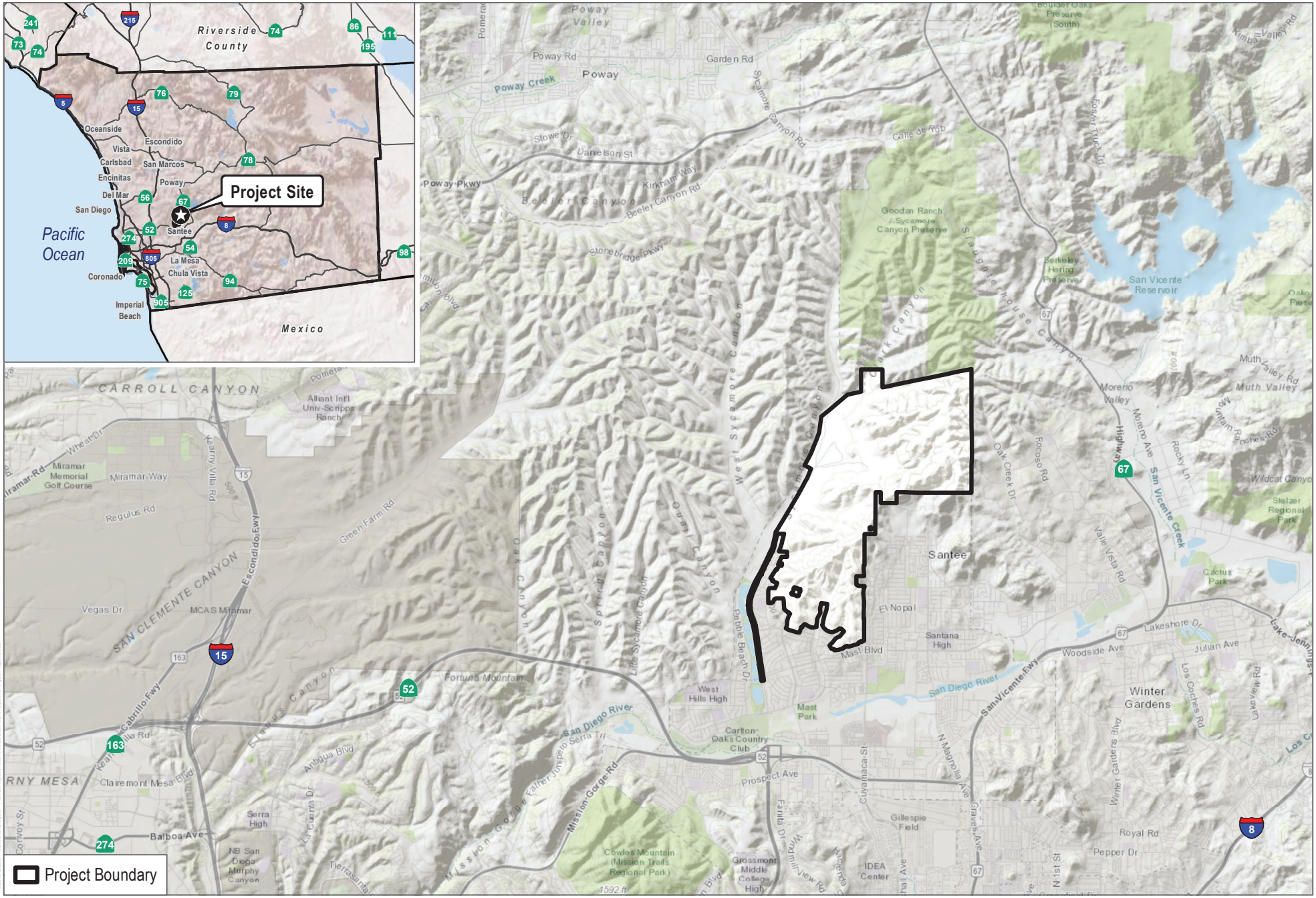
Sycamore Canyon Creek and Associated Drainages

Sycamore Canyon Creek flows from north to south along the western edge of Fanita Ranch and most of the project area drains towards it. Sycamore Creek and adjacent storm drain systems discharge to the San Diego River in the western portion of the City. The open channels of Sycamore Canyon Creek are unvegetated, including the lack of weeds, so there are no opportunities for enhancing or re-establishing any channel area. Where there are patches of mulefat scrub and southern willow scrub, the habitat is relatively intact with minimal opportunity for any enhancement of the habitat.

Areas within Sycamore Canyon that contain coast live oak woodland and southern sycamore–alder riparian woodland are substantially disturbed by non-native grassland in the understory. Almost 100% of these vegetation types have an understory that is over 90% non-native grasses and forb (black mustard, etc.). This problem occurs from the adjacent upland habitats (coastal sage scrub, native grasslands, etc.) that surround these aquatic resources, down to the very edges of the unvegetated channels. This weed cover has dramatically increased since the site has burned, and this invasion by non-natives is having a substantial impact on the ecological functions of these aquatic resources, including available moisture in the soil. Little to no recruitment of native trees or shrubs, including the federally listed species willowy monardella (*Monardella viminea*) known to occur in this general area, was seen under the oak and sycamore woodlands. As the older trees and shrubs continue to die over time, there will be no natural replacement in the absence of weed control management and other restoration activities. With a program of weed control and other enhancement activities (native seeding and container plantings), these woodland vegetation types will be able to persist and thrive in perpetuity.

Two Impact Neutral Drainages within the Project Footprint

There are two drainages that will be preserved within the project footprint that currently support aquatic resources, including unvegetated channels, mulefat scrub, cismontane alkali marsh, and southern sycamore-alder riparian woodland. As with the main Sycamore Canyon drainage, the open channels, mulefat scrub, and cismontane alkali marsh do not have opportunity for enhancement or re-establishment, only preservation. But, like the main drainages, the southern sycamore-alder riparian woodland have an understory that is dominated by non-native species, and would benefit substantially from a program of enhancement.



SOURCE: SANGIS 2020; USGS Topographic World Map

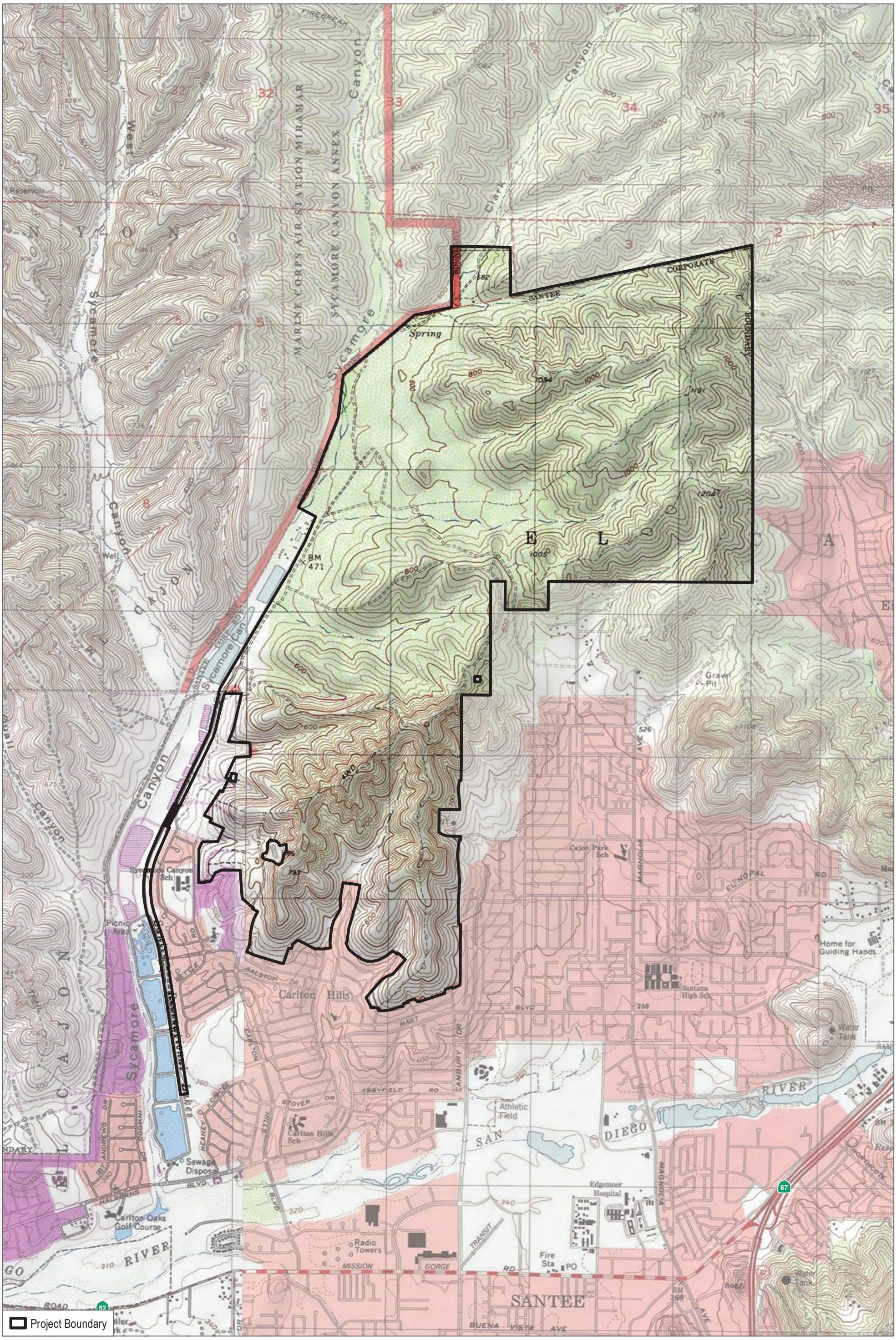
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FIGURE 1

Regional Map

Wetland Mitigation Plan for the Fanita Ranch Project

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SOURCE: USGS 7.5-Minute Series El Cajon, La Mesa, Poway, San Vicente Reservoir Quadrangles

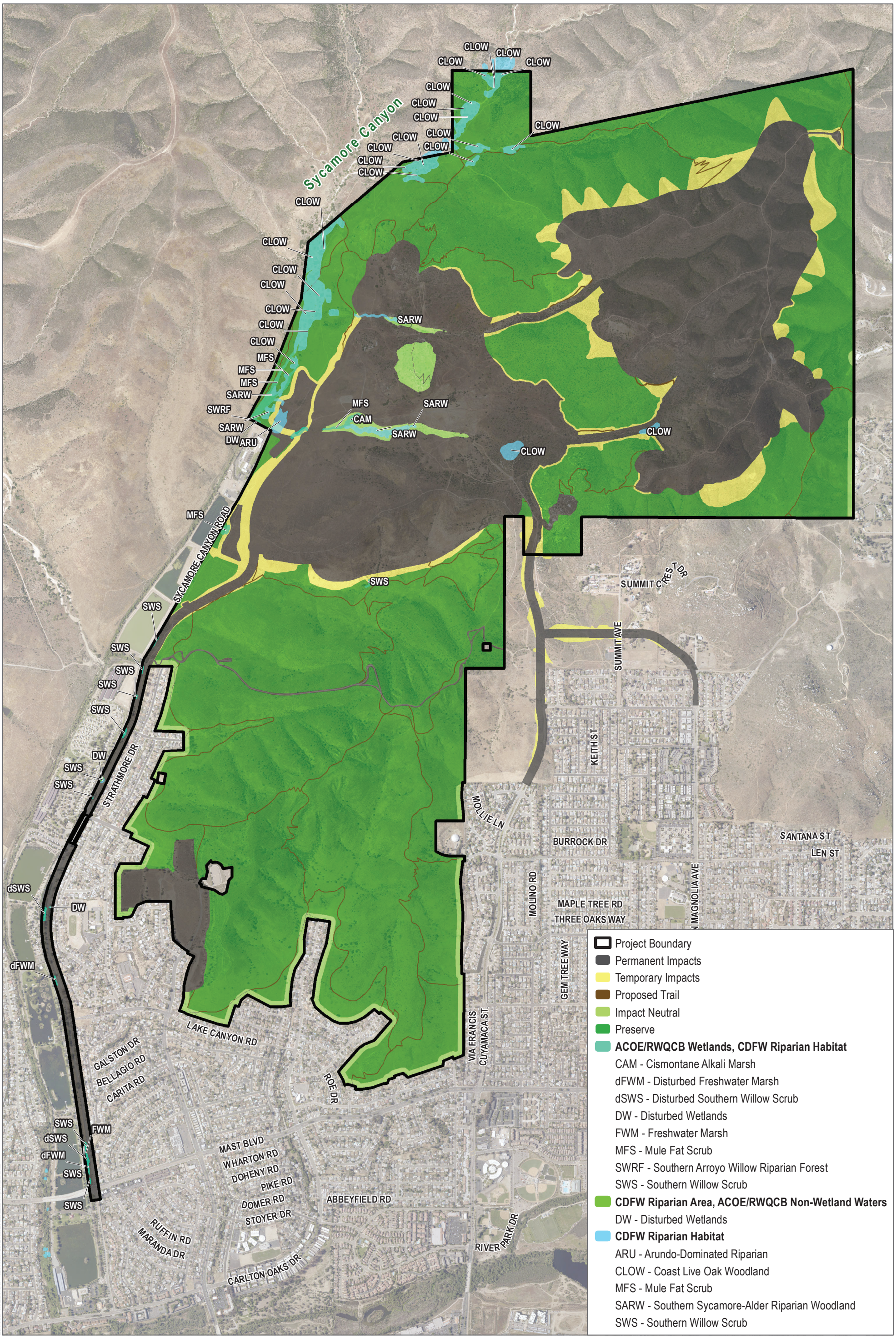
FIGURE 2

Vicinity Map

Wetland Mitigation Plan for the Fanita Ranch Project

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SOURCE: Hunsaker 2020; DeLorenzo International 2019; SANGIS 2017, 2020

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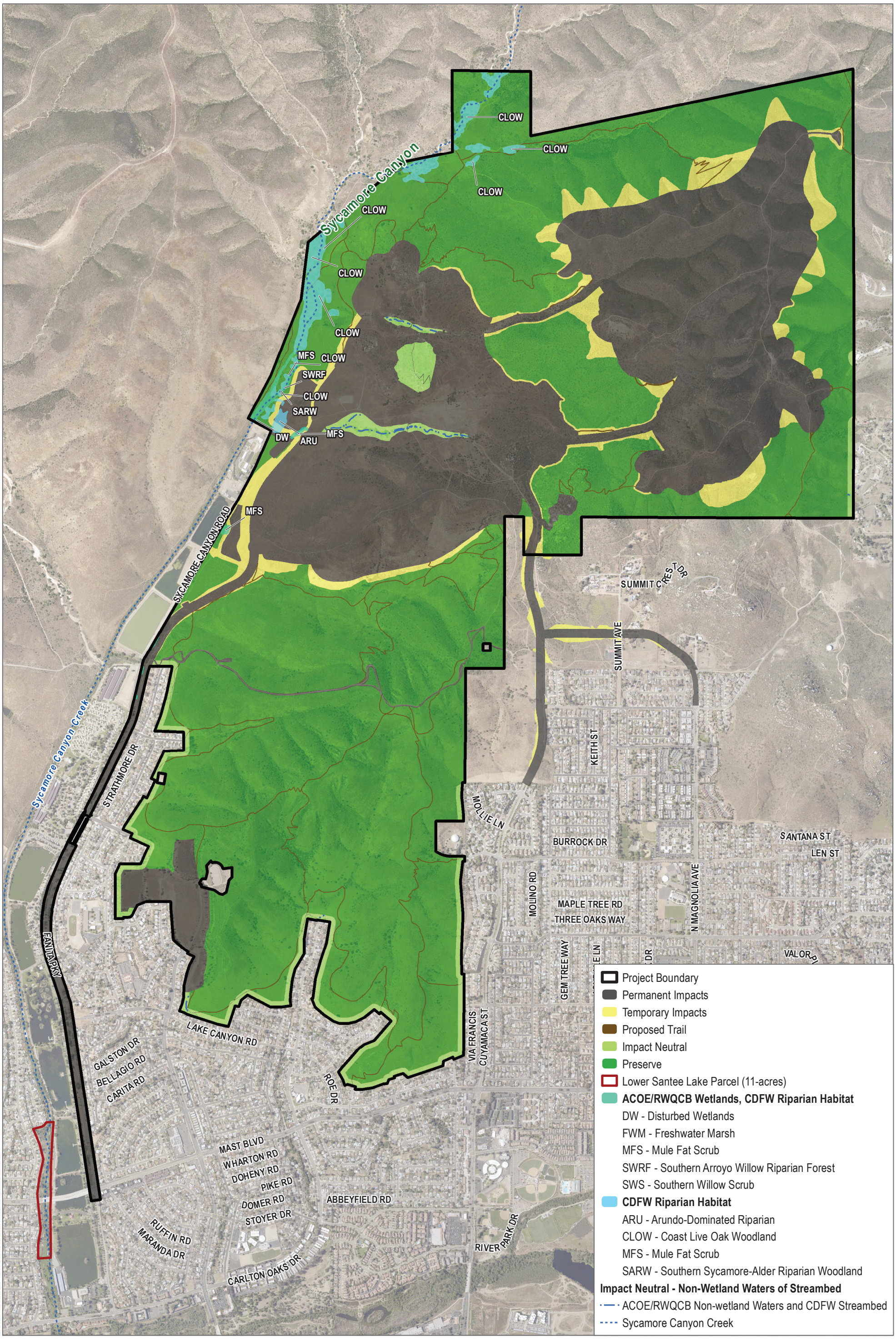
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FIGURE 3

Impacts to Jurisdictional Aquatic Resources

Wetland Mitigation Plan for the Fanita Ranch Project

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SOURCE: Hunsaker 2020; DeLorenzo International 2019; SANGIS 2017, 2020

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FIGURE 4

Site Selection Areas

Wetland Mitigation Plan for the Fanita Ranch Project

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These two drainages have areas where there is open channel without riparian vegetation, appearing too dry to support even mulefat scrub. Given that these two areas will have less watershed after the project development, it is unreasonable to assume that riparian vegetation, even mulefat scrub, could be established in these areas.

11-Acre Parcel

The 11-acre parcel that is just west of the lower Santee Lakes in a narrow band of riparian habitat bordered on one side by residential and parking lot areas on the other side. The riparian habitat is a mixture of southern willow scrub and southern willow riparian forest. The habitat is mostly intact, with no more than one acre that is impacted by non-native vegetation (arundo, castor bean, etc.). Other than the one acre, this site only has potential for preservation.

Tables 3 through 6 summarize the type of mitigation proposed for each potential mitigation area described above.

Table 3
Mitigation within the Habitat Preserve for
ACOE/RWQCB Wetlands and CDFW Riparian Habitat

Wetland Vegetation Community	Preservation only	Preservation and Enhancement	Preservation and Re-establishment	Preservation and Establishment
Disturbed Wetlands	—	0.06	—	—
Cismontane Alkali Marsh in Impact Neutral Drainages	0.40	—	—	—
Disturbed Coastal and Valley Freshwater Marsh	—	—	—	—
Mulefat Scrub in Habitat Preserve	1.13	—	—	—
Mulefat Scrub in Impact Neutral Drainages	0.16	—	—	—
Southern Arroyo Willow Riparian Forest	—	1.54	—	—
Southern Willow Scrub	0.04	—	—	—
Disturbed Southern Willow Scrub	—	—	—	—
11-acres site with Southern Willow Scrub and Southern Arroyo Willow Riparian Forest	10.00	1.00	—	—
Total Acreage	**11.73**	**2.60**	**—**	**—**

Table 4
Mitigation within the Habitat Preserve for
ACOE/RWQCB Non-Wetland Waters and CDFW Streambed

Wetland Vegetation Community	Preservation only	Preservation and Enhancement	Preservation and Re-establishment	Preservation and Establishment
Non-Vegetated Channel or Floodway in Habitat Preserve	5.84	—	—	—
Non-Vegetated Channel or Floodway in Impact Neutral Drainages	0.22	—	—	—
Total Acreage	**6.06**	**—**	**—**	**—**

Table 5
Mitigation within the Habitat Preserve for
ACOE/RWQCB Non-Wetland Waters and CDFW Riparian Habitat

Wetland Vegetation Community	Preservation only	Preservation and Enhancement	Preservation and Re-establishment	Preservation and Establishment
Disturbed Wetlands	—	—	—	—

Table 6
Mitigation within the Habitat Preserve for CDFW Riparian Habitat

Wetland Vegetation Community	Preservation only	Preservation and Enhancement	Preservation and Re-establishment	Preservation and Establishment
Arundo-Dominated Riparian	—	—	0.02	—
Coast Live Oak Woodland	—	22.68	—	—
Mulefat Scrub	0.03	—	—	—
Southern Sycamore–Alder Riparian Woodland in Habitat Preserve	—	0.96	—	—
Southern Sycamore–Alder Riparian Woodland in Impact Neutral Drainages	—	2.07	—	—
Southern Willow Scrub	—	—	—	—
Total Acreage	**0.03**	**25.71**	**0.02**	**—**

Vernal Pool Mitigation

A total of 12 areas were identified where some form of vernal pool mitigation could be implemented above and beyond just preservation (Figure 5). These areas represent the vernal pools and the watershed areas that would need to be restored and managed to support the pools. These sites ranged in size from 0.09 acres to 7.57 acres, with a total acreage of 29.50 acres. In the 29.50 acres, there is an estimated 0.25 acres of vernal pool preservation and re-establishment and another 0.75 acres of vernal pool preservation and establishment (creation). Table 7 summarizes the vernal pool mitigation proposed within the Habitat Preserve to meet the project's mitigation requirements. These numbers are based on a conceptual evaluation and will be refined within the more detailed Vernal Pool Mitigation Plan.

Table 7
Vernal Pool Mitigation within the Habitat Preserve

Vernal Pool Type	Preservation only	Preservation and Enhancement	Preservation and Re-establishment	Preservation and Establishment
Natural Vernal Pool	—	0.10	0.25	0.75
Road Rut – containing plant indicator species	—	0.13	—	—
Road Rut – containing wildlife indicator species	—	0.17	—	—
Total Acreage[1]	—	**0.40**	**0.25**	**0.75**

Notes:
[1] Totals are conceptual and will refined within the Vernal Pool Mitigation Plan.

2.6 Mitigation Site Baseline Conditions

The proposed mitigation site within the Habitat Preserve is situated adjacent to the project site. The Habitat Preserve shares climate, soils, and many other abiotic characteristics with the impact site. Elevations within the Habitat Preserve range from approximately 432 feet to 1,193 feet above mean sea level. The Habitat Preserve is approximately 1,651 acres in size. The Habitat Preserve contains a series of northeast- to southwest-trending hills and valleys that form a transition between the relatively low, flat Sycamore Canyon on the western end to the foothills of the Peninsular Range to the east.

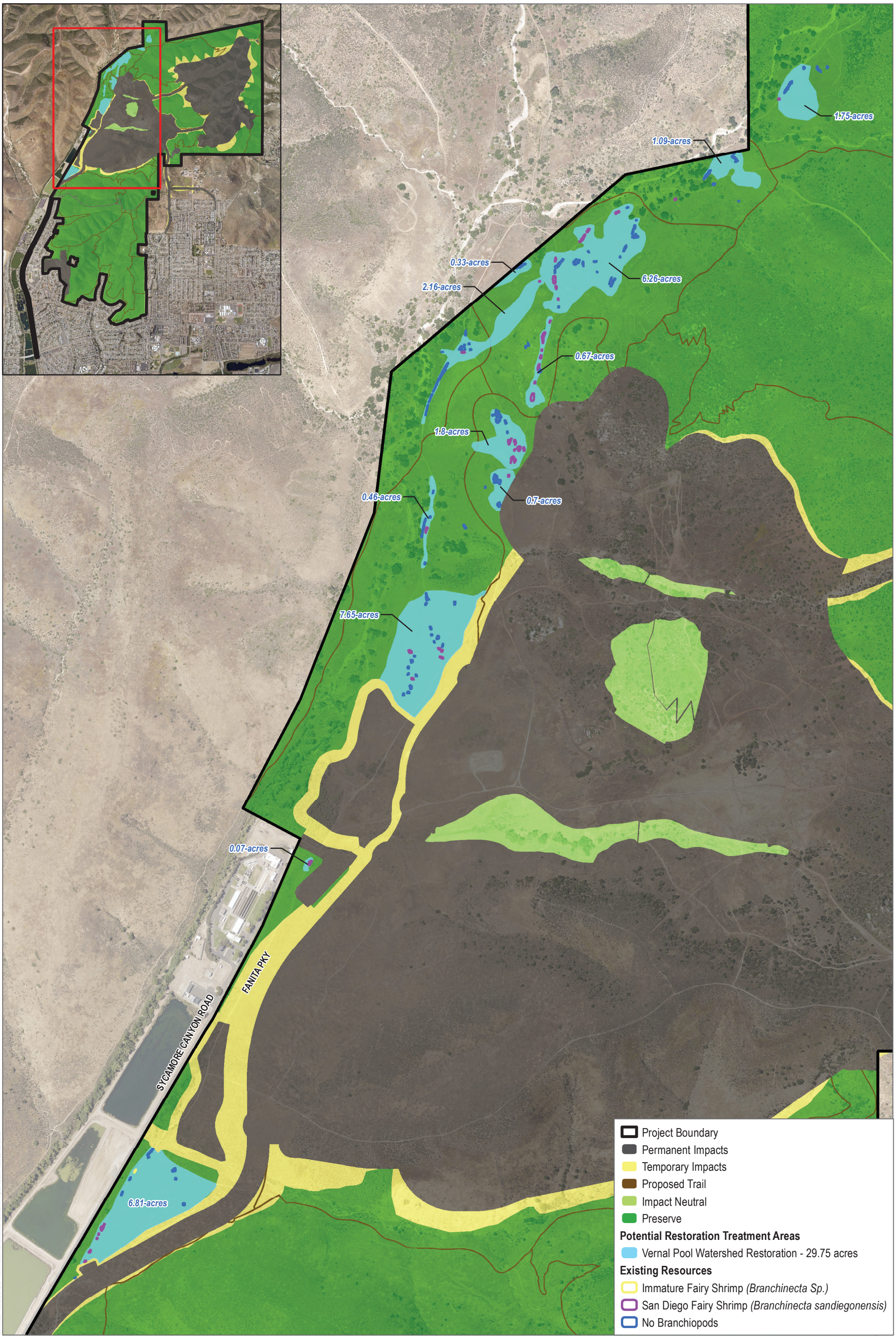
Soil type is a critical factor in the formation of vernal pools, and vernal pool soils generally contain a nearly impermeable surface or subsurface soil layer (USFWS 1997). According to the USDA Web Soil Survey, soils within the Habitat Preserve are underlain by the following soil types: Bosanko clay (Bsc), Cieneba rocky coarse sandy loam (CmE2), Cieneba very rocky coarse sandy loam (CmrG), Diablo clay (DaE), Diablo-Olivenhain complex clay (DoE), Las Flores loamy fine sand (LeC), Las Posas stony fine sandy loam (LrE, LrG), Linne clay loam (LsE), Redding gravelly loam (RdC), Redding cobbly loam (ReE, RfF), Redding-Urban land complex (RhC), Visalia gravelly sandy loam (VbB), and Wyman loam (WmC) (USDA 2019). Stony land (SvE) is present along the western edge of the Habitat Preserve, associated with the historic floodplain of the Sycamore Creek.

The Habitat Preserve is located in San Diego Region (9), the San Diego Hydrologic Unit (907) in the Lower San Diego Hydrologic Area (907.1), and in the Santee Hydrologic Subarea (907.12) (RWQCB 1995) (Figure 6, Hydrology). The San Diego Hydrologic Unit is a triangular-shaped area that occupies approximately 440 square miles, extending from the Laguna Mountains on the east to Pacific Ocean on the west and from the Santa Ysabel Indian Reservation on the north to the Interstate 8 on the south. This watershed includes the Cleveland National Forest and Mission Trails Regional Park. It has the highest population of the County's watersheds and includes portions of the cities of San Diego, El Cajon, La Mesa, Poway, Santee, and several unincorporated jurisdictions. The watershed is drained by the San Diego River and contains five water storage reservoirs: El Capitan, San Vicente, Cuyamaca, Jennings, and Murray Reservoirs. The Lower San Diego Hydrologic Area occurs downstream of El Capitan, San Vicente, and Cuyamaca Reservoirs and extends from the El Monte Valley through the City of Santee and into Mission Trails Regional Park and the City of San Diego. Sycamore Canyon Creek flows from north to south along the western edge of Fanita Ranch and most of the project area drains towards it. Sycamore Creek and adjacent storm drain systems discharge to the San Diego River in the western portion of the City.

Overall, the general character of the Habitat Preserve includes mainly native vegetation communities, but historic site disturbances from previous unauthorized off-road vehicular activity and human activities have degraded portions of the habitats on site.

2.7 Proposed Mitigation Enhancement

Enhancement of the coast live oak woodland will take place throughout the Habitat Preserve where the understory of the woodland areas has been compromised by invasion of non-native plant species (Figure 7, Enhancement Sites). This non-native plant invasion include some perennial species (arundo, fan-palms, etc.); most non-native issues concern the annual non-native grasses and forb (mustards, etc.). These non-native annual species dominate most of the understory areas, with well over 50% cover throughout the oak and sycamore woodlands. This weed cover has dramatically increased since the site has burned, and this invasion by non-natives is having a substantial impact on the ecological functions of these aquatic resources, including available moisture in the soil. Little to no recruitment of native trees or shrubs (including willowy monardella) was seen under the oak and sycamore woodlands. As the older trees and shrubs continue to die over time, there will be no natural replacement in the absence of weed control management and other restoration activities. With a program of weed control and other enhancement activities (native seeding and container plantings), these woodland vegetation types will be able to persist and thrive in perpetuity.



SOURCE: SANGIS 2017, 2020

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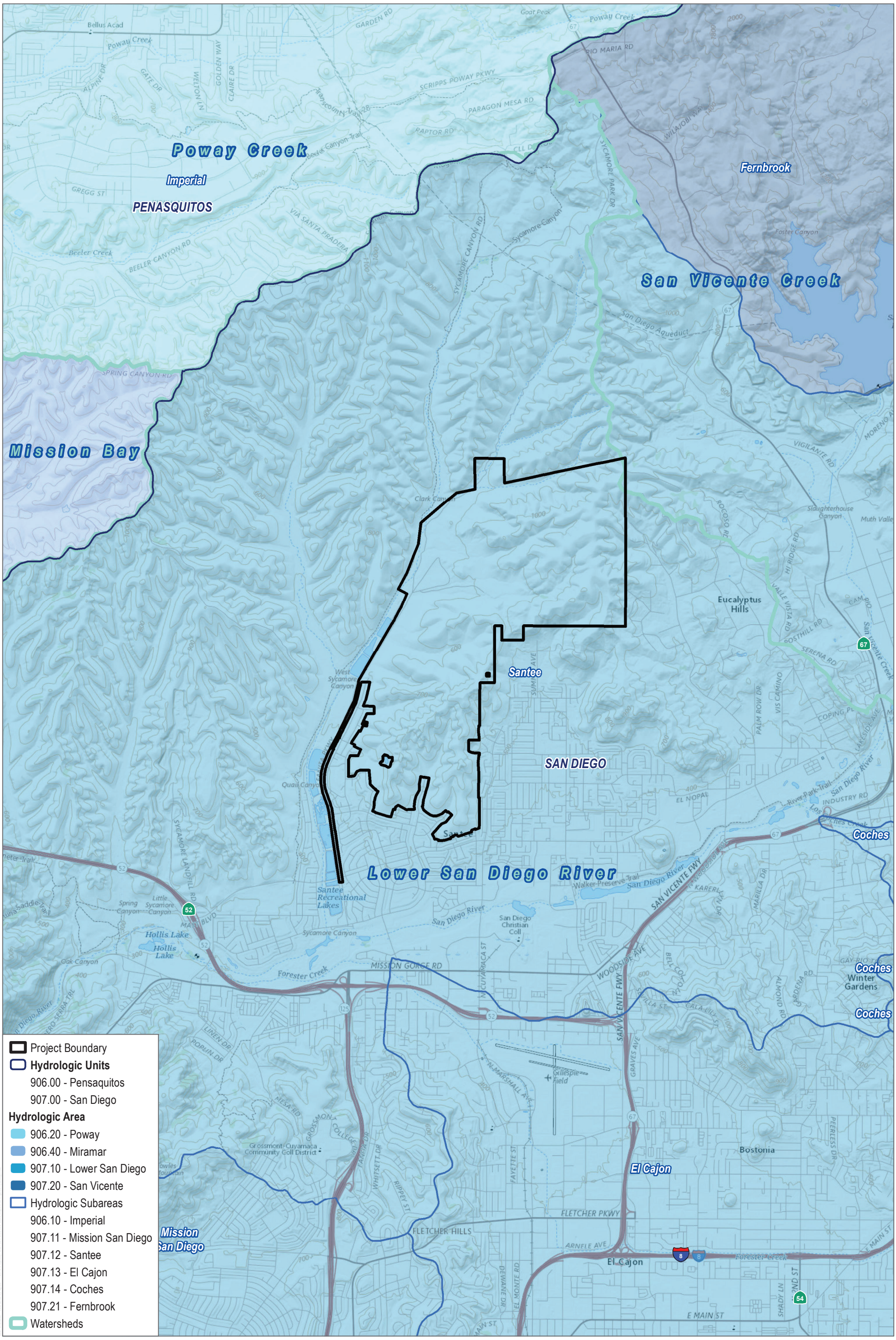
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FIGURE 5

Potential Vernal Pool Restoration Treatment Areas

Wetland Mitigation Plan for the Fanita Ranch Project

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SOURCE: CA Department of Water Resources; SANGIS 2020; USGS Topo Map

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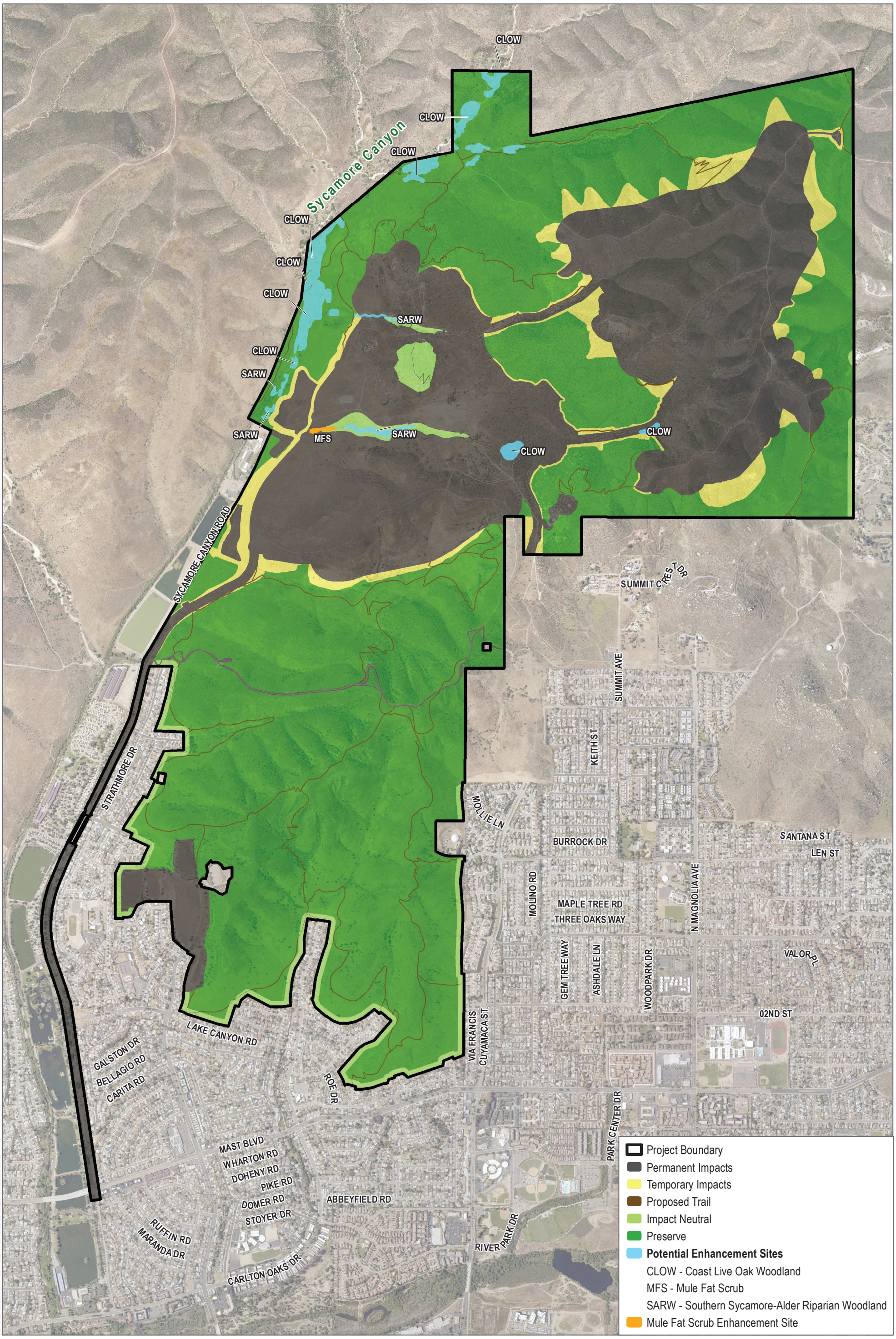
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FIGURE 6

Hydrology

Wetland Mitigation Plan for the Fanita Ranch Project

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SOURCE: SANGIS 2017, 2020

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FIGURE 7

Enhancement Sites

Wetland Mitigation Plan for the Fanita Ranch Project

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Restoration of the understory of these woodlands will include a program of weed control along with seeding of native understory species. Oak container planting will be targeted for these areas to meet the tree impact mitigation outlined under MM-BIO-5. Replanting of oak trees shall occur in the general areas where grasslands occur adjacent to existing oak trees and shall be conducted by a City-approved contractor. "Established" shall be defined as 5 years of sustained life without the assistance of irrigation and growth rates that are similar to those of naturally occurring reference oak trees. In the event the "established" success criteria cannot be achieved, the project applicant and the City of Santee shall jointly agree on the implementation of remedial measures to mitigate for impacts to individual oak trees.

Weed control that will be conducted as part of the enhancement program will include a combination of dethatching, herbicide application, and mowing. The combination of weed control methods will remove dead material that has built up on the ground over time, opening up the understory for the natives to have access to light and water resources. Following winter/spring germination, these open areas that have been dethatched will be treated with herbicide, targeting both non-native grasses and forbs that have germinated in their early stages of development. Any areas where the non-native grasses and forbs survive herbicide application and are able to develop flowers, mowing will be used to keep non-natives from setting seed. Mowing will primarily be conducted using line trimmers, but other methods may be used where appropriate.

Areas where non-native plant control is conducted will also be targeted for hand seeding of native understory species to help reestablish native understory species that have been lost to weed invasion. Container planting will be restricted to the plantings required to meet tree impact mitigation only.

As part of the development of this Mitigation Plan, a conservation easement will be placed over the entire Habitat Preserve, including the mitigation sites, to provide for in-perpetuity site conservation. HomeFed will fund a long-term management program through an endowment or other acceptable permanent funding mechanism to implement management of aquatic functions.

2.8 Native Plant Communities to be Established

The compensatory mitigation project will enhance self-sustaining wetland and riparian vegetation communities that are consistent with other analogous drainages in the immediate vicinity of the Habitat Preserve. Native vegetation communities to be established include coastal live oak woodland and southern sycamore alder riparian woodland. Section 3.3, Site Planning and Seeding, presents the plant palettes for each vegetation community. Target communities will be representative of the species diversity that typifies similar drainages within the project site.

2.9 Current and Potential Wildlife Use

According to the Biological Technical Report for the Fanita Ranch Project (Dudek 2020), a total of 18 special-status wildlife species are known to occur within the upland and riparian areas of the Fanita Ranch Habitat Preserve. Restoration of riparian vegetation within the Habitat Preserve would provide higher quality habitat for special-status species known to occur within the Habitat Preserve, including least Bell's vireo (*Vireo bellii pusillus*), yellow warbler (*Setophaga petechial*), yellow-breasted chat (*Icteria virens*), and Cooper's hawk (*Accipiter cooperii*). Additionally, the preservation, rehabilitation/enhancement, and creation of vernal pools within the Habitat Preserve would increase suitable habitat for San Diego fairy shrimp (*Branchinecta sandiegonensis*) and western spadefoot (*Spea hammondii*). Wet season surveys within the Habitat Preserve identified 38 pools (0.21 acres) containing San Diego fairy shrimp (Dudek 2020). Western spadefoot toad has been observed by Dudek within 24 features located in the Fanita Ranch Habitat Preserve (Dudek 2020).

3 MITIGATION WORK PLAN

This section describes in detail who will be responsible for the mitigation effort and how the proposed compensatory mitigation program will be accomplished, including implementation, maintenance, and monitoring.

3.1 Project Implementation Personnel

Permittee/Project Manager

HomeFed Fanita Rancho LLC (HomeFed) is the owner/permittee of the project. HomeFed (or subsequent legal owners) shall be financially responsible for the implementation and management of this mitigation project.

Restoration Specialist

HomeFed will select a qualified Restoration Specialist who will review the environmental permits, documents, final Mitigation Plan and mitigation construction documents, and help to ensure that all protective fencing, pre-work bird surveys, and any other required items are adequately performed prior to beginning mitigation work.

The Restoration Specialist will perform site monitoring during mitigation implementation and throughout the 5-year maintenance and monitoring period. The Restoration Specialist will prepare mitigation annual reports with required biological data and will submit reports to HomeFed and the regulatory agencies. The Restoration Specialist shall have a degree in biology, ecology, or related field and be able to demonstrate at least 5 years' experience with similar wetland mitigation projects in Southern California.

Restoration Contractor

HomeFed will select a qualified habitat Restoration Contractor to implement the mitigation installation work and provide subsequent mitigation area maintenance. Restoration installation work shall be performed by a contractor possessing a valid California landscape contractor's license (Class C-27), who has previous experience with native riparian habitat restoration in San Diego County and who can demonstrate at least three successful similar wetland restoration projects in Southern California. The Contractor must be able to identify California native plants and common weed species and demonstrate knowledge of habitat restoration techniques.

The Contractor will be responsible for conformance to (1) this mitigation plan, and (2) regulatory agency permit requirements. The Contractor's responsibility for mitigation installation will continue until successful completion and final acceptance by HomeFed and the Restoration

Specialist at the end of the initial 120-day Plant Establishment Period (PEP). The Contractor will not be released from contractual obligations for installation until written notification is received from HomeFed that all required installation tasks as defined in the installation contract, final plans and specifications, this mitigation plan, and the project permits have been successfully completed.

After initial installation and completion of the PEP, HomeFed will contract for 5 years of maintenance services performed by a qualified Maintenance Contractor that specializes in the maintenance/management of habitat restoration/natural lands. Maintenance work shall be performed as indicated herein and per the Restoration specialist's recommendations. HomeFed may choose to hire a Maintenance Contractor that is separate from The Installation Contractor or relieve a contractor that fails to perform work satisfactorily.

3.2 Site Preparation

Site preparation shall be conducted under direction from the Restoration Specialist. Specific site preparation tasks are outlined below.

3.2.1 Site Protection Measures

Prior to completion of the 5-year mitigation program the mitigation area, which is included in the Fanita Ranch Habitat Preserve, will be protected in-place via recordation of a permanent conservation easement, deed restriction, or other approved protective mechanism over the entire mitigation area. The protection mechanism shall be adequate to demonstrate that the mitigation areas will be protected in-place in perpetuity without threat of future development, disturbance and/or encroachment. The conservation easement, deed restriction, or other appropriate legal document shall prohibit all residential, commercial, industrial, institutional, and transportation development, and any other infrastructure development that would not maintain or enhance the natural functions and values of the mitigation area. Utility lines, sewer lines, drainage lines, access roads, and other passive and/or active recreation areas shall not be allowed in the mitigation/revegetation areas where these easements/uses do not currently exist. Upon meeting the final performance standards, the site will be managed by a qualified long-term (in-perpetuity) natural lands manager.

3.2.2 Weed and Invasive Species Removal

Prior to grading or any restoration implementation, the Restoration Contractor shall meet with the Restoration Specialist to determine the best way to access the areas and remove vegetation without damaging adjacent native habitat. Areas to be planted and/or seeded shall be completely free of standing weeds and have exposed bare mineral soil at the time of plant and seed installation. Weed control will include hand-pulling of weeds, use of hand tools, weed whips, and/or foliar treatments of appropriate herbicides as determined by the Restoration Specialist. Specific herbicide

application rates and methods will be based on manufacturer specifications and the recommendations of a Pest Control Advisor (PCA), and will follow the general guidelines summarized below:

- Application methods will follow manufacturer specifications regarding application and safety procedures. Herbicide application shall comply with state and local regulations. All application tasks will be performed by or under supervision of a licensed applicator with the Pest Control Business License for California and the County.
- Herbicide Application will consist of (1) spot applications to individual plants where weed coverage is sparse and (2) broadcast applications to dense patches of weed species. Applications should be uniform and complete. Contact with native species must be avoided; in the event of gusty winds or winds in excess of 5 miles per hour (mph), application work will be temporarily discontinued to protect applicators and adjacent natural resources. Treatments will also be temporarily discontinued in the event of rainfall since rainfall reduces the effectiveness of the herbicide.
- Sprayed vegetation will be left undisturbed for 7 days to allow the herbicide to be distributed throughout the entire plant. Visible effects of herbicide application consist of wilted foliage, brown foliage, and disintegrated root material.
- Any non-native trees (*Eucalyptus* spp.) or shrubs will be cut and removed, and the stumps will be treated with a systemic herbicide approved for use in wetland areas.
- All dead weed materials shall be removed from the soil surface and disposed of at an appropriate disposal facility.

3.2.3 Soil Amendment

No soil amendments are proposed for the mitigation areas.

3.2.4 Erosion Control BMPs

Erosion control best management practices (BMPs) will be used where necessary to reduce the mobilization and transport of sediments and pollutants from the mitigation areas during installation and during the maintenance and monitoring period. In general, the native container planting and seeding will provide effective erosion control, however additional BMPs such as burlap encased straw wattles/fiber rolls or burlap gravel bags may be needed, as determined by the Restoration Specialist. BMPs with nylon netting shall not be used in mitigation areas, and all BMP measures will be biodegradable. All straw wattles/fiber rolls shall be certified free of noxious weeds.

3.2.5 Supplemental Irrigation

A temporary aboveground irrigation system will be installed to help establish native vegetation within the restoration establishment areas. The temporary irrigation system will allow for planting and seeding work to occur outside of the optimal planting window and will help ensure planting and seeing is successful even if they are installed during a drought year.

All irrigation will be installed by the Restoration Contractor in accordance with this plan and the final mitigation construction documents. The irrigation system will be designed with aboveground components to facilitate removal once the system is decommissioned. Water sources and points of connection shall be from on-site locations and use potable water.

The goal is to create native, self-sustaining plant communities. Irrigation will be reduced approximately 33% each year for three years following installation and be non-irrigated for at least 2 years before the end of the 5-year maintenance and monitoring period. Habitat enhancement areas for coastal sage scrub and native grassland buffer areas will not need to be irrigated as long as seasonal rainfall is adequate.

The irrigation system will be automated and include a master valve. All irrigation on site will consist of schedule 40 polyvinyl chloride (PVC) pipe staked to grade and provide head to head coverage.

The Restoration Specialist will consult with the Restoration Contractor regarding the watering schedule during the monitoring period and the timing for ending irrigation. Irrigation will occur on a frequency and duration to optimize soil and water resources in concert with winter rainfall events. Irrigation will stop at the earliest possible date without risking significant planting mortality. The above grade portions of the irrigation system will be removed prior to final project approval.

3.3 Site Planning and Seeding

Site planting and seeding shall be conducted under direction from HomeFed and the Restoration Specialist.

Once the mitigation site has been prepared, the irrigation system installed and tested, temporary BMPs installed, and the soil surface free of weeds, trash, and erosion features, planting and seeding will occur under direction of the restoration specialist. While fall and early winter are optimal planting times in terms of natural rainfall potential, and dormancy of many plant species, plant installation is possible at any time of the year due to the presence of an aboveground irrigation system.

Planting design and container plant layout shall be randomly patterned (as opposed to rows), to create a natural patchiness that is typical within natural plant communities. The Installation Contractor shall lay out container plants as shown on the final mitigation construction plans. The Restoration Specialist shall inspect the pin-flagged locations and adjust placement of plants if necessary.

3.3.1 Seed Application

A site-specific native seed and hydroseed slurry mix shall be developed for the project. All seeds shall be clearly labeled showing type of seed, test date, the name of the supplier, origins, and percentage of the following: pure seed, crop seed, inert matter, weed seed, noxious weeds, and total germination content. All material will be delivered to the site in original, unopened bags bearing the manufacturer's guaranteed analysis. Prior to delivery and installation the restoration Contractor shall submit material data including copies of the seed bag certificates to the Restoration specialist for review and approval. Seed shall be mixed with clean potable water, cellulose wood fiber mulch, tackifier, and green dye and applied using hydroseeding equipment.

The Restoration Specialist shall review and approve the site prior to seed application to ensure there the site has been properly prepared. Prior to seed application the site soil shall be lightly wetted using the irrigation system or water truck. Hydroseed shall be applied using a large arc in a slow, sweeping motion. At the specified rate the hydroseed mix shall cover 100% of the ground with no bare soil showing. Hydroseeding shall be postponed if rain is forecasted to occur within 24 hours after seeding. Container plants shall be avoided when applying hydroseed slurry mix. Contractor shall clean any plants that are accidently sprayed. Any container plants damaged by hydroseeding work shall be promptly replaced in-kind by the Restoration Contractor.

Seed installation between October and January is ideal for allowing establishment during the cooler and wetter time of the year.

Additional seed will be hand broadcast if the seed of selected species is not available at the time of initial hydroseed installation. The Contractor will consult the restoration specialist in the event that a given species on the plant palette is not be available for inclusion in the initial seed mix installation.

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4 MAINTENANCE PLAN

Maintenance activities will begin upon completion and approval of installation work. The Restoration Contractor's maintenance activities shall be performed as indicated herein and as necessary to meet the established performance standards.

4.1 120-Day Plant Establishment Period (PEP)

During the first 120 days following completion of project installation, the Restoration Contractor shall warranty and be responsible for the health and mortality of the installed plant material. The restoration specialist will visit the site at 30, 90, and 120 days during this PEP. At the 90-day visit, the restoration specialist will take inventory of any container plants which have died and provide a punch-list of replacement plants for the Contractor. Generally, plants will be recommended for in-kind replacement, however the restoration specialist will recommend alternative species if it is suspected that unsuitable growing conditions caused mortality. Plants noted for replacement shall be installed prior to the 120-day walk through with the Restoration specialist. At 120-days, the installed plant material shall have a 100% survival rate. A PEP schedule is shown in Table 8.

Table 8
Plant Establishment Period (PEP) Maintenance Schedule

Work Task	1–30 Days	31–60 Days	61–90 Days	91–120 Days
Weed Control	X	X	X	X
Plant Replacement				X
Irrigation System Scheduling/ Adjustment/Maintenance	X	X	X	X
Erosion Control	X	X	X	X
Pest Control	X	X	X	X
Trash Removal	X	X	X	X

4.2 Maintenance Guidelines

Following the initial 120-day Plant Establishment Period site maintenance shall occur at least quarterly (seasonally) throughout the remainder of the 5-year maintenance and monitoring period, or more frequently if needed to meet the performance standards indicated herein.

4.2.1 Weed and Pest Control

Non-native plant control measures will include the following: (1) hand pulling, hand cutting, (2) cutting with hand-held mechanical devices, and (3) herbicide application. Hand removal of non-natives is the most desirable method of control and will be used around individual container plant

installations and seeded areas where feasible. Weeds shall be pulled when plants are 6–12 inches tall or when they can be positively identified, and prior to the formation of seed heads.

The Maintenance Contractor shall coordinate with the Restoration specialist to identify weeds for removal as needed. Chemical herbicide control will be used for annual and perennial species that are difficult to control by hand pulling. Herbicide treatments must be pre-approved by the Restoration specialist and applied by a licensed or certified pest control applicator.

Plant pests will be controlled utilizing Integrated Pest Management Techniques (IPM). Pests control will be performed by the Restoration Contractor using the least toxic method available, such as washing pests off of plants with a strong stream of water, utilizing insecticidal soap, or installing plant protection devices.

If the restoration specialist determines that herbivory from vertebrates is an issue at a significant level (more than 10% of plants impacted), the Restoration Contractor will be required to install herbivory protection as appropriate, including plant cages and/or plant cages, where appropriate.

4.2.2 General Site Maintenance

Pruning or clearing of native vegetation will generally not be allowed within the mitigation areas, except as directed by the Restoration Specialist. Dead biomass and plant litter will not be removed and will be left in place. Organic biomass and leaf litter provide valuable microhabitats for benthic and terrestrial invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of plant material is essential for the replenishment of soil nutrients and minerals. Trash will be removed from the mitigation areas by the Contractor on a regular basis. Trash consists of all anthropogenic materials, equipment, or debris dumped, thrown, washed, blown, and left within the mitigation areas. Fertilizers will not be used unless deemed necessary by the Restoration Specialist to rectify a specific nutrient deficiency.

4.2.3 Irrigation System and Maintenance

Contractor maintenance shall include adjustment and repair to the temporary irrigation system. This will include repair or replacement of broken or malfunctioning components. Adjustment of the irrigation heads may be required to achieve 100% coverage. On the basis of monitoring observations, the Restoration Specialist will make recommendations to the Contractor to increase or decrease watering time or scheduling.

4.2.4 Fence and Signage Maintenance

Contractor maintenance shall include maintenance and repair of project fencing and signage.

4.2.5 Erosion and Sedimentation

The Contractor shall maintain temporary BMPs such as burlap fiber rolls, silt fence, and burlap gravel bags as needed for proper function until the site has obtained 70% vegetative cover. Once the site is stabilized by native vegetation the Contractor shall remove and dispose of temporary BMPs. Burlap BMPs free of nylon netting may be left in place to decompose naturally.

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5 MONITORING AND REPORTING REQUIREMENTS

The Restoration Specialist will perform mitigation site monitoring during Years 1 through 5 as indicated below. The impetus is to help ensure the site is progressing towards the annual performance standards and that site maintenance is being adequately performed by the Maintenance Contractor.

5.1 Monitoring Schedule

Qualitative biological monitoring will be performed monthly during the initial 120-day plant establishment period and quarterly (seasonally) for 5 years thereafter (Table 9). Quantitative monitoring (transect data collection) will begin in year three and be conducted in late spring during years 3 through 5.

Table 9
Monitoring Schedule

Year	Frequency	Annual Report
1	At 30, 60, 90, and 120 days during the 120-Day PEP, then quarterly	January
2	Quarterly	January
3	Quarterly	January
4	Quarterly	January
5	Quarterly	January

5.2 Qualitative Monitoring

Monitoring will consist of quarterly qualitative field monitoring visits and annual quantitative data collection conducted by the Restoration Specialist. Qualitative monitoring will be conducted quarterly by the Restoration Specialist to determine if the site is on trajectory to meet the annual performance standards. If mitigation efforts fail to meet the performance standards in any given year, the Restoration Specialist will recommend remedial actions to bring the site into alignment with the performance standards.

Each qualitative monitoring visit will include a visual evaluation of weed species cover, native plant and seed establishment and health, plant pests, plant mortality, soil moisture, irrigation practices, trash accumulation, hydrology/erosion, and project fencing and signage. Following each site visit, the Restoration Specialist will generate a brief Site Observation Report indicating the condition of the site and any maintenance and/or remedial actions needed to help ensure the project meets its annual performance goals. Copies of the Site Observation Report will be provided to HomeFed and the Restoration Contractor.

5.3 Quantitative Monitoring

Annual quantitative transect point data will be collected in late spring each year to determine percent cover of native plant species, non-native species, bare ground, species richness, patchiness, and vertical structure. Each transect start point will serve as a permanent photo-documentation point. Transect data will be tabulated and photos of each transect will be included in the annual reports to document the progress of the mitigation areas.

5.4 Reporting

Reporting will occur at the completion on mitigation construction, and during the five-year monitoring period.

5.4.1 Mitigation Construction Report

At the completion of the 120-Day PEP, a report will be prepared and submitted to the regulatory agencies that includes the following:

- Dates that all compensatory mitigation construction activities were completed
- Modifications (if any) to the approved schedule for implementation, monitoring, and/or reporting.
- Summary of the compliance status with each special condition associated with the agency permits
- Color photographs of the constructed and/or restored habitats for mitigation
- Analysis and summary of qualitative information collected.
- "As built" drawings for the implemented compensatory mitigation project.
- Summary of annual site activities, including irrigation effort, fencing and signage, erosion control, vandalism and trespassing, and remedial measure that were implemented (if any).

5.4.2 Ecological Performance Standards

The goal of this project is to provide equal or better functioning habitat compared to the habitat that was impacted via habitat establishment (creation) and enhancement of existing degraded habitat. The performance standards herein were based on an evaluation of the existing arroyo willow scrub, oak woodland, and coastal sage scrub/native grassland habitats. For impacts to unvegetated stream channel the goal is to create replacement stream channel that is earthen-bottomed that slows stormwater runoff and allows it to better infiltrate into the soil's upper soil horizons while avoiding erosion.

The performance standards for unvegetated stream channel establishment include the following: Evidence of a bed and bank, signs of surface hydrology via active storm or post-storm flow, debris wracking, sediment deposition, leaf staining, and micro-channel formation. While not all of these indicators may be present, at least three shall be present, along with a lack of significant erosion (i.e., rut or gully formation), for the established channel to be considered successful. In addition, the channels shall have less than 10% cover by weeds species and be free of perennial invasive species.

The performance standards for the habitats are shown in Table 10. In addition to the criteria in Table 10, the mitigation areas must prove to be self-sustaining by not having received irrigation for two years prior to sign off.

Table 10
Coast Live Oak Woodland Establishment and Enhancement Area Performance Standards*

Year	Minimum Percent Container Plant Survival**	Maximum Percent Non-Native Plant Cover	Percent Native Plant Cover	Percent Invasive Species
1	100	20	30	5
2	90	15	40	5
3	85	10	50	3
4	80	7	60	2
5	80	5	75	0

* CLOW is CDFW only jurisdictional Mitigation and does not require the development of hydric soils

** Natural recruitment and hydroseed germination, if present, may be counted to offset container plant mortality at the discretion of the Project Biologist.

5.4.3 Mitigation Monitoring Report

Annual monitoring reports will be prepared and submitted to the permitting agencies during the 5-year maintenance and monitoring period. The monitoring reports will describe the existing conditions of the mitigation areas referencing routine site observations and quantitative vegetation data collection. The reports will provide a comparison of annual performance standards with field conditions; identify all shortcomings of the mitigation; and recommend remedial measures necessary to reach mitigation goals and performance standards. Each annual report will provide a trend summary of the accumulated data. Annual reports also will include the following:

- A list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities
- A copy of the resource agency permits
- Prints of monitoring photo points
- Maps identifying planting zones, transect locations, and weed removal areas as appropriate

- Quantitative data from transect measurements in Years 2 through 5 of the mitigation.
- Analysis of project performance against performance standards.

The annual monitoring reports will be submitted to the resource agencies by January 10 of each year after conclusion of the prior years' maintenance and monitoring activities.

6 COMPLETION OF MITIGATION

When monitoring indicates the project has met the final performance criteria for the site, HomeFed will notify the resource agencies upon submitting the last annual report and request written approval of the project. Any corresponding mitigation-related bonds be requested to be released.

6.1 Agency Notification at the End of the Monitoring Period

At the conclusion of the scheduled maintenance and monitoring period, the mitigation site must satisfy the following additional requirements to be considered complete:

- Attainment of final performance standards
- No supplemental water for a minimum of two years prior to the end of the monitoring period

Once it is determined that the mitigation sites have met performance standards, the resource agencies shall be notified via the final monitoring report and a request made to conduct a final site walkthrough with the resource agency staff to verify project completion. Upon agreement that site conditions match performance standards, the restoration specialist on behalf of HomeFed shall formally request final acceptance of the mitigation program and release from the permit conditions.

6.2 Regulatory Agency Confirmation

Upon successful completion of the mitigation program and agreement that the permit conditions have been fulfilled, the resource agencies shall be requested to provide written confirmation that the project is complete and that the permit conditions have been satisfied and the long-term maintenance and monitoring period is complete.

Early release may be possible if performance standards and success criteria are met early and the resource agencies agree with the level of establishment. Acceptance of the site would release financial securities posted for the project (e.g., letter of credit, bond), and confirmation that project mitigation has been satisfied.

If HomeFed receives no response from the permitting agencies within 60 days of submittal of the final report, the final monitoring report will be deemed approved. HomeFed will formally notify the permitting agencies that the mitigation site has satisfied the agency permits and that no further maintenance or monitoring will be conducted excepting those requirements of the long-term management.

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7 LONG-TERM MANAGEMENT

After completion of the performance-based mitigation requirements during the interim five-year maintenance and monitoring program, maintenance of the mitigation sites will transition to long-term management of conserved lands. Long-term management will be conducted in accordance with the approved long-term Preserve Management Plan (PMP) for the Fanita Ranch Habitat Preserve.

Since the mitigation site occurs within the project's Habitat Preserve, which will be designated through a formal conservation easement as part of the MSCP open space, activities occurring within the Habitat Preserve will be funded and managed in perpetuity by the Preserve Manager in accordance with the PMP. Preparation of the PMP will define the costs associated with implementation of the proposed mitigation program for the habitat to be managed. An estimate of long-term management costs will be prepared using PAR software. The PAR will form the basis for estimating the monetary value of a non-wasting endowment or comparable funding mechanism acceptable to the resource agencies. The endowment will create enough funds through appropriate investment to pay for management actions that maintain the functions and services of the mitigation sites in perpetuity. A qualified easement holder that is approved by Army Corps of Engineers, Regional Water Quality Control Board, and/or CDFW will hold the conservation easement for all mitigation sites. The Preserve Manager will be responsible for providing habitat management services and for the successful implementation of the long-term PMP.

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APPENDIX T

Public Access Plan

DRAFT

FANITA RANCH PRESERVE
PUBLIC ACCESS PLAN

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ADA	Americans with Disabilities Act
City	City of Santee
CRPR	California Rare Plant Rank
CTMP	Community Trails Master Plan
Habitat Preserve	Fanita Ranch Habitat Preserve
MCAS	Marine Corps Air Station
MSCP	Multiple Species Conservation Program
project	Fanita Ranch Project
SDG&E	San Diego Gas & Electric

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1 INTRODUCTION

1.1 Purpose of the Plan

The purpose of this Public Access Plan is to provide opportunities for non-motorized access into the Fanita Ranch Habitat Preserve (Habitat Preserve) and to emphasize preservation and minimization of impacts to existing sensitive natural and cultural resources. This Public Access Plan includes background information and a description of the proposed development of the Fanita Ranch Project (project) and Habitat Preserve; a review of existing plans, goals, and objectives related to public access; a discussion of existing and proposed trails within the Habitat Preserve; and a discussion on management activities and allowed uses. This Public Access Plan is based on the Fanita Ranch Specific Plan, the Preserve Management Plan for the Fanita Ranch Habitat Preserve, the Trails Element of the City of Santee General Plan, the San Diego County Regional Trails Plan (County of San Diego 2005), coordination with HomeFed Fanita Rancho LLC (Applicant) and City of Santee (City) staff, and the Draft Santee MSCP Subarea Plan, Wildlife Agency Review Draft, which was prepared and released for internal Wildlife Agency comments in December 2018 (City of Santee 2018). To ensure continued relevancy, this document should be updated every 10 years.

1.2 Location & Setting

Fanita Ranch is located in the northwest portion of the City of Santee in central San Diego County, California (Figure 1, Project Location). The project site is approximately 18 miles east of downtown San Diego and 22 miles north of the U.S./Mexico border. Fanita Ranch totals approximately 2,638 acres and is bordered primarily by existing City residential neighborhoods to the south and the unincorporated residential communities of Lakeside and Eucalyptus Hills to the east. To the northeast, active mining operations occur in Slaughterhouse Canyon and are separated by a large hillside. To the north, Sycamore Canyon County Preserve and unincorporated vacant lands border the project site. Farther north lies the Goodan Ranch Regional Park, which is jointly owned by the Cities of Santee and Poway, the County of San Diego, and the State of California. To the west of Fanita Ranch is Marine Corps Air Station (MCAS) Miramar and Santee Lakes Recreation Preserve.

The project site lies north of State Route 52 and west of State Route 67. The site occupies portions of Township 15 South, Range 1 West, projected Sections 2, 3, 4, 8, 9, 10, 16, 17, 20, and 21 on the San Vicente Reservoir, El Cajon, La Mesa, and Poway West U.S. Geological Survey 7.5-minute quadrangle maps.

1.3 Background

The Fanita Ranch development has been subject to environmental review and land use planning for the past 40 years. At the time of City incorporation in 1980, the project site was designated in the County of San Diego Community Plan for development of approximately 14,000 dwelling units. In 1984, the City adopted its first General Plan. The Santee General Plan designated Fanita Ranch for a maximum of 8,100 dwelling units (City of Santee 1984). In August 2018, the current owner of the property, HomeFed Fanita Rancho LLC and JWO Land LLC, a wholly owned subsidiary of HomeFed Fanita Rancho LLC, submitted a complete application for the proposed project.

In addition to the long history of land use planning, the project site has been a key part of the City's participation in the Multiple Species Conservation Program (MSCP) Plan. The MSCP Plan calls for the preservation and management of approximately 900 square miles in southwestern San Diego County. The MSCP Plan and Environmental Impact Report/Environmental Impact Statement were adopted in August 1998 (City of San Diego 1998). The MSCP Plan outlines a comprehensive regional habitat preserve system and established minimum conservation and management requirements for identified species. The City amended its General Plan to require that future development within the City be consistent with the MSCP Plan and the City's Draft MSCP Subarea Plan. The City is in the process of obtaining approval of its Draft MSCP Subarea Plan, which is divided into six subunits, including the Fanita Ranch Subunit.

The currently proposed project includes two development areas that would impact approximately 988.77 acres of on- and off-site sensitive habitats. The current project also includes fewer impacts to special-status plants, larger wildlife movement corridors, and an approximately 900-acre block of contiguous open space contained within the proposed Habitat Preserve and connected to other preserve areas in the vicinity.

1.3.1 Public Access Plan Background

Planning for public access into the proposed Habitat Preserve was a collaboration between the Applicant, the City, and community members and stakeholders interested in public access to open space while preserving the existing natural character and ecological functions. Working groups consisting of the neighboring communities, local mountain biking groups, and environmental professionals were engaged by the City and Applicant to evaluate the project site's extensive existing dirt road and trail network to develop an appropriate trail alignment that provides optimal recreational opportunities while preserving sensitive natural and cultural resources. The resulting trail alignment was adopted from a strategy of minimizing impacts and maximizing trail experience. The preferred trail alignment incorporates the most appropriate existing trails into the trail network, and proposes decommissioning redundant trails and trails with proximity to sensitive resources. Developing the trail alignment primarily from existing trails minimizes impacts by using areas within the Habitat Preserve currently mapped as developed or disturbed. New trails

presented by this Public Access Plan are designed as minimization and avoidance measures, since creation of new trail alignments would redirect public users away from the Habitat Preserve's sensitive resources. The current trail alignment presented in this Public Access Plan is as depicted by the Fanita Ranch Specific Plan (City of Santee 2020).

1.3.2 History of Trails on the Project Site

The town of Stowe was settled in the early 1800s by homesteaders and functioned as a postal stop for the area from the opening of the post office in 1884 until the town was largely abandoned in the early 1900s (Crafts 2020). The Stowe Trail, located in the western part of the Habitat Preserve following Sycamore Canyon Creek, functioned as an important transportation route between the towns of Stowe, Poway, Santee, and El Cajon. A section of the Stowe Trail passes through MCAS Miramar, and access to that segment is currently restricted.

A number of conflicts have arisen over continued use of the Stowe Trail by the public, and a significant effort was made by stakeholders to secure access to this segment of the trail (SDMBA 2020). A permit process is now in place that allows use by permit holders.

The Habitat Preserve contains an extensive existing trail system, much of which is subject to frequent unauthorized off-road vehicular traffic and unauthorized human activities that have been detrimental to the sensitive habitats and natural resources on site. Impacts include those from unauthorized mountain bike trails, off-roading vehicles, vandalism, and refuse and vehicle dumping.

The MSCP Plan (City of San Diego 1998) area is located in the southwestern portion of the San Diego region and includes the City of Santee, portions of unincorporated San Diego County, and 10 other jurisdictions (Cities of San Diego, Chula Vista, Coronado, Del Mar, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, and Poway). The ability to formulate a plan was provided under the state Natural Community Conservation Planning Act. The Subregional MSCP planning effort was initiated in the early 1990s and was analyzed within the Final EIR/EIS: Issuance of Take Authorizations for Threatened and Endangered Species due to Urban Growth within the Multiple Species Conservation Program (MSCP) Planning Area (City of San Diego 1997). The Implementing Agreement required that participating agencies maintain the integrity of their open space areas as they develop their respective subarea plans (USFWS, CDFG, and City of San Diego 1997). Evidence of active unauthorized trail creation and associated off-road-vehicle impacts to the landscape and vegetation communities can be detected on aerial photographs from around the time period of the development and approval of the MSCP Plan. Figure 2, Historical Aerial (1994), is a historical aerial depicting obvious land disturbance circa 1994. Figure 3, Historical Aerial with Current Mapping Overlay, shows the current mapped trail-related impacts (identified as developed or disturbed land coverages) overlying the 1994 base map for reference. Comparing the 1994 base map to the current condition, it is apparent that there were more trail and off-road impacts when the 1994 photo was taken than the current

condition. Certainly, there are some areas where new trails have been created, but much more disturbance was present earlier. It is likely that the reduction in disturbance over time has been the result of different ownership, better fencing practices, increased presence of law enforcement and emergency personnel, better management practices related to the Stowe Trail/MCAS Miramar, fires removing trace of trails, and vegetative growth, among other factors.

1.4 Proposed Development

The Fanita Ranch development is a housing project that would include villages, detention basins, utilities, fuel modification zones, easement areas, active agricultural lands, grading buffers, roads, water tanks, manufactured slopes, and a special-use area. The permanently developed area would total approximately 953 acres, and the remaining portion would be set aside as open space, including a 1,650-acre open space hardline Habitat Preserve (which includes temporary impact areas once restored) , and an approximately 12-acre riparian area.

Development would be distributed into three separate villages: Fanita Commons, Vineyard Village, and Orchard Village. The project would consist of up to 2,949 homes of varying types and sizes; up to 80,000 square feet of commercial uses; a 31.2 acre community park (including an 11.5-acre passive area), 30.4 acres of neighborhood parks, 16.4 acres of mini parks, open space, and agriculture. Access to the site would be provided via the extension of Fanita Parkway in the west and Cuyamaca Street and Magnolia Avenue in the east.

Fanita Commons, Vineyard Village, Orchard Village

Fanita Commons is in the northwest portion of the project site and is planned as the primary activity center for Fanita Ranch. Fanita Commons includes a mixed-use village center, an active-adult neighborhood, a K-8 school site, a community park, a working farm and two preserved natural drainages with an adjoining linear park. With the farm as its focal point, orchards, vineyards, fields and a barn for community events define this village. The mixed-use village center allows for up to 40,000 square feet of commercial uses and residential, recreation and civic uses, including a site for a new City fire station. A 15-acre school site could accommodate 700 students. If the Santee School District does not acquire the school site, the underlying Medium Density Residential (MDR) land use designation may be implemented. In that case, the maximum total number of units permitted in the Specific Plan would increase by 59 units for a total of 3,008 units. Fanita Commons includes a total of 768 residential units, including 445 Active Adult homes and 323 homes within the mixed-use village center.

The Vineyard Village is in the northeastern portion of the project site. The Vineyard Village is separated from the other two villages by an open space/wildlife corridor within the Habitat Preserve. Two local streets connect the Vineyard Village to Fanita Commons and the Orchard Village. The

Vineyard Village provides a total of 1,326 residential units including, 749 LDR homes, 498 MDR homes and 79 homes within the mixed-use village center. The neighborhood-serving village center includes up to 10,000 square feet of retail and office uses. The Vineyard Village also features agricultural land planned for vineyards, as well as neighborhood parks and mini-parks.

The Orchard Village is located south of Fanita Commons and consists of residential land uses, neighborhood and mini-parks and a centrally located mixed-use village center. The Orchard Village provides a total of 855 residential units, including 454 Low Density Residential (LDR) homes, 368 MDR homes and 33 homes within the mixed-use village center. Open space and a linear riparian area geographically and topographically separate the Orchard Village from Fanita Commons. Roadways, trails and a pedestrian bridge connect the Orchard Village to Fanita Commons. A neighborhood-serving village center includes up to 10,000 square of retail, office and commercial uses. The Orchard Village also includes neighborhood parks and min-parks.

Habitat Preserve

Approximately 63% of the project site (approximately 1,650 acres) would be preserved as permanent open space, known as the Habitat Preserve. The Habitat Preserve would be open space areas outside the limits of development, and would include specific revegetated slopes at the edge of the development area. The bulk of the open space area, an approximately 900-acre contiguous block, would be located in the southern portion of the project site. The final acreage for the Habitat Preserve would consist of the proposed trails (10.52 acres), the San Diego Gas & Electric (SDG&E) access road (6.88 acres), and on-site temporary impact areas (114.47 acres), for a total of 1,650.38 acres. The Habitat Preserve area has a number of sensitive habitats and species, discussed further in Section 2.3, Biological Resources and Constraints. Ensuring protection of these resources is critical prior to allowing public access to the Habitat Preserve trail system. Chapter 6, Implementation, of this Public Access Plan provides prescriptions for management of trails toward this goal.

Permitted uses within the Habitat Preserve are described in detail in the Fanita Ranch Specific Plan (City of Santee 2020) and summarized in Chapter 5, Trail Connections, herein. Open space within the Habitat Preserve is planned to be dedicated to the City's MSCP area for long-term management.

Special Use

The Special Use land use designation would apply to an approximately 32-acre site located in the southwestern corner of the project site, east of Fanita Parkway. The site was previously graded for a City park, but geotechnical conditions made the site unsuitable for a park. Potential uses could include a solar farm, recreational vehicle and boat storage, aboveground agriculture without irrigation, or other similar uses not exceeding a height of 35 feet.

1.5 Trail Classification Overview

Public access routes within the Fanita Ranch development and Habitat Preserve would fall into three categories based on the Fanita Ranch Specific Plan: (1) regional connections, (2) pathways within the developed areas of Fanita Ranch, and (3) trails within the open space areas and Habitat Preserve (City of Santee 2020). This Public Access Plan focuses on the third type of trails: Nature Trails and Primitive Trails within the Fanita Ranch Habitat Preserve, as shown in Figure 4, Fanita Ranch Specific Plan Trails Map, taken directly from the Fanita Ranch Specific Plan.

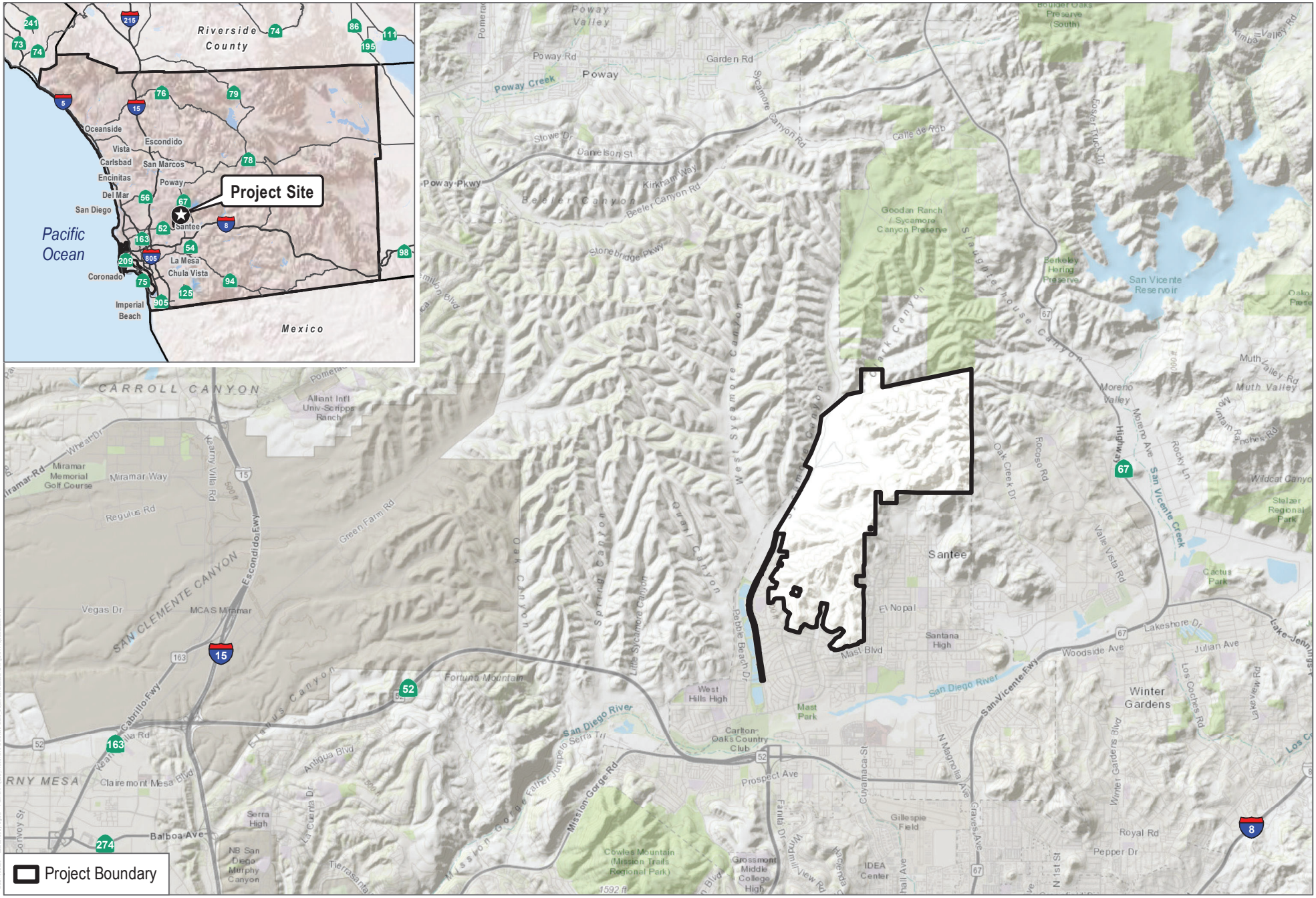
The primary regional trail connection is the Stowe Trail, which connects to the San Diego River Trail to the south and to the Goodan Ranch/Sycamore Canyon County Preserve and the Trans County Trail to the north, through the eastern edge of MCAS Miramar. Stowe Trail is an unpaved trail that varies in width from a few feet to approximately 10 feet, and is rated as moderate difficulty by alltrails.com (alltrails.com 2020). As previously discussed, the trail follows the alignment of a historic transportation route that connected the towns of Stowe and Poway to Santee and El Cajon. Currently, access through the portion of the trail that runs through MCAS Miramar is limited to authorized users holding a permit, and penalties for unauthorized access are enforced. Creation of the Stowe Trail connection through Fanita Ranch would provide a vital connection from the south that would avoid a connection through MCAS Miramar property. Access to Goodan Ranch/Sycamore Canyon County Preserve to the north via the Stowe Trail still requires crossing MCAS Miramar property. Access into the Sycamore Canyon County Preserve without entering MCAS Miramar property requires access on a trail connection in the northeastern corner of the Fanita Ranch property, which also connects into Vineyard Village.

Other regional connections include existing and proposed bike lanes in the City of Santee, including along N. Magnolia Avenue, Cuyamaca Street, and Carlton Hills Boulevard. These bike lanes are on-street, Class II routes designated by a striped line between the travel lanes and curb (N. Magnolia Avenue and sections of Cuyamaca Street and Carlton Hills Boulevard), or between the travel lane and parking lane (sections of Cuyamaca Street and Carlton Hills Boulevard), or unstriped Class III (Carlton Hills Boulevard north of Lake Canyon Road).

Pathways within the developed areas of Fanita Ranch would consist of paved concrete Multi-Use Trails along Fanita Parkway and Cuyamaca Street, paved Village Access Trails, and compacted earth or decomposed granite trails, including Village Nature Trails and Perimeter Trails. Proposed Multi-Use Trails would vary from 8 to 10 feet wide, and Village Access Trails would range from 10 feet wide adjacent to curbs, to 6 feet wide elsewhere. Village Nature Trails would be 6 feet wide and Perimeter Trails would be 8 feet wide. These developed pedestrian and bicycle pathways would serve as vital connections between Habitat Preserve trail segments and access points for local community users.

Outside of the developed areas, the Habitat Preserve would incorporate Nature Trails, Primitive Trails, and an existing SDG&E service road into the trail alignment. These unpaved routes would vary from 4 feet wide for the Nature Trails, to 2.5 feet wide (+/-) for the Primitive Trails. Nature Trails would be composed of compacted earth or decomposed granite, and Primitive Trails would be compacted native earth. The existing SDG&E service road is 8 to 10 feet wide and consists of a compacted native earth surface.

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SOURCE: SANGIS 2020; USGS Topographic World Map

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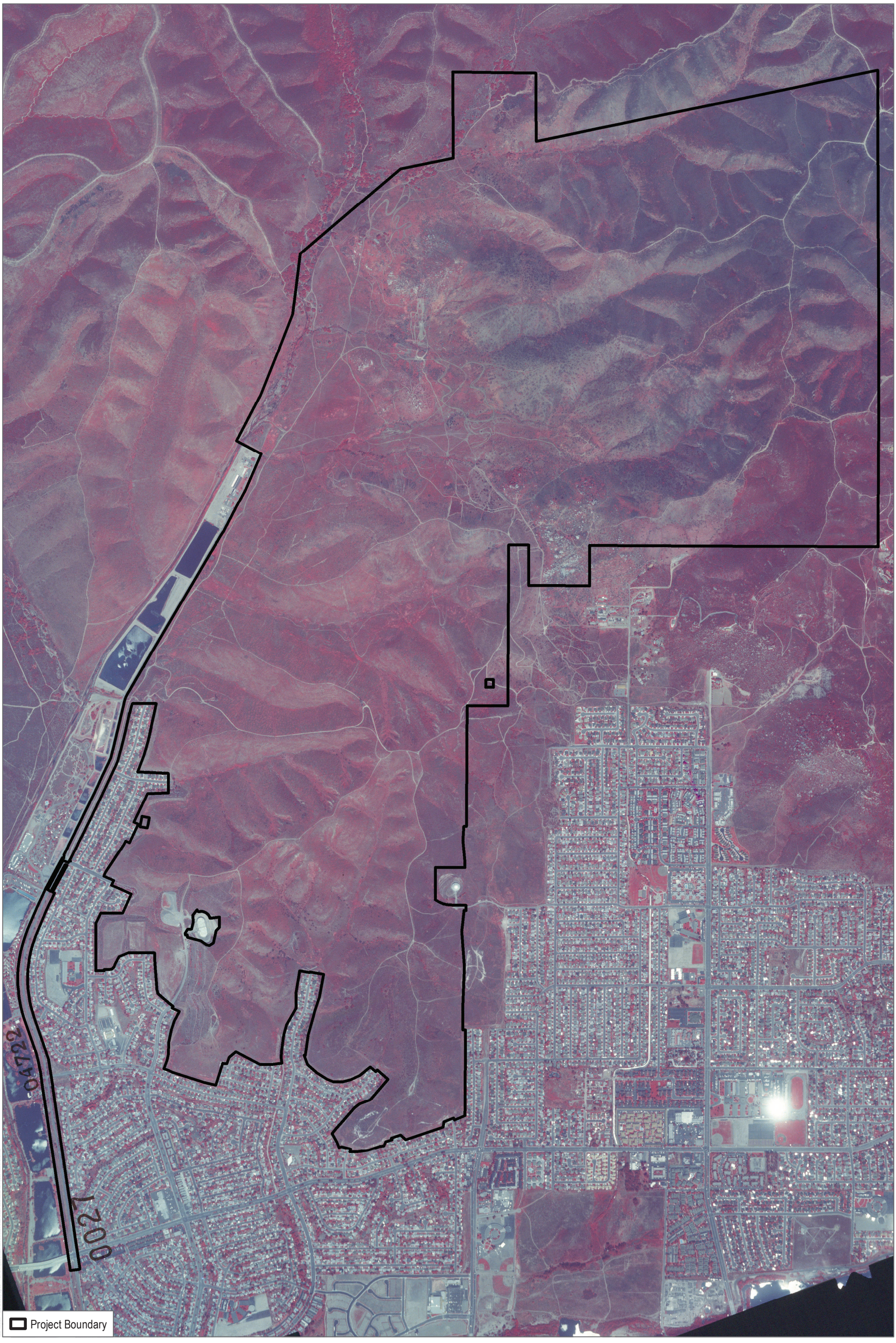
0 1 2 Miles

FIGURE 1

Project Location

Fanita Ranch Habitat Preserve Public Access Plan

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SOURCE: USGS 1994

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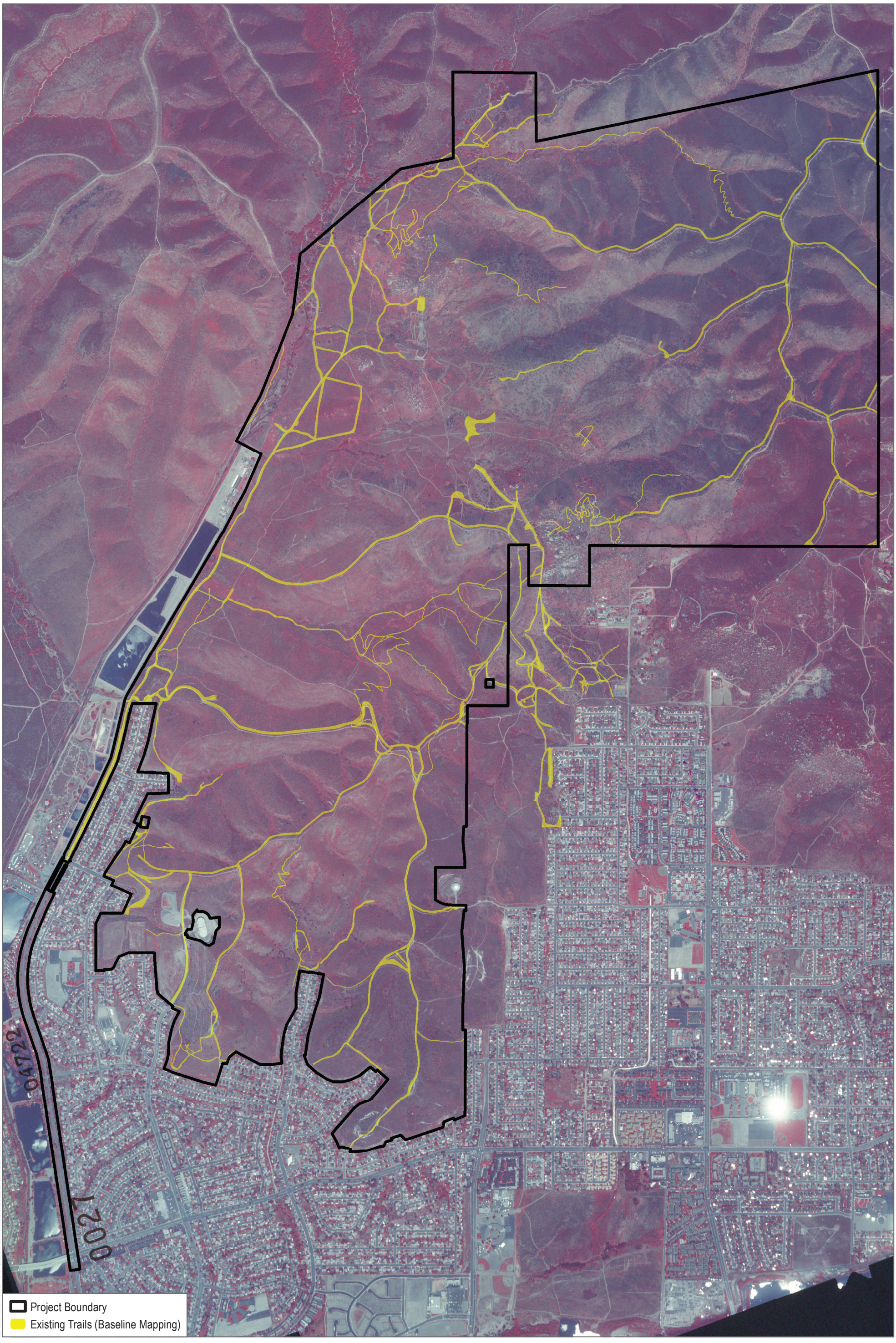
0 750 1,500 Feet

FIGURE 2

Historic Aerial (1994)

Fanita Ranch Habitat Preserve Public Access Plan

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SOURCE: USGS 1994

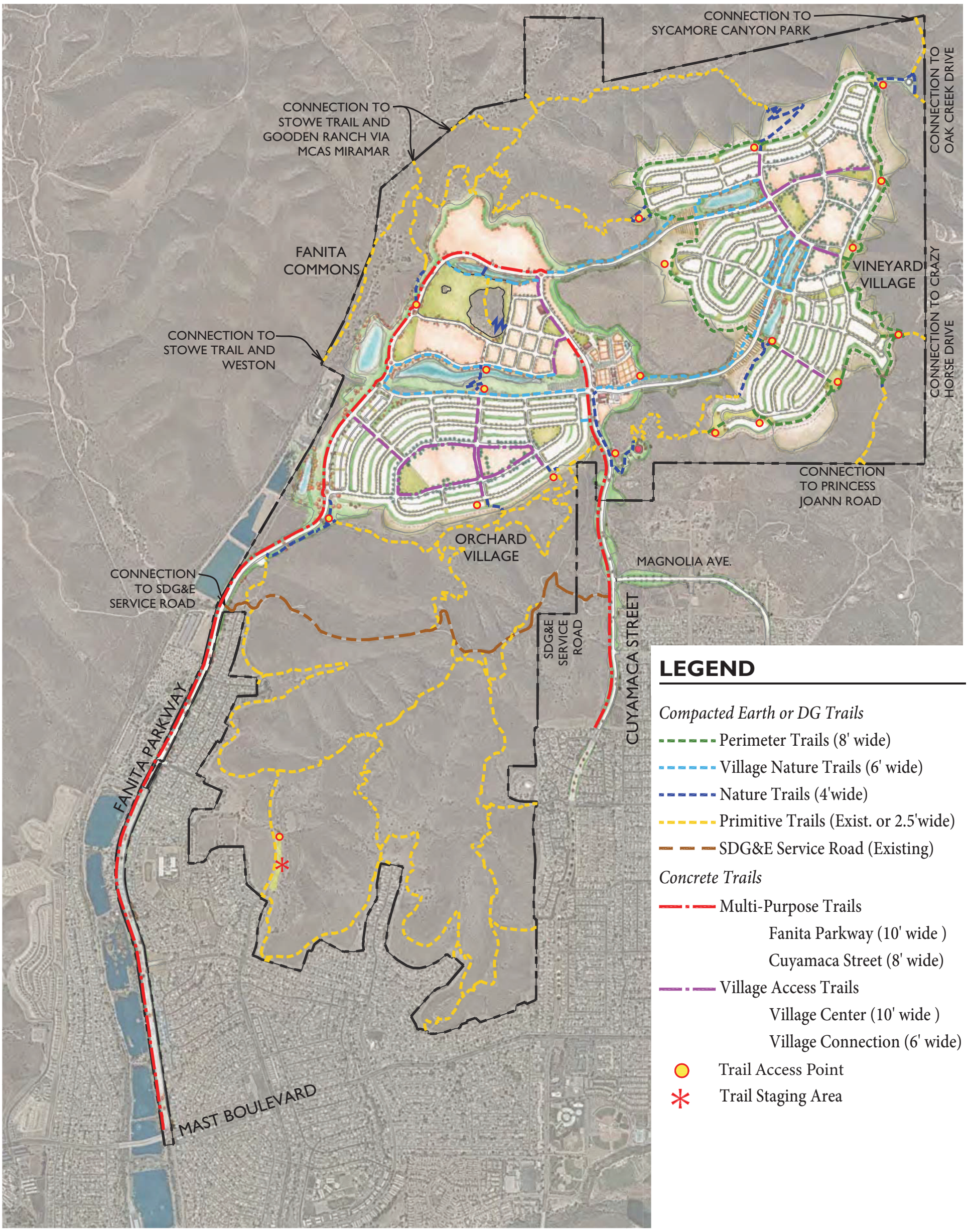
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FIGURE 3

Historical Aerial with Current Mapping Overlay

Fanita Ranch Habitat Preserve Public Access Plan

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not to scale

SOURCE: Fanita Ranch Specific Plan

FIGURE 4

Fanita Ranch Specific Plan Trails Map

Fanita Ranch Habitat Preserve Public Access Plan

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2 EXISTING CONDITIONS

2.1 Topography and Soils

Terrain within the Habitat Preserve consists primarily of ridgetops and rock outcroppings separated by well-defined drainages and highly dissected landforms. Elevations range from 340 feet above mean sea level to 1,210 feet above mean sea level, with higher elevations occurring along a north/south-trending ridgeline in the northeastern part of the Habitat Preserve, and lower elevations occurring along Sycamore Canyon (see Figure 5, Topography).

Soils present within the Habitat Preserve consist of Redding gravelly loam in the canyon bottom and Redding cobbly loam on the ridges; Los Posas stony fine sandy loam, Cieneba rocky coarse sandy loam, and Wyman loam, and inclusions of Basanko clay, on the slopes; Diablo-Olivenhain complex and Linne clay loam in the southern areas; and several other soil types scattered throughout (USDA 2019). A summary of soil types and their properties is included below.

Bosanko Clay

Bosanko clay, 2% to 9% slopes, consists primarily of Bosanko complex with minor inclusions (3% each) of Vista, Auld, Bonsall, and Fallbrook; and 1% of Cajalco and Buren series soils. Bosanko series soils have clay A horizons that vary from slightly acidic to moderately alkaline underlain by brown, calcareous sandy clay loam C horizons over weather rock at a depth of around 30 inches. Soil is well-drained with slow to rapid runoff depending on slope. Permeability is slow once moisture closes cracks. Primary natural vegetation is grasses and forbs.

As shown in Figure 6, Soils Within Habitat Preserve, Bosanko clay occurs along the most northern part of the Habitat Preserve.

Cieneba Rocky Coarse Sandy Loam, and Very Rocky Coarse Sandy Loam

Cieneba rocky coarse sandy loam, 9% to 30% slopes, eroded, consists of 60% Cieneba, 30% rock outcrop, 5% Vista, and 5% Las Posas soil series. Cieneba very rocky coarse sandy loam consists of 45% Cieneba soils and 45% rock outcrop, with 5% Las Posas and 5% Vista soils. Cieneba soils are very shallow to shallow, somewhat excessively drained, with fine gravelly loam A horizons to 10-inch depths underlain by strongly weathered granitic material with fractured relic rock structure. Rock fragments are up to 35% by volume. Soil is somewhat excessively drained, with low to high runoff and moderately rapid permeability in the soil horizons and significantly less in the weathered bedrock. Typical native vegetation is chaparral and chemise.

Cieneba rocky coarse sandy loam occurs in pockets along ridge slopes through the north-central portion of the project site (Figure 6).

Diablo Clay and Diablo-Olivenhain Complex

Diablo clay, 15% to 30% slopes, consists of 85% Diablo soils, 10% Altamont soils, 3% Linne soils, and 2% Oliventain soils. Diablo-Olivenhain complex, 9% to 30% slopes, consists of 50% Diablo soils, 45% Olivenhain soils, and 5% Linne soils. Diablo series soils have silty clay A and C horizons resting on shale below a depth of around 50 inches. Clay content of all but the lower C horizons is upward of 30%, with 45–60% being common. Soils are well-drained with slow runoff when soils are dry and medium to rapid when soils are moist. Permeability is slow. Native vegetation is annual grasses and forbs.

Olivenhain soils consist of very cobbly loam A horizons to 10-inch depths underlain by very cobbly clay B horizons at 10- to 42-inch depths and cobbly loam C horizons to 68 inches deep. Soils are well-drained. Runoff is slow to medium. Permeability is very slow.

Diablo clays occur in a very small area along Sycamore Canyon. The Diablo-Olivenhain complex occurs in the southern portion of the Habitat Preserve on lower ridge slopes (Figure 6).

Las Flores Loamy Fine Sand

Las Flores loamy fine sand, 2% to 9% slopes, consists of 85% Las Flores, 5% Linne, 5% Huerhuero, 3% Diablo, and 2% other (unnamed) soils. Las Flores series soils have loamy sand A horizons, sandy clay B horizons above weakly consolidated siliceous marine sandstone at 42- to 52-inch depths. Soils are moderately well-drained with medium to rapid runoff and very slow permeability. These soils were mapped in one location by the Natural Resources Conservation Service, on the western portion of the Habitat Preserve along Sycamore Canyon (Figure 6).

Las Posas Stony Fine Sandy Loam

Las Posas stony fine sandy loam, 9% to 30% slopes, and Las Posas stony fine sandy loam, 30% to 65% slopes are composed of 85% Las Posas soils; 4% Bancas soils; and 2% of Escondido, Friant, and Fallbrook soils. Las Posas series soils are moderately well-drained soils with loam and clay loam upper horizons, underlain by clay and heavy clay loam above weathered gabbro at 20 to 40 inches. Runoff is medium to rapid. Permeability is slow. These soils are found in the northern part of the Habitat Preserve on ridgetops and slopes between the proposed development bubbles (Figure 6).

Linne Clay Loam

Linne clay loam, 9% to 30% slopes, consists of 85% Linne, 5% Diablo, 5% Huerhuero, and 5% Altamont soils. Linne series soils are moderately deep and well-drained, formed from weathered soft shale and sandstone. Upper layers are clay loams and sandy clay loams. Lower layers are fine sandy loam above mudstone at 20 to 40 inches. Runoff is medium to very rapid, and permeability is moderately slow. Linne clay loam is found in the southern portions of the Habitat Preserve on lower ridge slopes (Figure 6).

Redding Gravelly Loam, Redding Cobbly Loam, and Redding-Urban Land Complex

Redding gravelly loam consists of 85% Redding, 2% Oliventain, Huerhuero, Chesterton, and 4% unnamed soils. Redding cobbly loam consists of 85% Redding, 5% Oliventain, 5% Huerhuero, and 2% unnamed soils. Redding-Urban land complex is composed of 50% Redding, 30% Urban land, and 5% Oliventain soils. The Redding soil series are moderately deep gravelly loams underlain by a clay layer above a duripan at 20 to 40 inches. Soils are well to moderately well drained with very low to high runoff and very slow to slow permeability. Vernal pools are often found on Redding soils with slopes less than 3%. These soils primarily occur along Sycamore Canyon, extending east following minor drainages (Figure 6).

Stony Land

Stony land consists of 100% unweathered bedrock with no soil horizons. Parent material is mixed colluvium. These soils are located in a thin strip along Sycamore Canyon and likely correspond to the route of the watercourse at the time the soils were mapped (Figure 6).

Visalia Gravelly Sandy Loam

Visalia gravelly sandy loam, 2% to 5% slopes, consists of 85% Visalia, 5% Greenfield, 5% Placentia, and 5% Tujunga soils. Visalia series soils are composed of gravelly sandy loams to 40 inches underlain by gravelly loam to 60 inches or more. Runoff class is low and water capacity is moderate. Soils are well-drained. Visalia soils are found in the low area along Sycamore Canyon (Figure 6).

Wyman Loam

Wyman loam, 5% to 9% slopes, consists of 85% Wyman with inclusions of Placentia, Ramona, Visalia, and Las Posas. Wyman series soils are deep, well-drained silt and light clay loams over clay and silty clay loams, underlain by stratified silt loam at 41 to 60 inches. Runoff is slow to medium, and permeability is moderate. Wyman soils are found in the central portions of the project site along ridge slopes (Figure 6).

2.2 Hydrology

The proposed Habitat Preserve is located in San Diego Region (9), the San Diego Hydrologic Unit (907), in the Lower San Diego Hydrologic Area (907.1), and in the Santee Hydrologic Subarea (907.12) (RWQCB 1995) (Figure 7, Hydrology). The San Diego Hydrologic Unit is a triangular-shaped area that occupies approximately 440 square miles, extending from the Laguna Mountains on the east to the Pacific Ocean on the west, and from the Santa Ysabel Indian Reservation on the north to the Interstate 8 on the south. This watershed includes the Cleveland National Forest and Mission Trails Regional Park. It has the highest population of San Diego County's watersheds,

and includes portions of the Cities of San Diego, El Cajon, La Mesa, Poway, and Santee, and several unincorporated jurisdictions. The watershed is drained by the San Diego River and contains five water storage reservoirs: El Capitan, San Vicente, Cuyamaca, Jennings, and Murray Reservoirs. The Lower San Diego Hydrologic Area occurs downstream of El Capitan, San Vicente, and Cuyamaca Reservoirs, and extends from the El Monte Valley through the City of Santee and into Mission Trails Regional Park and the City of San Diego. Sycamore Canyon Creek flows from north to south along the western edge of Fanita Ranch, and most of the project site drains toward the creek. Sycamore Canyon Creek and adjacent storm drain systems discharge to the San Diego River in the western portion of the City of Santee.

2.3 Biological Resources and Constraints

Vegetation Communities and Land Cover Types within the Habitat Preserve

The Fanita Ranch project avoids sensitive resources where feasible and reducing total impacts in its design. Layout of the proposed trails considered avoidance and minimization of impacts to sensitive biological resources, including avoiding vernal pools and special-status plants. The proposed trails take into consideration the existing network of trails to minimize new impacts.

The Habitat Preserve totals approximately 1,650 acres. The following general vegetation and land cover types occur within the Habitat Preserve: disturbed and developed; scrub and chaparral; grasslands, vernal pools, meadows, and other herb communities; bog and marsh; riparian and bottomland habitat; and woodland.

Approximately 10.52 acres of permanent impacts would result from the proposed trails within the Habitat Preserve, including 6.00 acres from new trail creation and 4.52 acres from existing trails being retained. Sensitive vegetation communities to be impacted as a result of the proposed trails include Diegan coastal sage scrub (including disturbed), Diegan coastal sage scrub-valley needlegrass grassland (including disturbed), disturbed Diegan coastal sage scrub-non-native grassland, Diegan coastal sage scrub-Baccharis-dominated, granitic southern mixed chaparral, valley needlegrass grassland (including disturbed), non-native grassland, non-vegetated channel or floodway, southern sycamore-alder riparian woodland, and coast live oak woodland. Of these permanent impacts, sensitive biological resources were avoided to the greatest degree possible for minimal total impacts.

Non-Native Vegetation (11000)

Non-native vegetation includes trees, shrubs, and herbs that are not native to California.[1] Non-native vegetation within the project site largely consists of ornamental plantings along roadways

[1] This category of vegetation does not include non-native grassland, which is in its own category.

or as part of fuel modification zones adjacent to homes that are not typically artificially irrigated and that receive water from precipitation or runoff. Non-native vegetation occurs in several locations within the Habitat Preserve, primarily adjacent to Fanita Parkway and along the southern boundary of the Habitat Preserve. Non-native vegetation is not considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

Disturbed Wetland (11200)

Disturbed wetlands are areas permanently or periodically inundated by water that have been substantially modified by human activity. Disturbed wetland is often unvegetated, but may include some scattered native or non-native vegetation. Some characteristic non-native species that may be associated with disturbed wetlands include giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.), palms (*Phoenix* spp., *Washingtonia* spp.), and pampas grass (*Cortaderia* spp.). Native wetland species, such as willows (*Salix* spp.) and cattails (*Typha* spp.), also may be present at low cover. Disturbed wetlands include portions of wetlands with obvious artificial structures, such as concrete lining, barricades, riprap, piers, or gates. Therefore, lined channels, Arizona crossings, detention basins, culverts, and ditches would be considered disturbed wetlands. Disturbed wetlands occur throughout San Diego County (Oberbauer et al. 2008). This vegetation community is considered sensitive by the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the Resource Agencies.

Disturbed Habitat (11300)

Disturbed habitat is a land cover type characterized by a predominance of non-native species, often introduced and established through human action. Oberbauer et al. (2008) describes disturbed land as areas that have been physically disturbed (by previous legal human activity) and are no longer recognizable as a native or naturalized vegetation association, but continue to retain a soil substrate. Typically, if vegetation is present, it is nearly exclusively composed of non-native plant species such as ornamentals or ruderal exotic species (i.e., weeds). Disturbed habitat includes mainly dirt roads. Disturbed habitat is not considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan, unless there is presence of burrowing owls (*Athene cunicularia*) using this habitat (City of Santee 2018).

Urban/Developed (12000)

According to Oberbauer et al. (2008), urban/developed represents areas that have been constructed upon or otherwise physically altered to an extent that native vegetation communities are not supported. This land cover type generally consists of semi-permanent structures, homes, parking lots, pavement or hardscape, and landscaped areas that require maintenance and irrigation (e.g., ornamental greenbelts). Typically, this land cover type is unvegetated or supports a variety of ornamental plants and landscaping. Urban/developed land is not considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

Diegan Coastal Sage Scrub (32500)

Diegan coastal sage scrub is a native vegetation community. According to Oberbauer et al. (2008), coastal sage scrub is composed of a variety of soft, low, aromatic shrubs, characteristically dominated by drought-deciduous species—such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and sages (*Salvia* spp.)—with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*) and laurel sumac (*Malosma laurina*). Diegan coastal sage scrub occurs in many patches within undisturbed areas. Fire-recovered Diegan coastal sage is located in two southern portions of the project site: east of Settle Road and a small patch west of Hitching Post Way. In addition, disturbed Diegan coastal sage scrub occurs in several areas of the project site, with the majority located in the central and northern boundary of the project site. Diegan coastal sage scrub (including disturbed areas) is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

Diegan Coastal Sage Scrub–Valley Needlegrass Grassland (32500/42110)

Diegan coastal sage scrub–valley needlegrass grassland is similar to Diegan coastal sage scrub, but includes considerable cover of purple needlegrass (*Stipa pulchra*). This vegetation community is not included in Holland (1986) or Oberbauer et al. (2008). This combination of vegetation communities is project specific and mapped in areas that are supported by more than 20% purple needlegrass within Diegan coastal sage scrub. See the descriptions for Diegan coastal sage scrub and valley needlegrass grassland. Diegan coastal sage scrub–valley needlegrass grassland occurs on site in several locations, primarily within the southern portion of the Habitat Preserve. In addition, disturbed Diegan coastal sage scrub–valley needlegrass grassland is located in large patches west of Via Francis and east of Sycamore Canyon Road. Diegan coastal sage scrub and valley needlegrass grassland are considered sensitive vegetation communities in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

Diegan Coastal Sage Scrub–Non-Native Grassland (32500/42200)

Disturbed Diegan coastal sage scrub–non-native grassland is similar to Diegan coastal sage scrub, but is dominated by wild oat (*Avena fatua*), bromes (*Bromus* spp.), stork's bill (*Erodium* spp.), and mustard (*Brassica* spp.). This vegetation community is not included in Holland (1986) or Oberbauer et al. (2008). This combination of vegetation communities is project-specific and is mapped in areas supported by more than 20% non-native grasses within Diegan coastal sage scrub. See the descriptions for Diegan coastal sage scrub and non-native grassland. Disturbed Diegan coastal sage scrub–non-native grassland occurs in several locations, including north of Cambury Drive and east of Sycamore Canyon Road. Diegan coastal sage scrub and non-native grassland are considered sensitive vegetation communities in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

Diegan Coastal Sage Scrub–Baccharis-Dominated (32530)

Diegan coastal sage scrub–Baccharis-dominated is similar to Diegan coastal sage scrub, but is dominated by *Baccharis* species (desert broom [*B. sarothroides*] and/or coyote brush [*B. pilularis*]) (Oberbauer et al. 2008). This community typically occurs on disturbed sites or sites with nutrient-poor soils, and is often found within other forms of Diegan coastal sage scrub and on upper terraces of river valleys. This community is distributed along coastal and foothills areas in San Diego County. Diegan coastal sage scrub–Baccharis-dominated occurs in several locations, with the majority in the southern portion of the project site north of Carlton Hills Boulevard. Diegan coastal sage scrub–Baccharis-dominated is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

Granitic Southern Mixed Chaparral (37121)

Granitic southern mixed chaparral is similar to southern mixed chaparral but is dominated by granitic soils. Granitic southern mixed chaparral is a drought- and fire-adapted community of woody shrubs from 5 to 10 feet tall that often forms dense, impenetrable stands. It develops primarily on mesic north-facing slopes and in canyons, and is characterized by crown- or stump-sprouting species that regenerate following fire. This association typically contains chamise (*Adenostoma fasciculatum*), mission manzanita (*Xylococcus bicolor*), wild lilac (*Ceanothus* spp.), and laurel sumac. Due to its high-density cover, there is little or no understory in this community, except for in openings. The dominant species in the southern mixed chaparral on the project site are chamise, laurel sumac, white sage (*Salvia apiana*), coyote brush, and orange bush monkeyflower (*Mimulus aurantiacus*).

Granitic southern mixed chaparral occurs in several locations in the northwestern portion of the project area. Granitic southern mixed chaparral is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) as a form of mixed chaparral.

Valley Needlegrass Grassland (42110)

Valley needlegrass grassland is characterized by a sparse to dense cover of perennial grasses typically up to 2 feet tall. This vegetation community typically occurs on fine-textured soils (often clay) that are moist or wet in the winter and very dry during summer and fall. Characteristic plant species typically include native grass species such as purple needlegrass, bromes, and goldfields (*Lasthenia* spp.) (Oberbauer et al. 2008). Plant species observed within native grassland include purple needlegrass, with forbs such as common goldenstar (*Bloomeria crocea*) and California blue-eyed grass (*Sisyrinchium bellum*). The percentage cover of native species can be quite low, but an area can be designated as native grassland if there is 20% cover of native grassland species.

In San Diego County, native grassland often occurs where the native vegetation has been disturbed by grazing, fire, agriculture, or other activities.

Valley needlegrass grassland communities occurs within the project site in several locations, primarily along the southern and western boundaries. In addition, disturbed valley needlegrass grassland occurs in two areas, east and north of Sycamore Canyon Road on the western portion of the project site. Valley needlegrass grassland (including disturbed) is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

Non-Native Grassland (42200)

Non-native grassland consists of dense to sparse cover of annual grasses with flowering culms 0.5 to 3 feet in height (Oberbauer et al. 2008). In San Diego County, the presence of wild oat, bromes, stork's bill, and mustard are common indicators. In some areas, depending on past disturbance and annual rainfall, annual forbs may be the dominant species; however, it is presumed that grasses will dominate. Non-native grassland is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

Vernal Pool (44000)

Vernal pools are seasonally flooded wetland communities (Oberbauer et al. 2008). Vernal pools are depressions that support distinctive living communities adapted to seasonally dry and wet hydrologic conditions. Vernal pools are associated with two important physical conditions: a subsurface hardpan or claypan that inhibits the downward percolation of water, and a topography characterized by a series of low hummocks called mima mounds and low depressions (the vernal pools). Vernal pools capture and store precipitation on the surface and/or subsurface in low depressions, which prevent aboveground water runoff (Bauder et al. 2009). Water collects in these depressions during the rainy season, and as the rainy season ends and the dry season begins, the water that has collected in these vernal pools gradually evaporates. The chemical composition of the remaining pool water becomes more concentrated as the pool water evaporates, which creates a chemical micro-environmental system for unique wetland-dependent vernal pool plant and animal communities to develop (Bauder et al. 2009). Vernal pools retain pooled water for approximately 2 weeks after significant rain events. Indicator species for vernal pools include *Psilocarphus* spp., toothed calicoflower (*Downingia cuspidata*), and crustaceans. The following criteria differentiate vernal pools from other temporary wetlands: the basin is at least partially vegetated during the normal growing season or is unvegetated due to heavy clay or hardpan soils that do not support plant growth, and the basin contains at least one vernal pool indicator species (Oberbauer et al. 2008).

Vernal pools mapped within the project site include features (i.e., natural vernal pools and road ruts) containing plant and wildlife (i.e., San Diego fairy shrimp [*Branchinecta sandiegonensis*] and western spadefoot toad [*Spea hammondii*]) indicator species. Six vernal pool plant indicator species were observed in the project site: winged water-starwort (*Callitriche marginata*), shortseed waterwort (*Elatine brachysperma*), California waterwort (*Elatine californica*), water pygmyweed (*Crassula aquatica*), annual hairgrass (*Deschampsia danthonioides*), and woolly marbles (*Psilocarphus brevissimus*). As a wetland community, vernal pools are considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and potentially by the Resource Agencies.

Southern Arroyo Willow Riparian Forest (61320)

Southern arroyo willow riparian forest is a winter-deciduous riparian forest dominated by broad-leafed trees and arroyo willow (*Salix lasiolepis*). Typically it consists of a moderately tall, closed or nearly closed canopy with an understory of shrubby willows (Oberbauer et al. 2008). Southern arroyo willow riparian forest is characterized by the presence of several species besides arroyo willow, including San Diego sagewort (*Artemisia palmeri*), mulefat (*Baccharis salicifolia*), manroot (*Marah macrocarpus*), California sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), Goodding's willow (*Salix gooddingii*), narrowleaf willow (*Salix exigua*), and yellow willow (*Salix lasiandra*) (Oberbauer et al. 2008). Southern arroyo willow riparian forest occurs in sub-irrigated and frequently overflowed areas along rivers and streams that are perennially wet (Oberbauer et al. 2008).

Southern arroyo willow riparian forest occurs in one area north of Sycamore Canyon Road in the project site, where it is dominated by arroyo willow. As a wetlands community, southern arroyo willow riparian forest is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

Southern Sycamore–Alder Riparian Woodland (62400)

Southern sycamore–alder riparian woodland is characterized by tall, open, broad-leafed woodland dominated by California sycamore and white alder (*Alnus Rhombifolia*) (Oberbauer et al. 2008). The woodland includes scattered trees in shrubby thickets of sclerophyllous and deciduous species. Characteristic species include coast live oak (*Quercus agrifolia*), blue elderberry (*Sambucus nigra*), and poison oak (*Toxicodendron diversilobum*). Southern sycamore–alder riparian woodland occurs in three areas in the project site: one area within Sycamore Canyon and in two drainages that act as tributaries to Sycamore Canyon Creek. As a wetlands community, southern sycamore–alder riparian woodland is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the Resource Agencies.

Mulefat Scrub (63310)

Mulefat scrub is a depauperate, tall, herbaceous riparian scrub strongly dominated by mulefat. This early seral community is maintained by frequent flooding. Site factors include intermittent stream channels with fairly coarse substrate and moderate depth to the water table (Oberbauer et al. 2008). This community type is widely scattered along intermittent streams and near larger rivers. Mulefat scrub occurs in the western portion of the project site within Sycamore Canyon and in a drainage that acts as a tributary to Sycamore Canyon Creek. As a wetlands community, mulefat scrub is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the Resource Agencies.

Southern Willow Scrub (63320)

Southern willow scrub is a dense, broad-leafed, winter-deciduous riparian thicket dominated by several willow species, with scattered emergent Fremont cottonwood and California sycamore. This community was formerly extensive along the major rivers of coastal Southern California, but is now much reduced (Oberbauer et al. 2008).

Southern willow scrub occurs in several small patches in the project site, with the largest occurrence mapped west of Santee Lakes and adjacent to Sycamore Canyon Road. This vegetation community primarily occurs within drainages. As a wetland community, southern willow scrub is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018) and by the Resource Agencies.

Non-Vegetated Channel or Floodway (64200)

Non-vegetated channel is the sandy, gravelly, or rocky fringe of waterways or flood channels that is unvegetated on a relatively permanent basis (Oberbauer et al. 2008). Vegetation may be present but is usually less than 10% total cover and grows on the outer edge of the channel. Non-vegetated channels occur throughout the project site and are considered a jurisdictional resource by the Resource Agencies and a sensitive community in the Draft Santee MSCP Subarea Plan (City of Santee 2018).

Arundo-Dominated Riparian (65100)

Arundo-dominated riparian vegetation community is composed of monotypic or nearly monotypic stands of giant reed, which is a non-native species that is fairly widespread in Southern California. Typically it occurs on moist soils and in streambeds, and may be related directly to soil disturbance or the introduction of propagates by grading or flooding. Occurrences may include surrounding native trees. Giant reed often occupies jurisdictional wetlands.

Arundo-dominated riparian occurs in two small patches in the project site: immediately north of Santee Lakes and east of Sycamore Canyon Road. Since this is a non-native vegetation community, only the portion of arundo-dominated riparian associated with a drainage feature and regulated by the California Department of Fish and Wildlife is considered sensitive.

Coast Live Oak Woodland (71160)

Coast live oak woodland is dominated by a single evergreen species, coast live oak, with a canopy height reaching 32.8 to 82.0 feet (10 to 25 meters) (Oberbauer et al. 2008). The shrub layer is poorly developed, but may include toyon (*Heteromeles arbutifolia*), gooseberry (*Ribes* spp.), or laurel sumac. Other shrub species include chamise, California buckwheat, and chaparral yucca (*Hesperoyucca whipplei*). The herb component is continuous, dominated by a variety of introduced species (Oberbauer et al. 2008).

On the project site, coast live oak woodland is dominated by coast live oak. Coast live oak woodland occurs primarily in several patches along the northwestern boundary of the project site. Coast live oak woodland is considered a sensitive vegetation community in the Draft Santee MSCP Subarea Plan (City of Santee 2018), and a portion of this community is regulated by the California Department of Fish and Wildlife.

Special-Status Plant Species

A total of 11 special-status plant species occur within the Habitat Preserve: San Diego sagewort (*Artemisia palmeri*), San Diego goldenstar (*Bloomeria clevelandii*), small-flowered morning-glory (*Convolvulus simulans*), variegated dudleya (*Dudleya variegata*), San Diego barrel cactus (*Ferocactus viridescens*), Palmer's grapplinghook (*Harpagonella palmeri*), graceful tarplant (*Holocarpha virgata* ssp. *elongata*), willowy monardella (*Monardella viminea*), California adder's-tongue (*Ophioglossum californicum*), chaparral rein orchid (*Piperia cooperi*), and San Diego County viguiera (*Viguiera laciniata*).

Implementation of the proposed trails would result in the direct loss of the following three special-status plant species: San Diego goldenstar (California Rare Plant Rank [CRPR] 1B.1/MSCP Covered), San Diego barrel cactus (CRPR 2B.1/MSCP Covered), and San Diego County viguiera (CRPR 4.2).

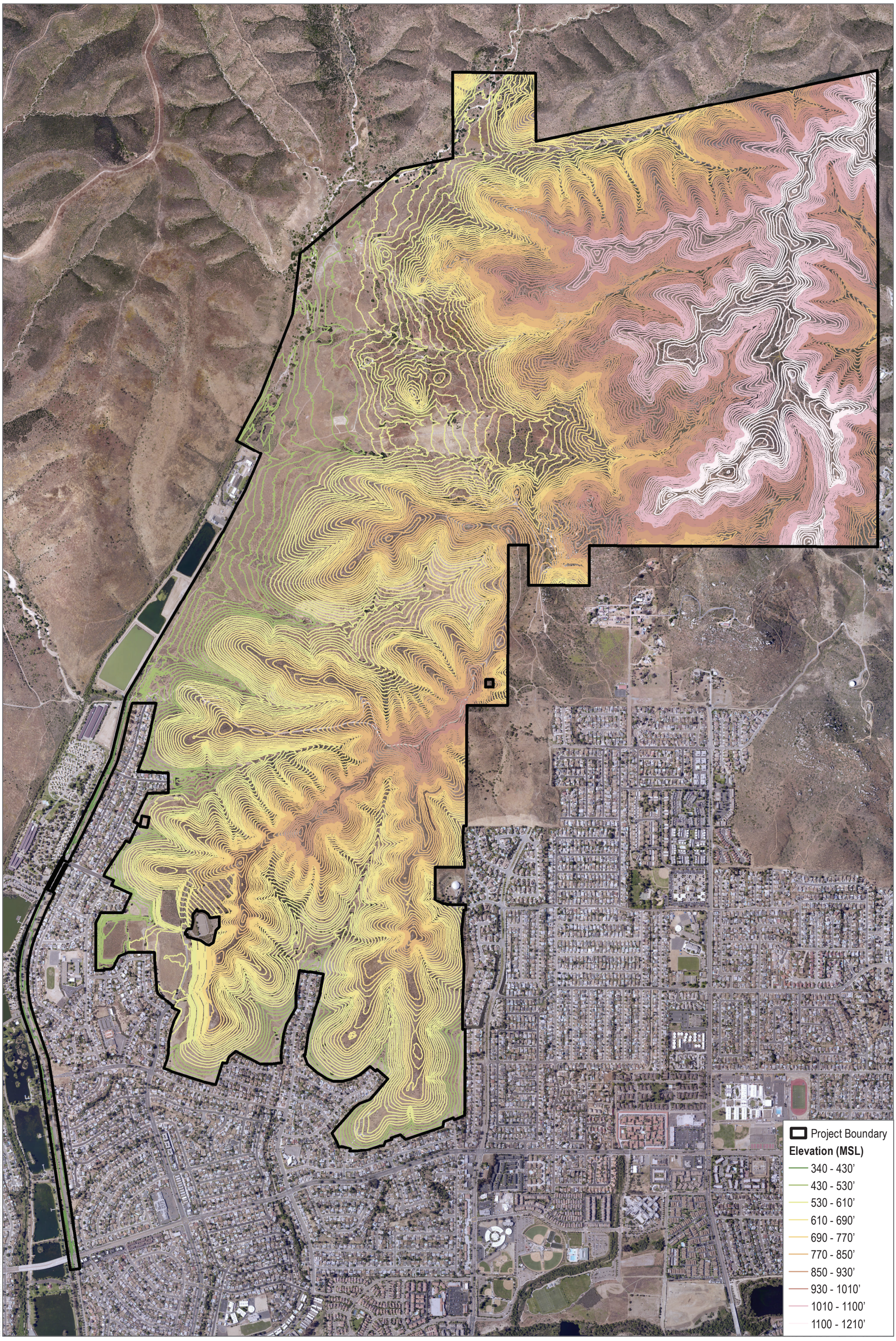
Willowy monardella (federally endangered/California endangered/CRPR 1B.1/MSCP Covered) individuals occur along existing trails and adjacent to proposed trail creation areas; impacts to these individuals would be avoided. Trail alignments would be shifted, as needed, to avoid impacts to this species, and fencing would be used to protect individual plants where trails are within 20 feet of populations.

Special-Status Wildlife Species

Implementation of the proposed project would result in the direct loss of habitat, including foraging habitat, for 48 special-status wildlife species: 1 amphibian, 9 reptiles, 21 birds, 14 mammals (including 10 bats), and 3 invertebrates (see the project's Biological Technical Report [Dudek 2020a]).

Jurisdictional Wetlands and Waters

During the 2016 jurisdictional wetlands delineation performed by Dudek, approximately 32.30 acres of potential jurisdictional resources were identified within the Habitat Preserve. These jurisdictional resources are under the jurisdiction of the U.S. Army Corps of Engineers, the San Diego Regional Water Quality Control Board, and the California Department of Fish and Wildlife. Jurisdictional resource totals are based on the preliminary jurisdictional delineation approach described in the project's Biological Technical Report (Dudek 2020a).



SOURCE: SANGIS 2017

DUDEK

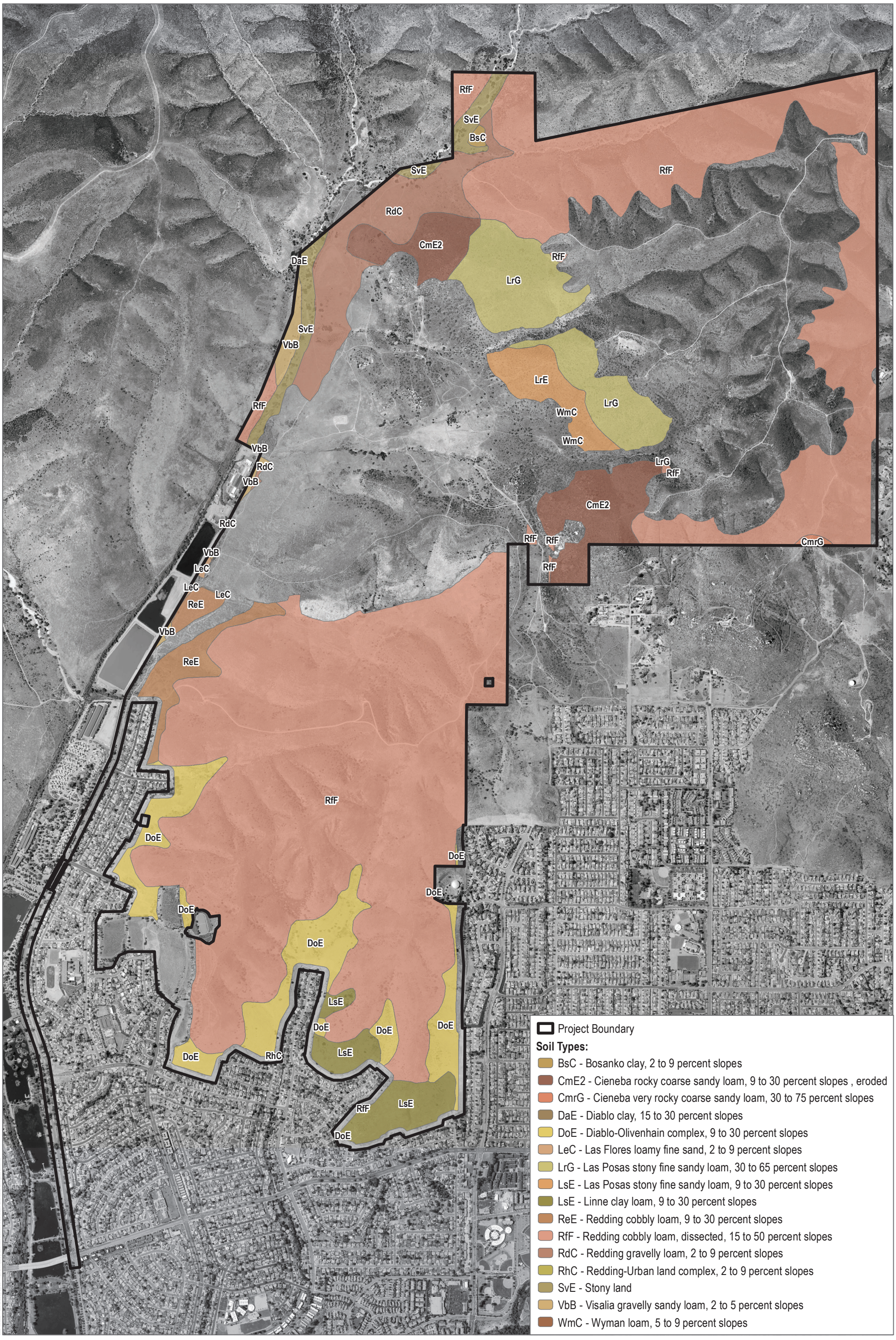
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FIGURE 5

Topography

Fanita Ranch Habitat Preserve Public Access Plan

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SOURCE: SANGIS 2017, 2020

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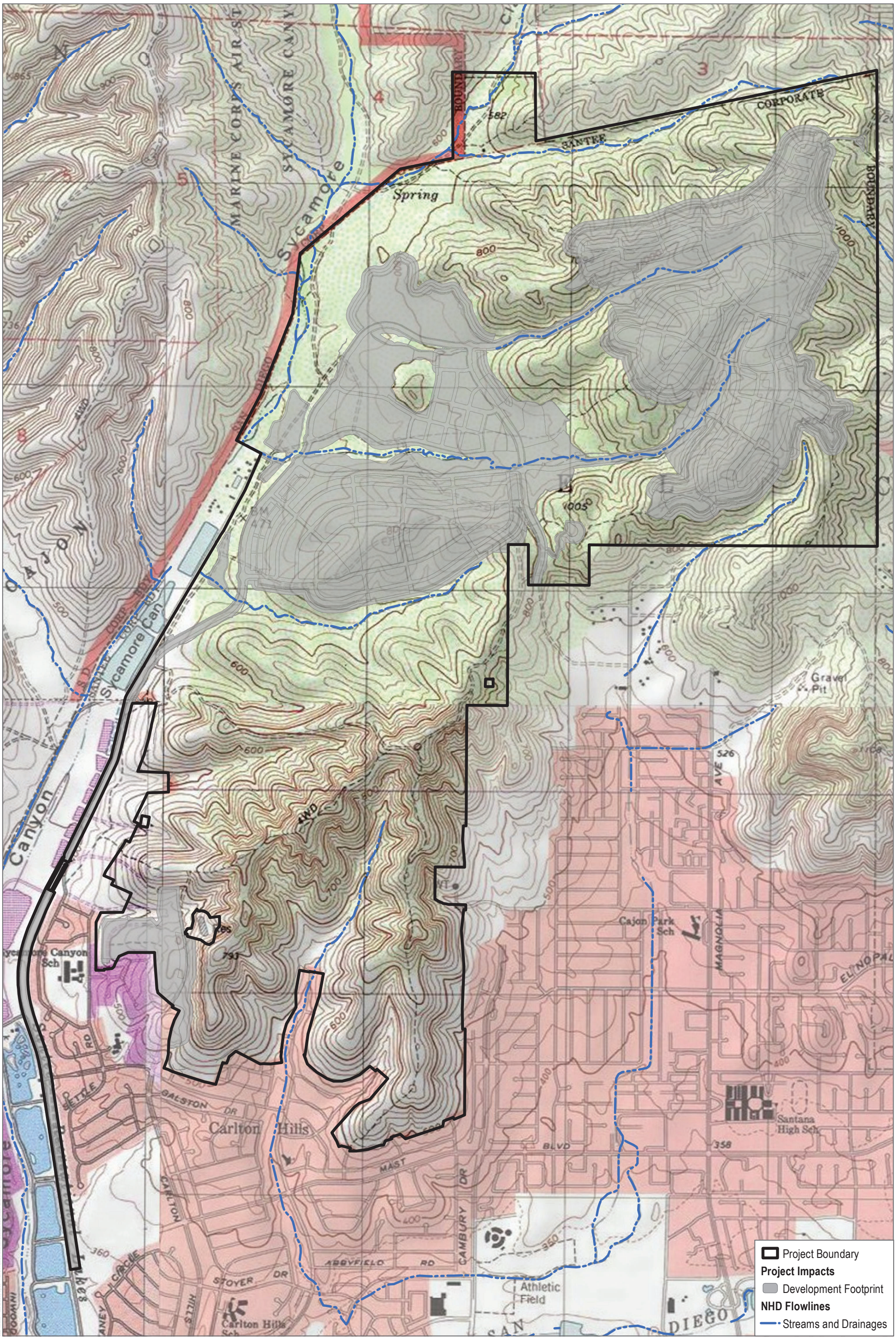
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FIGURE 6

Soils Within Habitat Preserve

Fanita Ranch Habitat Preserve Public Access Plan

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SOURCE: USGS 7.5-Minute Series El Cajon, La Mesa, Poway, San Vicente Reservoir Quadrangles; USGS NHD 2020

DUDEK

0 750 1,500 Feet

FIGURE 7

Hydrology

Fanita Ranch Habitat Preserve Public Access Plan

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3 EXISTING PLANS, GOALS, AND OBJECTIVES

3.1 Plan Review

Several documents were reviewed in development of this Public Access Plan for their applicability to trails within Fanita Ranch. These plans included the Fanita Ranch Specific Plan, the City of Santee General Plan, and the County of San Diego Regional Trails Plan. The guidelines from each of these plans are described below.

3.2 Fanita Ranch Specific Plan

The Fanita Ranch Specific Plan includes a number of prescriptions and recommendations for trails (City of Santee 2020). Table 1, Fanita Ranch Specific Plan Trail Guidance, lists sections of the Fanita Ranch Specific Plan that area applicable to trails and public access, including considerations for trail planning and implementation. In addition to establishing goals and objectives for trails, the Fanita Ranch Specific Plan includes cross-sections illustrating the trail types within the Specific Plan area, including the following (City of Santee 2020):

- Multi-Use Trails, concrete, 8 to 10 feet wide
- Village Trails, concrete, 6 to 10 feet wide
- Perimeter Nature Trails, native earth or decomposed granite, 8 feet wide; 10-foot-long benches
- Village Nature Trails, native earth or decomposed granite, 6 feet wide
- Nature Trails, native earth or decomposed granite, 4 feet wide
- Primitive Trails, native earth, 2.5 feet wide
- The SDG&E service road, width as existing, native earth

All trails are for non-motorized travel, primarily bicycle and pedestrian. Equestrian use would be limited to trail connections between the community of Eucalyptus Hills (northeast of Santee) and the southeast trail connection to the Sycamore Canyon County Preserve. Class 1 and Class 2 electric bikes (e-bikes) would be restricted from use on all trails within the Habitat Preserve. Trail types proposed specifically for the Habitat Preserve are described in greater detail in Chapter 4, Design Guidelines.

Table 1
Fanita Ranch Specific Plan Trail Guidance

Section	Page	Applicable Text	Considerations
1.1	1-1	These open spaces (Sycamore Canyon County Preserve and Goodan Ranch Regional Park) include existing and potential trail connections into Fanita Ranch including Stowe County Trail	Establish connections to Stowe County Trail and other trails abutting the Fanita Ranch Habitat Preserve (Habitat Preserve). Stowe County Trail also connects to Mission Trails Regional Park, so maintaining connectivity through the Habitat Preserve is important.
1.2.1	1-3	Potential natural hazards related to slope stability and geologic resources exist within this area	Consider slope/soil stability when planning trails.
2.2.2(C)	2-3	Design a comprehensive trail system that accommodates a variety of users, connects villages and community amenities, maximizes views, protects sensitive habitat areas and provides linkages to local and regional parks and trails	Trail system would meet the goals of user accessibility and connections to key locations, and would provide for enjoyment of views and protect habitat.
2.2.3	2-3	A. Create an interconnected recreation and open space network that includes active and passive parks, trails and bikeways, recreational facilities and natural open space that meet the recreational needs of Fanita Ranch residents and visitors. B. Provide a community park, neighborhood parks and mini-parks and well-connected trails that satisfy the parkland dedication requirements and meet the recreational needs of the residents. C. Provide an extensive system of pedestrian, bicycle and hiking trails for use by the public that connects neighborhoods within the community and links to regional trail and recreational facilities and open space areas. D. Protect open space and natural habitat areas that are a vital component of the health and wellbeing of the community and the environment.	Codifies goals in 2.2.2c, further reinforcing need for connected open space trail system linking to regional trail systems, and protecting open space and habitat areas.
2.3	2-9	AgMeander: An “AgMeander” is a series of trails and paths that unite nature and agriculture in an experiential journey.	Defines a concept of integrating agriculture and trails using edible landscaping.
2.3	2-9	An extensive trail system will connect to existing trails networks in the Goodan Ranch/Sycamore Canyon County Preserve, Mission Trails Regional Park, and Santee Lakes Preserve encourage outdoor activity and exercise.	Reiterates desired connections and linkages.

Table 1
Fanita Ranch Specific Plan Trail Guidance

Section	Page	Applicable Text	Considerations
2.3	2-10	Every home will be within walking distance of a park or a trail. Active sports-oriented parks, playgrounds, gardens and seating areas with views that provide meditative space will be spread throughout the community to allow residents ample opportunities for outdoor recreation.	Specified density of trail network. Requires definition of "walking distance."
3.2.6(B)	3-29	Permitted uses: Interpretive signage, trail markers … and other wayfinding and educational signage…. Trail Access Points… Walking and biking trails (no equestrian)	Permits recreational elements associates with trails within Community Park, Neighborhood Park, and Mini Park land uses. Prohibits equestrian trails.
3.2.7(B)	3-31	Permitted uses: …Interpretive signage, trail markers…and other wayfinding and educational signage….Trail Access Points…Walking and biking trails (no equestrian)	Permits recreational elements associates with trails within Open Space land uses. Prohibits equestrian trails. Open Space land uses include open space areas outside of the Habitat Preserve.
3.2.10(B)	3-40	Permitted uses include trails…interpretive signage, habitat restoration and revegetation…	Allows trails within the Habitat Preserve.
4.1.4	4-15	Bicycle circulation throughout the community is provided through a combination of on-street bike lanes and off-street multi-purpose trails... The Habitat Preserve offers mountain biking trails and uses existing trail routes to the extent feasible to avoid sensitive habitat areas. Bicycle trails are designed for both recreation and to provide direct access between the Villages.	Establishes dual-role recreation and commute route for trails.
4.1.4	4-16	Exhibit 4.4	Establishes conceptual alignments for trails, including Class-I Multi-Use Trail, Village Access Trails, Perimeter Trails, Village Nature Trails, Nature Trails, and Primitive Trails. Indicates preference for concrete for paved trails.
4.1.5	4-18 & 4-20 - 4-23	Fanita Ranch is a critical link to the regional trail system. Important regional trail connections include the following and are depicted in Exhibit 4.5: Regional Trail Context:	Establishes desired regional linkages.

Table 1
Fanita Ranch Specific Plan Trail Guidance

Section	Page	Applicable Text	Considerations
		A. Stowe Trail: This historic trail follows the western boundary of the Specific Plan Area from the north end of the Padre Dam Municipal Water District property to the north west corner of the project. The trail connects to the Gooden Ranch / Sycamore Canyon County Preserve. B. San Diego River Park Trail/Santee River Park: An existing river park trailhead is located on Carlton Hills Boulevard approximately ½-mile south of the south terminus of the proposed Fanita Parkway multi-purpose trail (Mast Park west trail). The trail access point can be reached by proposed sidewalks and bike lanes on Fanita Parkway, Carlton Oaks Drive and Carlton Hills Boulevard. The river park trails can also be reached on Cuyamaca Street by sidewalk and bike lanes approximately one mile south of the southern terminus of Cuyamaca Street multi-purpose trail. C. Gooden Ranch / Sycamore Canyon County Preserve: In the northeast corner of the specific plan area, a connection is made to an existing trail that leads northwards to the Gooden Ranch/Sycamore Canyon County Preserve.	
4.1.5	4-18	Pedestrian circulation throughout the Specific Plan Area is provided through a network of sidewalks, multi-purpose trails and hiking trails as shown in Exhibit 4.6: Pedestrian Circulation Plan.	Figure provides guidance on trail alignments.
4.1.5(B)	4-20 & 4-20 – 4-22	Every street within Fanita Ranch includes a sidewalk and/or multi-purpose trail to accommodate pedestrian travel. Trails along the northerly and southerly drainages also offer pedestrian connections between the school, the farm, and the Active Adult neighborhood with minimal interruptions from vehicular traffic.	Establishes provision for walkability throughout Fanita Ranch.
4.1.5(B)	4-21 & 4-22	Two pedestrian bridges are envisioned to provide direct connections across the two drainages in Fanita Commons to significantly shorten the walking distance. The bridge that traverses the northerly drainage provides convenient access between the Active Adult neighborhood and the Community Park. The bridge traversing the southerly drainage connects the Orchard Village to the school, Community Park and Fanita Commons. As illustrated in Exhibit 4.8: Southerly Bridge Crossing Detail, the southerly bridge and its associated landing areas provide a viewing platform for observing the riparian habitat.	Establishes need for two bridges, with southern bridge as a viewing platform.

Table 1
Fanita Ranch Specific Plan Trail Guidance

Section	Page	Applicable Text	Considerations
4.1.5(B)	4-20 & 4-23	Trails within open space areas provide connectivity between the Villages. In addition to linking the community, the trails are also excellent locations for residents to explore the outdoors and improve their health, to learn about native cultures and their use of the natural surroundings, and to learn about and experience farming and food production. Trails within open space areas are designed to achieve the following: A. Connect trails within Fanita Ranch to the adjacent regional trails and open space, which are shown on Exhibit 4.5: Regional Trail Context. B. Provide for public access to existing primitive trails that have been historically used without authorization. C. Carefully coordinate trail locations to minimize conflicts with sensitive habitat areas by utilizing existing trails and dirt roads, and providing signage, well-defined trail markers, fencing and community education to protect habitat areas. D. Establish a community-wide hiking, biking, walking, educational and recreational trail system, called "AgMeander" (see Section 7.3.5 of the Specific Plan), that connects agricultural, cultural, historical and/or environmental locations throughout the community.	Sets goals for the trail network.
4.3	4-69	Site amenities, such as trail maps, seating, shade and drinking fountains, will be sited at appropriate locations. Post and rail fencing will be used where appropriate for user safety and the protection of surrounding habitat.	Includes provision for trail amenities and fencing.
4.3	4-70	Table 4.3 -- contains design standards for trails within Fanita Ranch, including width, surface & optimal grade (<= 20% for Nature Trails.)	Establishes standards for different trail types.
4.3	4-65	Exhibit 4.13: Trails Map -- includes locations and alignments for trails	Establishes desired trail routes.
4.3	4-71 - –4-74	Exhibits 4.14.1 – 4.14.7 -- illustrate design standards for each class of trails	Provides illustrations for standards that are provided in Table 4.3.
5.1	5-3 & 5-4	Exhibits 5.2a and 5.2b -- Fanita Ranch Illustrative Plan illustrates trails, trail access points, views, and landmarks	Establishes desired trail routes.
5.4.1	5-11	Install edible landscapes along trails and sidewalks, where appropriate, to create an "AgMeander" that connects the Farm to all other areas of Fanita Commons including the School, Community Park, Active Adult neighborhood and Village Green.	Establishes edible landscape along trails, where appropriate.

Table 1
Fanita Ranch Specific Plan Trail Guidance

Section	Page	Applicable Text	Considerations
5.4.2	5-18	Install orchard trees and edible landscaping along trails and sidewalks, where appropriate, to extend the "AgMeander" educational and recreational trail from the Farm and Fanita Commons. Refer to Section 7.3.5: AgMeander for additional information.	Establishes edible landscape along trails, where appropriate.
5.4.3	5-25	Promote walkability of the Vineyard Village by providing a network of trails, paths and walks, including an 8-foot wide trail around the perimeter of the Village. Allow community paths and trails to pass through and alongside the vineyards as a part of the AgMeander.	Sets width of trail around Vineyard Village.
5.8	5-44	Open Space and Trail Fencing: Peeler log post and rail fencing keeps trail users safe and on approved trails. This 4.5-foot high natural wood fence is treated to resist insects and decay. Wood-look precast concrete split rail fencing is also an appropriate option. Open space and trail fencing will be located as needed and is not shown on the Wall and Fencing Plan.	Establishes trail fencing specifications.
5.8	5-45	Exhibit 5.18a: Conceptual Wall and Fencing Plan -- illustrates Open Space and Trail Fencing	Illustrates location of trail fencing.
5.9	5-50	Do not use low-voltage outdoor or trail lighting, spotlights or bug lights	Establishes no lighting on trails.
7.1	7-1	Use parks as primary trail heads for community trails and connections to existing primitive and regional trails.	Establishes parks as trail heads.
7.2	7-2	Table shows that 78.0 acres of public park lands for active recreation and private park lands and 4.5 acres of trail lands consisting of perimeter trails and Stowe Trail connection are planned within Fanita Ranch, totaling 82.5 acres.	Establishes acres of trail lands.
7.2	7-3 & 7-4	Exhibit 7.1a and 7.1b -- includes illustration of all trail types, widths, and locations	Illustrates trails on site.
7.3.5	7-21	Exhibit 7.6: Conceptual AgMeander Plan	Illustrates AgMeander Circuit trail.
7.3.7	7-25 & 7-26	Vista points and trail access points will include trail connections, seating with accessible spaces for wheelchairs, and shade trees. Other amenities may include AgMeander stations, and landscape interpretive stations, specialty gardens, and passive recreation areas. Trail access points also provide access for firefighters and brush management maintenance personnel. Vista points and trail access points are proposed to be HOA-owned and maintained except where they are integrated into city owned parks.	Establishes amenities, facilities, hardscape materials, lighting, and plant palette. Illustrates view point, improved trail access point, and staging area.

Table 1
Fanita Ranch Specific Plan Trail Guidance

Section	Page	Applicable Text	Considerations
8.6.2	8-13 – 8-14	The community trails and pathways will be accessible by emergency all-terrain vehicles at numerous locations within the community, and the open space trail network will be accessible via trail access points located along the perimeter of the development areas.	Establishes access for Fire Protection Plan (Dudek 2020b).
8.8.2	8-18	In addition to rock materials, there are large deposits of decomposed granite onsite, which will be used onsite for certain trail and other landscape related purposes.	Establishes trail material (conservation and waste reduction).
9.2.4	9-4	Close existing informally established and potentially harmful trails and provide revegetation in those areas	Establishes objectives for habitat management and closing existing unauthorized trails.
9.2.5	9-5	Strategically locate and design trails to utilize existing trails and dirt roadways to avoid existing sensitive habitats and create passive and intentional recreational amenities for the public. Manage trails in a manner that supports the long-term viability of sensitive species.	Establishes Habitat Management Plan strategy; supports recreation and viability of species.
9.3	9-5	The Specific Plan Area includes 256.0 acres of open space areas outside of the Habitat Preserve, which consist of two riparian areas in Fanita Commons, brush management areas at the edge of development, slopes adjacent to streets and within Villages, trail access points and water quality basins that will be maintained and managed by the Homeowners Association (portions of the brush management areas will be maintained by the Habitat Preserve management entity as identified in the Fanita Ranch Fire Protection Plan (Dudek 2020b)), and open space land for water tanks and pump stations that will be dedicated to and maintained by Padre Dam Municipal Water District (PDMWD).	Establishes trail access points maintained and managed by the homeowner's association.

Source: City of Santee 2020.

3.3 County of San Diego Community Trails Master Plan

In January 2005, the San Diego Board of Supervisors approved the County Trails Program and the Community Trails Master Plan (CTMP), which was used to develop a system of interconnected regional and community trails and pathways (County of San Diego 2005). The CTMP outlines objectives, goals, policies, trail benefits, construction guidelines, planning considerations, and implementation guidelines. Specifically, the CTMP developed the following trail design guidelines (County of San Diego 2005):

- Provide trail design continuity
- Provide trail user safety and convenience
- Minimize trail hazards, deterioration, and liability
- Minimize trail operations and maintenance costs
- Protect open space, and natural, cultural, and historical resources
- Increase recreational opportunities
- Provide trail connectivity, variety of user experiences, and non-motorized transportation opportunities

The CTMP provides a Community Trails Master Plan Design Guidelines Matrix detailing the trail types, including urban/suburban, rural, and primitive, and associated trail guidelines, including tread width, function, cross slope, and other guidelines (Table DCG-1, County of San Diego 2005). Additionally, the CTMP provides construction details and sections of trail types, as well as trail structure and vegetation clearance guidelines. The following sections of the CTMP are applicable to the proposed trails at Fanita Ranch:

- Chapter 7: Design and Construction Guidelines
- Chapter 10: Regional Trails

3.4 Draft Santee MSCP Subarea Plan

The Santee MSCP Subarea Plan is designed to create, manage, and monitor an ecosystem preserve, and intends to protect viable populations of native plant and wildlife species and their habitats while also accommodating continued economic development and quality of life amenities, such as open space and hiking opportunities for residents (City of Santee 2018). The following chapters of the Santee MSCP Subarea Plan are applicable to the trails at Fanita Ranch:

- Chapter 4: Covered Activities and Impact Assessment
- Chapter 5: Conservation Strategy

- Chapter 7: Management and Monitoring

3.5 The City of Santee General Plan

In August 2003, the City of Santee General Plan (Santee General Plan) 2000–2020 was adopted by the City Council. It serves as a long-term policy guide for physical, economic, and environmental growth in the City, and designates land use categories for planning and development. Section 5, Trails Element, of the Santee General Plan is applicable to the proposed trails at Fanita Ranch. This section defines the goals, objectives, and policies for trails in the community. The overall goal of the Trails Element is as follows (City of Santee 2003):

> The Trails Element shall encourage alternative means of transportation on a community and regional scale by providing a comprehensive network of bicycle, equestrian, and pedestrian trails which serve present and future needs of our community, and which preserve and/or enhance the community character and the environment.

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4 DESIGN GUIDELINES

4.1 Trail Types

As discussed in Section 1.5, Trail Classification Overview, there are six different trail types proposed by the Fanita Ranch Specific Plan: Multi-Use Trails, Village Access Trails, Village Nature Trails, Perimeter Trails, Nature Trails, and Primitive Trails. Multi-Use and Village Access Trails would be paved. Village Nature Trails, Perimeter Trails, Nature Trails, and Primitive Trails would be unpaved. Of these trail types, only Nature Trails and Primitive Trails would be within the Habitat Preserve. Additionally, the unpaved SDG&E service road bisects the Habitat Preserve from east to west, and would be used for the Habitat Preserve trail system.

Trail types, along with their length, width, surface material, and other design criteria (grade and clearances) are shown in Table 2 (reproduced from the Fanita Ranch Specific Plan). The first four types of trails, which are specific to the Fanita Ranch development, are not discussed further in this Public Access Plan.

Table 2
Trail Types and Design Matrix

Trail Type	Total Length (Linear Feet)	Width	Surface	Grade	Vertical Clearance (Feet)	Horizontal Clearance (Feet)
Multi-Use	18,946 6,988	10 feet – Fanita Parkway 8 feet – Cuyamaca Street	Concrete	<=12%	10	2
Village Access	2,098 12,377	10 feet – Village Centers 6 feet to Village Center	Concrete	<=12%	10	2
Perimeter	21,443	8 feet	Earth or DG	<=15%	10	2
Village Nature	25,233	6 feet	Earth or DG	<=15%	10	1
Nature	10,835	4 feet	Earth or DG	<=20%	10	1
Primitive – Existing	52,228	Existing	Native Earth	Existing	10	To Edge
Primitive – New	30,174	2.5 feet	Native Earth	<=20%	10	To Edge
SDG&E Service Road	8,966	Existing	Native Earth	Existing	Per SDG&E	To Edge

Source: Specific Plan, Table 4.3, p. 4-69 (City of Santee 2020)
Note: Grayed text indicates trails not included within the Habitat Preserve, but limited to the Fanita Ranch development
DG = decomposed granite

All trail types are described in detail in Section 4.3 of the Fanita Ranch Specific Plan (City of Santee 2020). A summary of the trails incorporated into the Habitat Preserve trail alignment, either as new trails or from existing trails, is provided below. Trails proposed for the Habitat Preserve are designed for pedestrians, hikers, and bicyclists, with special consideration for equestrians on a

selected trail connection in the eastern part of the Habitat Preserve. Class 1 and Class 2 e-bikes would be prohibited on trails within the Habitat Preserve, including on Nature Trails, Primitive Trails, and the SDG&E service road.

Nature Trails

Nature Trails would be 4-foot-wide unpaved paths that primarily form connections from internal Village Nature Trails to the more extensive Primitive Trail network within the Habitat Preserve. Nature Trails would be surfaced with either decomposed granite or compacted native earth, and may occur on steep slopes or challenging terrain. Nature Trails may not be fully accessible to all user groups due to terrain constraints. Nature Trails would be aligned primarily within areas temporarily impacted from project implementation.

Primitive Trails

Primitive Trails would form a network of recreational paths within the Habitat Preserve. Primitive Trails would typically be approximately 2.5 feet wide, although this varies for existing trails incorporated into the Primitive Trail system. Surfacing would be compacted native earth. Existing trail alignments that potentially threaten sensitive resources would be decommissioned (closed) or rerouted to avoid impacts. Primitive Trails may traverse challenging terrain, including steep slopes, uneven surfaces, and rocky outcrops. Primitive Trails are not expected to meet Americans with Disabilities Act (ADA) accessibility standards.

One trail within the Habitat Preserve, connecting from Vineyard Village to the Sycamore Canyon County Preserve, would allow equestrian use. This existing trail would maintain a 6-foot-wide tread and have a 10-foot minimum vertical clearance over the trail and within 2 to 3 feet of the trail.

SDG&E Service Road

The existing SDG&E service road bisects the Habitat Preserve (east to west) following the Mission–Miguel powerline corridor, and provides access through the southern Habitat Preserve. The road varies in width, but is generally 10 to 15 feet wide. It is surfaced with compacted native soil. Due to challenging topography, the SDG&E service road connection is not expected to meet ADA standards.

4.2 Amenities



Figure 8 -- Tahoma Bench, Sierra Woodworking

Since Nature Trails and Primitive Trails are intended for low-intensity use, amenities associated with these trail types would typically be limited to benches, trash receptacles, and/or pet waste stations at trail access points. Interpretive signage may be suitable at select locations on the perimeter or along Nature Trails where unique opportunities exist for nature or history interpretation. Interpretive signage is not discussed in detail in this Public Access Plan, since these would be developed separately. Specific opportunities for trail amenities should be evaluated and implemented by the City, in coordination with the Preserve Manager and interested community groups.

Trail access point amenities should be rugged, vandal-resistant, and harmonious with the rustic nature of the Primitive Trails. Benches and trash receptacles fashioned from rot-resistant wood species using heavy framing, similar to the U.S. National Forest/National Park Service example provided on Figure 8. Selection of actual amenities shall be specified in final design.

4.3 Stream and Drainage Crossings

Stream and drainage crossings occur wherever a trail crosses a defined flow of water. When this flow has a defined bed and bank, it is considered a stream. Streams within the Habitat Preserve are classified as ephemeral or intermittent. Drainages within the Habitat Preserve are primarily ephemeral and only flow for a short time after a rain event. Intermittent streams sustain flow for the active wet season. The current trail alignments minimize entering or crossing existing streams and drainages classified as state or federal jurisdictional wetlands and/or waters. As practical, protection of crossings is recommended at all stream crossings with a defined bed and bank, or as recommended by state and federal regulating agencies.

The Habitat Preserve includes a number of seasonal blue-line streams within its boundaries. Of these features, only Sycamore Canyon Creek is named. As stated in Section 2.2, Hydrology, Sycamore Canyon Creek flows from north to south along the western project site boundary. Most of the remaining blue-line drainages run from northeast to southwest into Sycamore Canyon Creek.

The Stowe Trail, discussed in greater detail in Section 5.1, Regional Connections, crosses Sycamore Canyon Creek once within the project site. At this 3- to 4-foot-wide crossing, a puncheon or pedestrian bridge is recommended for installation (see Figure 9). A puncheon bridge is a low structure, usually constructed of decay-resistant or pressure-treated wood, without rails. Of necessity, the puncheon bridge should be a maximum of 30 inches above the lowest point in the crossing. Puncheon bridges are typically constructed using a large header beam on either side of the stream above the banks (outside the ordinary high water mark), with the intervening space spanned by two stringers of sufficient size to resist deflection under typical pedestrian loads. The stringers are spanned by planking, and a toe-board is attached near the planking edges as a queue to pedestrians near the edge and to assist people with disabilities when on the bridge. Treads can be wood from appropriate species or recycled plastic lumber for ease of maintenance and longevity.

Support beams would be set outside of the ordinary high water mark, as defined by the U.S. Army Corps of Engineers, to avoid impacts to existing jurisdictional resources. Conformance with California Department of Fish and Wildlife standards would be required if within the riparian zone of a stream (state jurisdictional wetland).

Primitive Trail and Nature Trail crossings of smaller drainages can be accomplished through the use of dry fords, stepping stones, or boulders. A combination of dry ford and stepping stones may meet the needs of mountain bikers, hikers, and pedestrians. Crossings should be lined with rocks of sufficient size that they will not be carried away when the drainage is flowing. Figure 10 shows an example of an armored swale with stepping stones.

In locations where Village Nature Trails or Perimeter Trails would cross drainages, small bridges with hand or guardrails and/or open-bottom culverts, such as a multi-plate structure, may be more appropriate than stepping stones, although puncheon bridges may also be used where drainages are shallow. Wider puncheons may require three or four stringers to properly support treads.

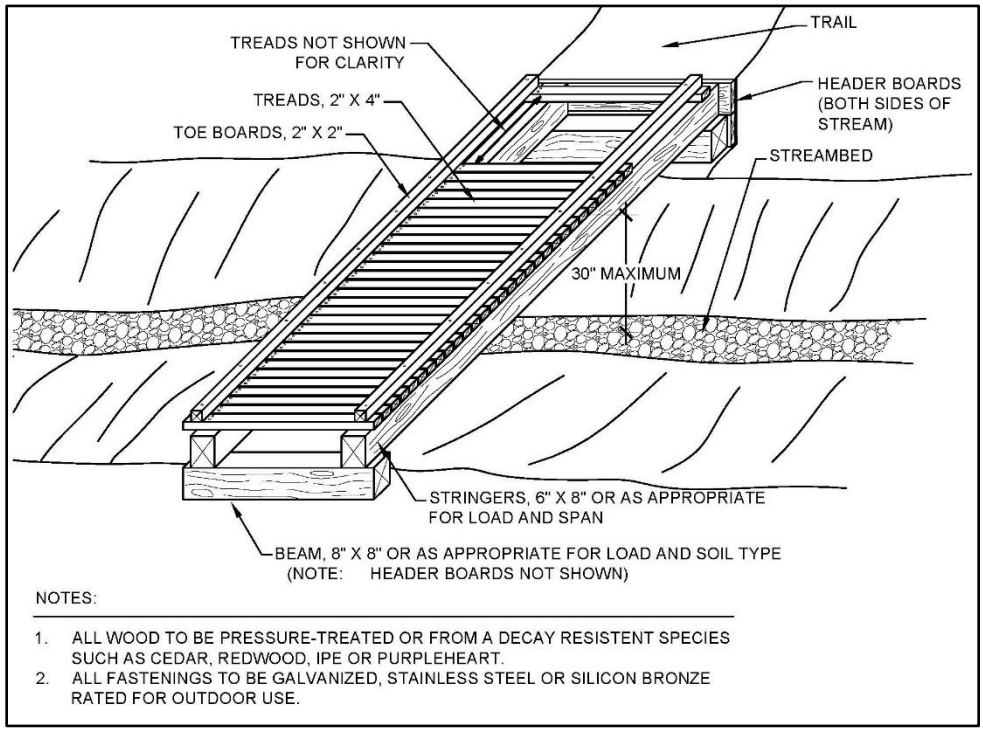


Figure 9 -- Puncheon Bridge

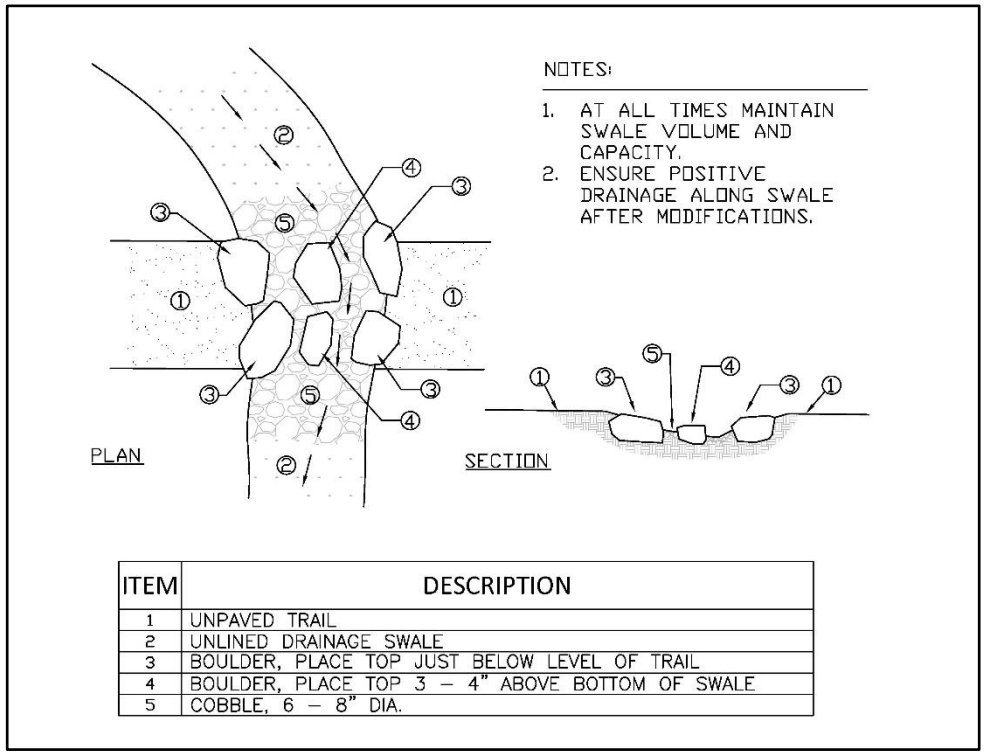


Figure 10 -- Armored Swale with Stepping Stones

4.4 Trail access points

Trail access points would vary in size and amenities, dependent on their location and purpose. Trail access points for Nature and Primitive Trails should include rules signs, emergency contact information, trash receptacles, and a wayfinding map. Additional amenities might include a bench and a pet waste station. If a trail access point occurs in conjunction with other public uses, such as a school, park, or outdoor urban space, it may include additional amenities associated with those uses. See Section 4.11, Access Control, for tools required to deter unauthorized access.

4.5 Trail Staging Areas

Trail access points would intersect surrounding communities and regional trail connections along the Habitat Preserve boundaries. Dedicated trail staging areas are proposed at three key locations to provide additional amenities and to reduce unwanted transient activity within the surrounding residential communities. Community-based amenities would be incorporated into the Farm and Fanita Commons as part of the Fanita Ranch project, as well as the City-proposed Mini-Park #31. The Farm and Fanita Commons are located at key central locations within the Fanita Ranch development, with Mini-Park #31 proposed for a location at the end of Carlton Hills Road, adjacent to, but offset from, existing residential development. Amenities would be for the surrounding communities and for the convenience of trail users. Amenities beneficial to trail users may include parking, shade structures, informative and interpretive signage, adequate gathering areas, water fountains and fill-up stations, benches, trash receptacles, restrooms, security lighting, and bicycle repair/tool station.

4.6 Turnpikes

A turnpike, as shown in Figure 11, is an area of a trail that is elevated above the surrounding grade to improve drainage (Tahoe Donner 2015). Muddy trails are a significant cause of habitat encroachment, because users tend to skirt the muddy areas and expand the trail footprint. Figure 11 shows a typical turnpike cross-section. Turnpikes are unlikely to be needed in the hilly areas of the Habitat Preserve, but may be helpful in limiting encroachment in low-lying areas near Sycamore Canyon Creek.

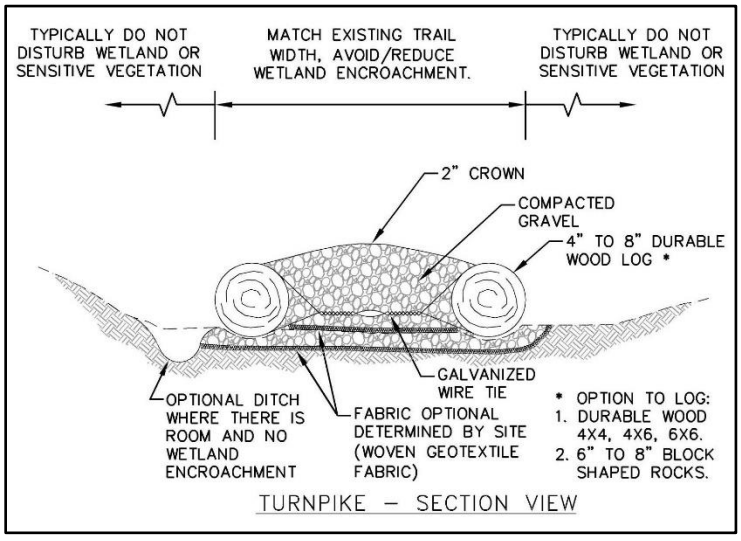


Figure 11 – Turnpike (from Tahoe Donner 5YRIP)

4.7 Signage

Signs are an important element of the trail network. They provide users with information on rules, safety, wayfinding, protection, interpretation of natural resources, and trail difficulty levels. Too much signage can be overwhelming, though, so determining the correct level of signage for a given location is important. Signage associated with trails and trail access points includes pavement delineation (for paved trails), wayfinding and informational signs, regulatory and warning signs, and interpretive signs. Table 3 lists appropriate levels of signage for trail access points, road crossings, and trail types. Trail access point signs would be designed to combine information on one to a few dedicated signs, minimizing trailside clutter.

Table 3.
Signage Guidelines

Trail Element	Sign Type	Description
Trail access point	Trail Etiquette/Rules	Hours of operation, yield guidelines (bicycles to pedestrians, pedestrians to limited mobility users), leash and litter laws, pet waste cleanup
	Restrictive Use	Motor vehicles prohibited, multi-use path restrictions
	Contact information	Emergency and maintenance information
	Wayfinding	Maps of the trail network with "you-are-here" marker, trail distances and difficulties
Road Crossing (Unsignalized)	Stop/Yield	At all intersections of the trail network with a road
	Stop/Yield Ahead	Where stop/yield sign is not visible within a safe breaking distance from road (dependent on trail configuration and slope)
	Pedestrian Crossing Ahead	At all pedestrian crossings a safe breaking distance from crossing (dependent on trail configuration and slope)
	Street Name	At all street crossings
	Pavement Markings	Stop, Stop Ahead
	Crosswalk Striping and Signage	High-visibility crosswalk marking and signage at all road crossings
	Restrictive Use	Motor vehicles prohibited, multi-use path restrictions at all road crossings
Road Crossing (Pedestrian-Activated Signal)	Stop Sign	At all intersections of the trail network with a road
	Stop Ahead	Where stop/yield sign is not visible within a safe breaking distance from road (dependent on trail configuration and slope)
	Signal Ahead	Where signal is not visible within a safe breaking distance from road (dependent on trail configuration and slope)
	Pedestrian Crossing Ahead	At all pedestrian crossings a safe breaking distance from crossing (dependent on trail configuration and slope)
	Street Name	At all street crossings
	Pavement Markings	Stop, Stop Ahead, Signal Ahead
	Instructions for Use of Signal	Sign to push button to activate pedestrian signal
	Restrictive Use	Motor vehicles prohibited, multi-use path restrictions at all road crossings

Table 3.
Signage Guidelines

Trail Element	Sign Type	Description
Unpaved Trail	Mile Marker	From trail start
	Wayfinding	Trail and road names at intersections, distance and direction to next trail/intersection or place, other directional signage as appropriate
	Interpretive	Unique features, views, resources, or other information
	Informational	Difficulty ratings, trail length, elevation gain, or other information

Wayfinding and Informational Signs

Wayfinding information would be located on signs periodically along trails and at important trail/trail and trail/street intersections. Wayfinding may also occur periodically along longer trails to inform users of their progress. Wayfinding signs are anticipated to be simple and include the trail name, or be limited to a mileage marker. For highly trafficked areas or at prominent intersections, signage may include trail maps (with distances), street and trail names, and direction and distance designation.

Information signs should be located at prominent trail access points. These signs would include trail etiquette, proper pet-waste management, and other pertinent information.

Regulatory and Warning Signs

Regulatory and warning signs would be posted at all trail access points. Regulatory signs would include trail restrictions (e.g., no motorized vehicles, no equestrians, dogs on leash), but also may include trail rules, hours of operation, litter laws, and pet waste cleanup rules. A special category of regulatory sign that limits public access, which comes in a variety of formats such as "No Trespassing," "Nature Preserve, Limited Access," "Restoration in Progress," and others, would be located adjacent to protected resources or off-limit areas. Warning signs include any information needed to protect trail users, including trail difficulty or potential hazards such as roadway crossings, steep terrain, falling rock, potentially dangerous wildlife, speed limits, and sharp curves. These may be located at trail access points and along trails, as needed.

4.8 Safety and Security

Public safety is of vital importance on any trail system. Users must feel safe while using the trails or they will use other forms of transportation and recreation. Creating a safe trail system depends on a number of factors, including design, maintenance, visibility, signage, and law enforcement. Additionally, landowners and residents adjacent to the trails must feel safe. Safety concerns of residents can often be addressed by controlling access and ensuring privacy.

Design strategies that help to ensure safety of trail users include techniques known as Safety-by-Design or Prevention through Design. These techniques include providing for good visibility from the trail, adjacent roads, and publicly accessible areas; selecting road crossings that are appropriate for automobile traffic volume and speed; designing trails to limit road crossings where feasible; and other factors. Providing for good visibility aids law enforcement personnel to view potential public safety issues from regular patrol routes. It involves maintaining a vegetation-free zone from 2 feet high to 6 feet high within 3 feet of the trail, and maintaining a similar zone between the trail and roads and other public spaces.

Good maintenance is important in identifying potentially hazardous situations, including dead and dying trees that could pose a danger to trail users, erosion and eroded trails, drainage crossings, and managing vegetation to maintain open sight lines. Signage that informs trail users on safe behavior is also important, such as appropriate speed limits for mountain bikes, trail difficulty, hours of operation, leash laws, and potentially dangerous wildlife like rattlesnakes, to name a few.

Even if Prevention through Design guidelines are followed, safety and security may be dependent on interaction with local public safety departments. This Plan accommodates adequate access into the Habitat Preserve for public safety, with plan development coordinated with San Diego County Sheriff and Santee Fire Department . Community activism, such as Neighborhood Watch, is also important for maintaining safety and security on trails.

Privacy and access concerns of landowners and residents can often be addressed through fencing. The degree of privacy desired by individuals varies depending on personal preferences and cultural norms. Some residents may want an open fence that provides little screening so that they can view the adjacent natural areas, while others may desire an opaque wall that blocks trail users from looking into their yards. Individual lot privacy screening is usually best left to the landowner, tenant, or developer to determine the form they desire.

4.9 Wildfire

Wildfire is a serious concern throughout California, particularly in locations where development abuts natural areas. Trails can assist with wildfire preparedness and response by serving as firebreaks and as access routes for equipment and personnel. Trails can also function as access routes for vegetation management to reduce wildfire risk, and the SDG&E service road provides an entry point into the Habitat Preserve for emergency responders. Details are provided in the Fire Protection Plan (Dudek, 2020b).

4.10 Erosion Control

Control of erosion on trails and within the adjacent Habitat Preserve is an important aspect of safety and protection of natural resources. Trails often provide a ready path for stormwater runoff, which starts as a rill following the trail and develops into a ditch or eroded gully. Newly constructed trails running up or downhill should incorporate a swale on their uphill side to intercept and convey runoff. Rolling dips are low spots in a trail accompanied by small berms on the downhill side (Figure 12; USDA 2007). These typically cross a trail at an angle to intercept runoff flowing down the trail to allow water to pass to the downhill side for discharge. A rock dissipater apron would be used on the slope downhill of the low point of the dip, as needed, to protect against erosion. Techniques for trail stabilization and protection described herein shall be used to repair and fortify existing trails susceptible to erosion, as needed.

As discussed in Section 4.3, Stream and Drainage Crossings, boulder stepping stones or small puncheon bridges would be used where the trail crosses streams that have a defined bed and bank. Where trails cross minor drainages, protection against erosion and persistent mud may be considered. This may be as simple as providing a rock surface at the low point to accommodate low flows during and shortly after storm events. Additionally, a drainage lens, which uses stones 2 to 4 inches in diameter wrapped in a geotextile "burrito" to form a surface 6 inches to 1 foot above the flow-line of the swale, which is then topped by a 6-inch-thick wear surface (see Figure 13; Tahoe Donner 2015), could serve as a stabilizing device.

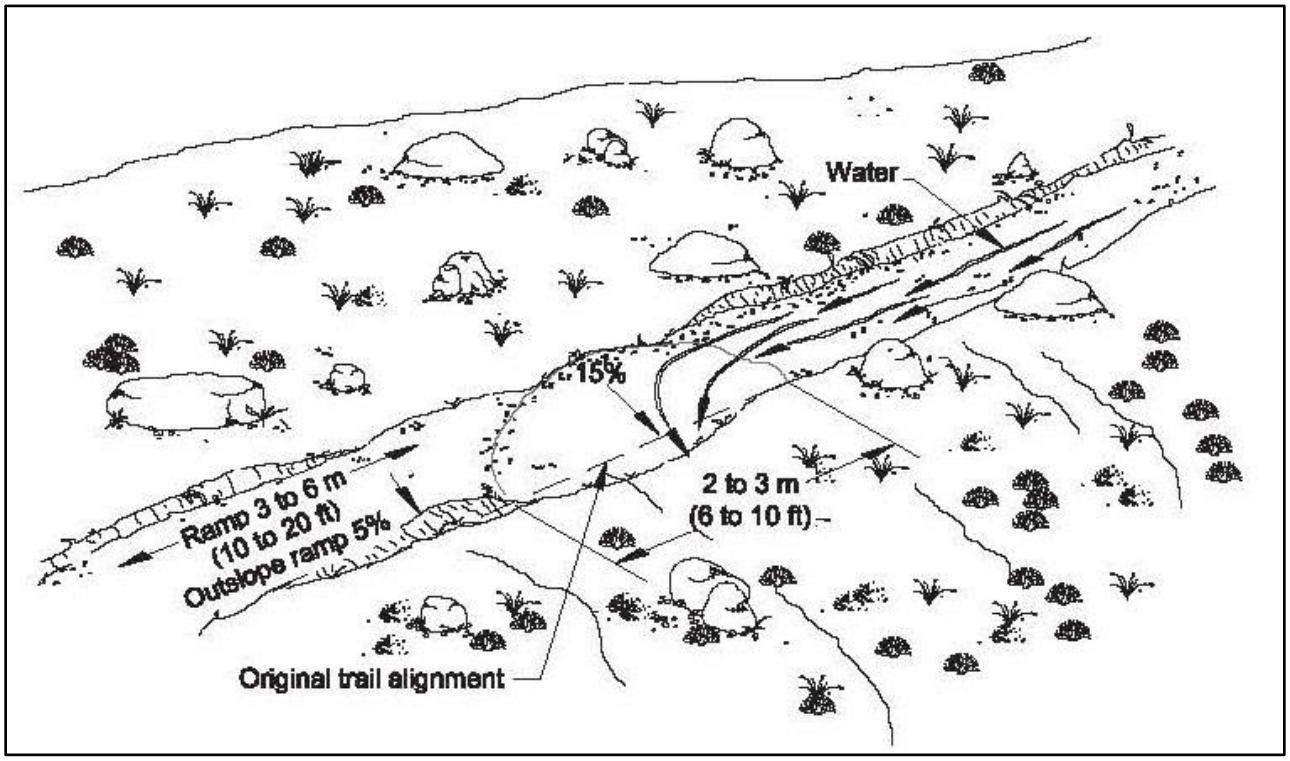


Figure 12 -- Rolling Dip

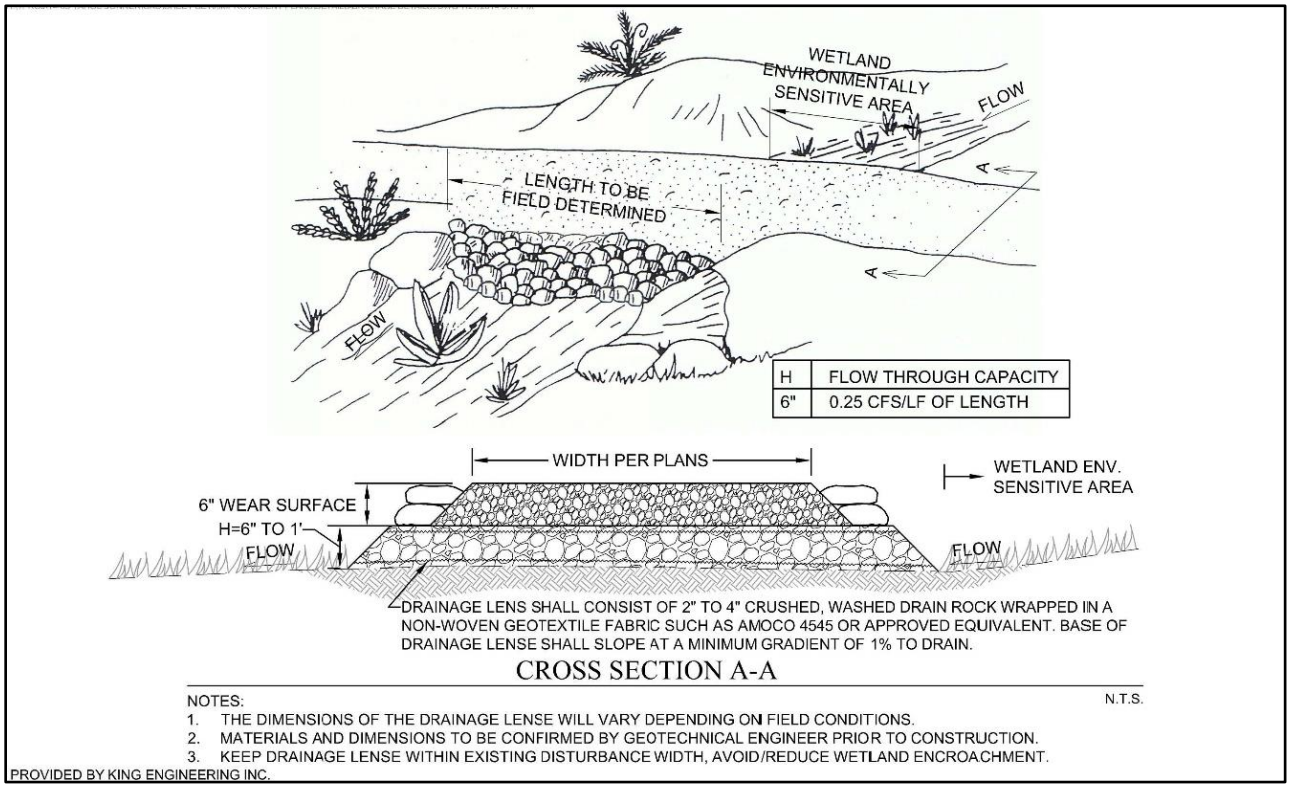


Figure 13 -- Drainage Lens

For newly constructed trails, running gradient shall not exceed 15%, but in cases where trails ascend steep slopes and switchbacks (significant changes in direction) are needed, several techniques can be used to reduce the potential for erosion. Switchbacks often require a landing, which can be in-sloped, crowned, or climbing (see Figure 14 through Figure 16 [Tahoe Donner 2015]). In an in-sloped turn, drainage collects in the area between the trail on either side of the switchback, and is conveyed across the lower trail through either a drainage lens or rolling dip. In-sloped turns are best for hillside slope gradients of 25% or less. In a crowned switchback, the area at the apex of the switchback is raised higher than the trail on either side. The trail above the switchback is sloped back toward the hillside so that runoff collects between the trail and the hill slope and is drained out the downhill side of the switchback at the trail change of direction. This method works on hill slopes steeper than 10%. On shallow slopes of less than 7%, an even grade would be maintained throughout the switchback. With a cross-slope pitched downslope at 5%, a sheet flow of stormwater runoff across the trail would continue downhill.

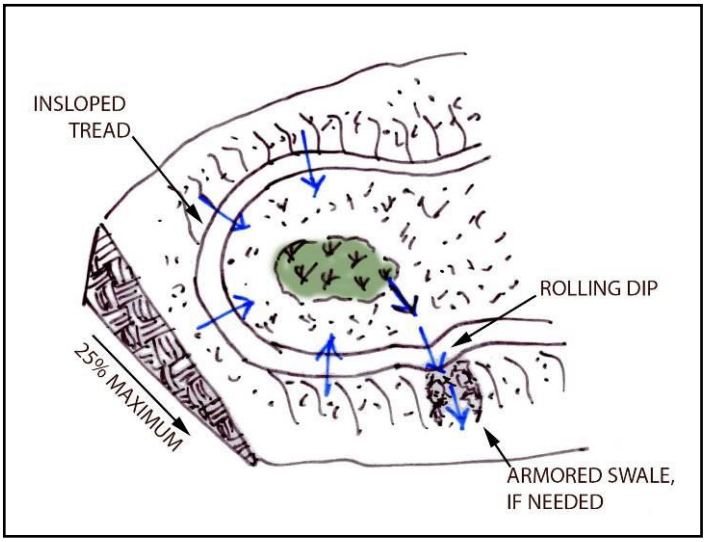


Figure 14 – Insloped Turn

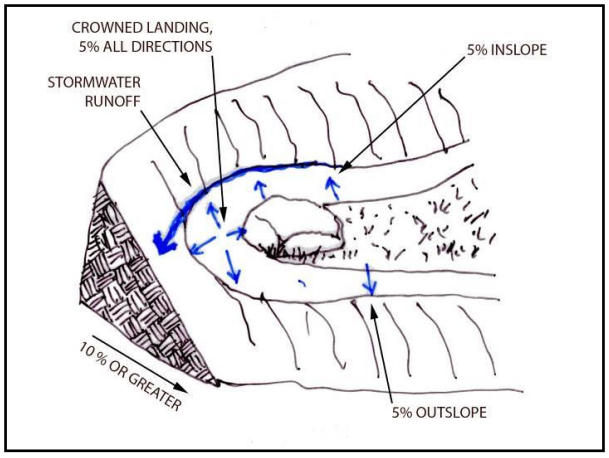


Figure 15 -- Crowned Switchback

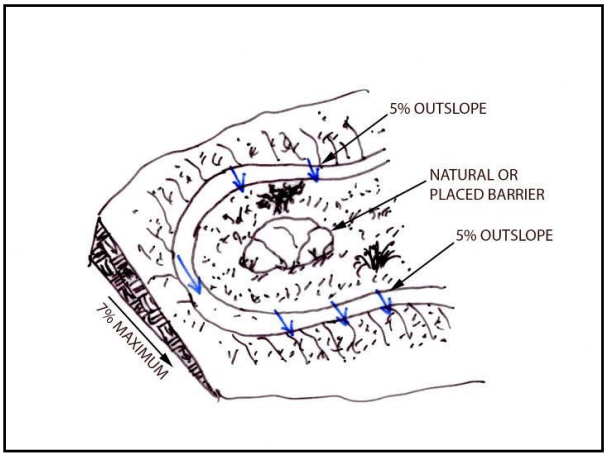


Figure 16 -- Climbing Turn

4.11 Access Control

Given the sensitive habitats within the Habitat Preserve, controlling access to unauthorized users is an important factor in Habitat Preserve management. Unauthorized use has a number of potential negative impacts, such as increased erosion, damage to fragile habitats, conflicts with approved trail uses, and disruption of wildlife. Any time the public is allowed into conserved lands, care is required to ensure that human activities do not adversely affect sensitive resources.



Figure 17 -- Motorized Use Trail Barrier Gate

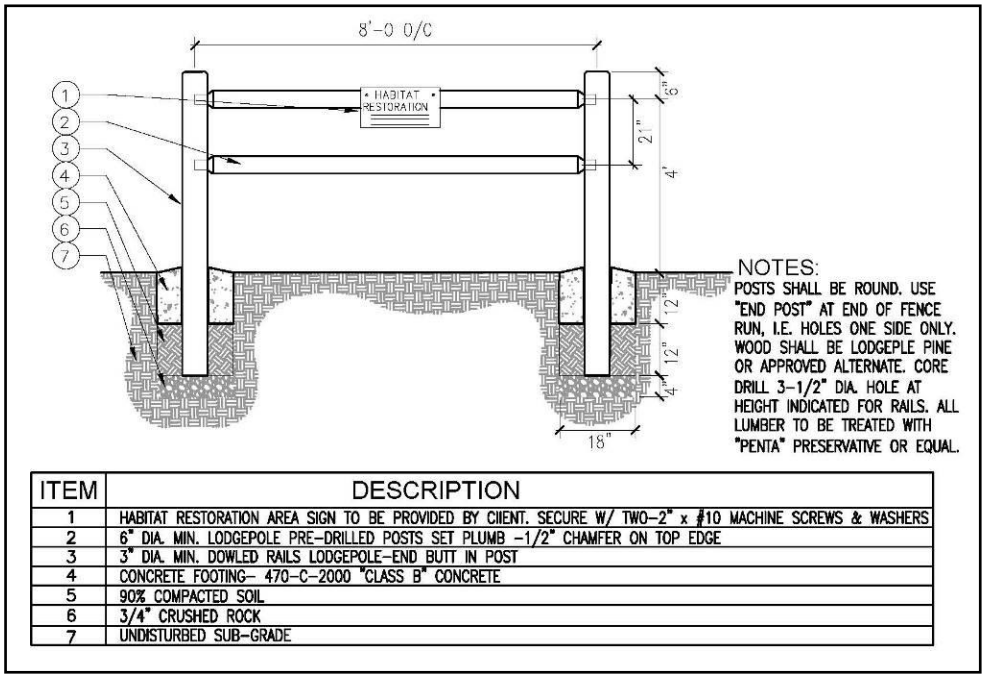
Two primary aspects of controlling public access to the trail system within the Habitat Preserve are excluding access for unauthorized vehicles (i.e., motorized), and keeping trail users on designated trails and away from sensitive resources. Access control typically is accomplished through signage, physical barriers, and enforcement.

Access control and/or signage (see Section 4.7, Signage) would be located at every entry point into the Habitat Preserve to define allowed and prohibited uses. All trails within the Habitat Preserve would be restricted to non-motorized users. Equestrians would be prohibited on all trails except the connection from Vineyard Village to the Sycamore Canyon County Preserve. Access control signage should also include the usual warnings to "Stay on the Trail."

Physical barriers, including fencing, bollards, gates, large rocks, wooden guardrails, and other structures to discourage access by prohibited modes of transportation would be used based on and evaluation of individual access points and adjacent natural terrain/vegetation. Figure 17 shows an example of a structure designed to exclude motorized vehicles (USFS 2006).

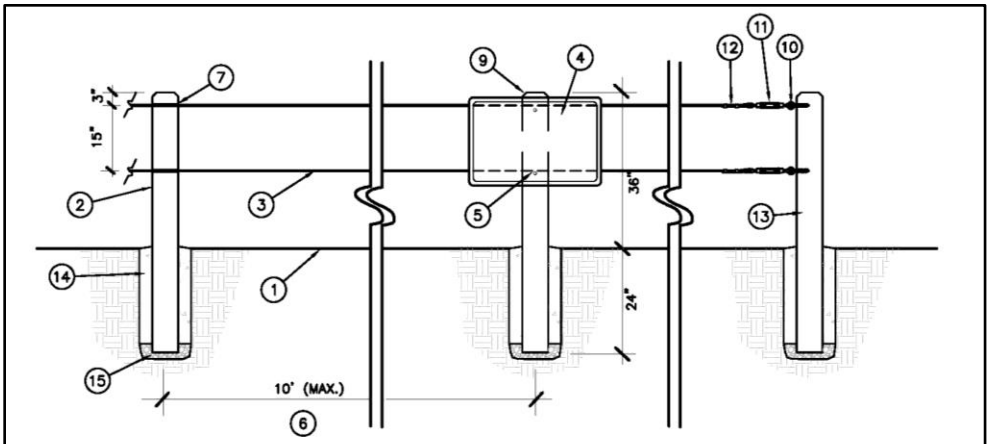


Figure 18 -- Motorized Vehicle Exclusion Gate



ITEM	DESCRIPTION
1	HABITAT RESTORATION AREA SIGN TO BE PROVIDED BY CIIENT. SECURE W/ TWO-2" x #10 MACHINE SCREWS & WASHERS
2	6" DIA. MIN. LODGEPOLE PRE-DRILLED POSTS SET PLUMB -1/2" CHAMFER ON TOP EDGE
3	3" DIA. MIN. DOWLED RAILS LODGEPOLE-END BUTT IN POST
4	CONCRETE FOOTING- 470-C-2000 "CLASS B" CONCRETE
5	90% COMPACTED SOIL
6	3/4" CRUSHED ROCK
7	UNDISTURBED SUB-GRADE

Figure 19 -- Peeler Log Fence



ITEM	DESCRIPTION
1	EXISTING GRADE
2	5' LENGTH PEELER CORE LOG (6" DIA.) OF ROT-RESISTANT SPECIES
3	TWO STRAND 10 GAUGE WIRE PULLED TAUGHT
4	ENVIRONMENTAL SIGN LOCATIONS TO BE IDENTIFIED BY HOMEFED
5	ATTACH SIGN W/ 2 ½" GALVANIZED CARRIAGE BOLTS, NUTS AND LOCKING WASHERS, TYP.
6	PLACE POSTS 10' O.C. AND AT ALL VERTICIES/CHANGES IN DIRECTION
7	PASS WIRE THROUGH HOLD DRILLED HORIZONTALLY THROUGH POST
8	TENSION WIRE WITH WIRE STRAINER (RATCHET TIGHTENER) AT EACH WIRE ANCHOR POINT
9	1" CHAMFER, TOP OF POSTS
10	GALVANIZED EYEBOLT
11	GALVANIZED TURNBUCKLE
12	GALVANIZED THIMBLE AND COMPRESSION SLEEVES
13	CORNERPOST
14	CONCRETE FOOTING, SLOPE AWAY FROM POST
15	CRUSHED ROCK SUMP, 4" DEEP

Figure 20 -- Post and Cable Fence

This structure can also include a drop-bar across the vertical posts to close the trail to all users. Figure 18 shows a structure that deters access to motorized vehicles (USFS 2006).

Bollards and boulders are effective at excluding large vehicles, but less effective at restricting access to smaller motorized vehicles.

Fencing would also be considered in locations adjacent to sensitive resources or to protect decommissioned trails being restored. Fencing would be used to separate a trail from a sensitive habitat area wherever the trail passes within 100 feet of sensitive habitat, such as a vernal pool.

Often, a post-and-cable fence combined with signage would be sufficient to provide protection to a sensitive resource area. If off-trail use persists in spite of a post-and-cable fence, then installing a more robust fencing, such as a peeler-core fence, can be employed, either separating the resource from the trail or completely surrounding the sensitive habitat (see Figures 19 and 20). Signage should indicate a protected natural resource and warn trail users to stay on the trail. A simple high-durability sign mounted on a post or the fence itself should be sufficient. Non-metal signs may be less prone to theft.

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5 TRAIL CONNECTIONS

5.1 Regional Connections

Stowe Trail is the primary regional connection through the project site. Stowe Trail connects south to Mission Trails Regional Park, north to Gooden Ranch Sycamore Canyon County Preserve, and west (with restricted access) to MCAS Miramar. This regional trail connection is generally classified as a Primitive Trail, and as such would have widths of approximately 2.5 feet; however, this Public Access Plan recommends that Stowe Trail be expanded to 4 feet wide where feasible. The trail is not expected to be fully ADA compliant due to native compacted earth surfacing, topographic challenges, and drainage crossings; however, a 4-foot width would make it passable for a wider range of users than a typical Primitive Trail would. Similarly, puncheon bridges are recommended for drainage crossings rather than armored swales. Where feasible, trail slopes should meet accessibility requirements that accommodate a variety of user types.

The proposed trail in the northeast corner of the project site, which would connect Vineyard Village to the Sycamore Canyon County Preserve, would be the only trail within Fanita Ranch that accommodates equestrians. Due to the potential for conflicts between equestrians and mountain bikers, it is recommended that this trail be of sufficient width to accommodate both users. Signage would be used to direct user groups as needed.

5.2 Habitat Preserve Areas

Trails within the Habitat Preserve fall within three categories: Nature Trails, Primitive Trails, and the SDG&E service road. The majority of the proposed public access routes within the Habitat Preserve would be Primitive Trails, but several Nature Trails would connect into this Primitive Trail network, and the SDG&E service road would cross the Habitat Preserve from west to east along the SDG&E powerline corridor. Existing trails within the Habitat Preserve will be used as practicable, with new trail segments incorporated, as needed to create linkages and to promote avoidance of existing sensitive resources. Redundant trails and trails that threaten sensitive resources shall be decommissioned.

The remainder of this section discusses the trails within the Habitat Preserve based on their regional location (as shown in Figure 21, Proposed Trail System within Habitat Preserve). Trails would consist of the following:

- Northwestern Preserve Area Trail Network: The trail network located in the northwest corner of the project site consists of the Stowe Trail and related connections around the Sycamore Canyon County Preserve.

- Northeastern Preserve Area Trail Network: A trail network located in the northeast Habitat Preserve. This area consists of ridges and defined drainages.
- Southern Preserve Area Trail Network: A trail network located in the southern portion of the Habitat Preserve. This area is characterized by northeast/southwest–trending ridges and steep drainages.

5.2.1 Northwestern Preserve Area Trail Network

Description

These trails occur south of the Sycamore Canyon County Preserve between the western Habitat Preserve boundary and Orchard Village (Figure 22, Northwestern Preserve Area Trail Network). This area includes the riparian area around Sycamore Canyon Creek and the slope between the valley floor and Orchard Village. It is characterized by live oak woodland with some large trees in the valley floor, and grasslands and vernal pools interspersed with coastal sage scrub and chaparral on surrounding slopes. Connections include the Stowe Trail to the north and south, MCAS Miramar to the northwest, and trails leading to Orchard and Vineyard Villages.

Biological Resources/Constraints

This area of the Habitat Preserve contains the largest concentration of existing vernal pool resources and proposed vernal pool restoration areas. Some of the vernal pools on site are occupied by the federally endangered and MSCP Covered Species San Diego fairy shrimp and the MSCP Covered Species western spadefoot. The majority of willowy monardella (*Monardella viminea*) occurrences, a state and federally endangered species and an MSCP Covered Species, are within this area, as well as critical habitat for this species designated by the U.S. Fish and Wildlife Service. Existing trails containing vernal pools would be abandoned with the intention of using this area for vernal pool restoration within the Habitat Preserve. Existing trails that would be retained within the Habitat Preserve would be re-routed around vernal pools, including their watershed (100-foot buffer), to prevent impacts to this sensitive resource and the sensitive species they contain. Impacts to willowy monardella individuals could occur from off-trail use, which could resulting in trampling of individuals. Fencing would be used to protect individual plants where trails represent a credible threat.



SOURCE: Hunsaker 2018, 2019; SANGIS 2017

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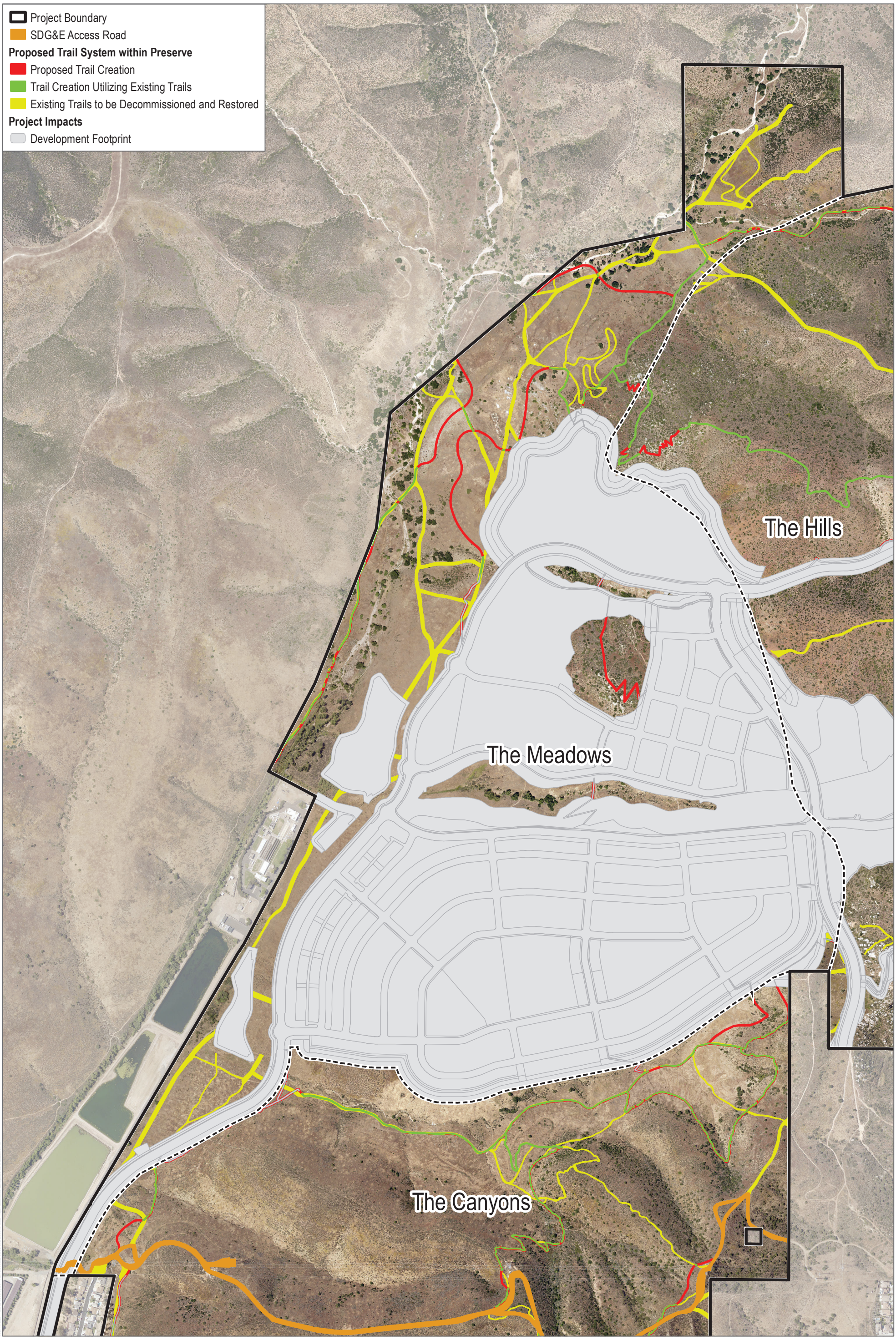
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FIGURE 21

Proposed Trail System within Habitat Preserve

Fanita Ranch Habitat Preserve Public Access Plan

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SOURCE: Hunsaker 2018, 2019; SANGIS 2017

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0 500 1,000 Feet

FIGURE 22

Trails in The Meadows

Fanita Ranch Habitat Preserve Public Access Plan

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5.2.2 Northeastern Preserve Area Trail Network

Description

This area encompasses the area around Vineyard Village and includes connections to Sycamore Canyon County Preserve, Oak Creek Drive, Crazy Horse Drive, Princess JoAnn Road, a trail connecting to the Stowe Trail along Sycamore Canyon Creek, and the area between Vineyard Village and Orchard Village (Figure 23, Northeastern Preserve Area Trail Network). The region is characterized by northeast/southwest-trending ridges with rock outcrops. Vegetation is primarily sage scrub and chaparral, with patches of oak woodland and grassland in the lower elevations.

Biological Resources/Constraints

The lower elevations of this area contains the special-status plant species willowy monardella, located within the main drainage, and the higher regions of this area contain potentially suitable habitat for the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*) and for the MSCP Covered Species Hermes copper butterfly (*Lycaena hermes*). Impacts to willowy monardella individuals could occur from off-trail use, which could result in trampling of individuals. Fencing would be used to protect individual plants where trails represent a credible threat. There are a few scattered coastal California gnatcatcher (*Polioptila californica californica*) use areas within this area. Impacts to this species could occur from off-trail use, which could prevent adequate host plants species. Given their persistence in many regional and wilderness parks, coastal California gnatcatchers generally appear to be tolerant of passive public uses, such as jogging, hiking, mountain biking, and equestrian use on designated trails. Therefore, trails are not considered impacts to coastal California gnatcatcher use areas within the Habitat Preserve.

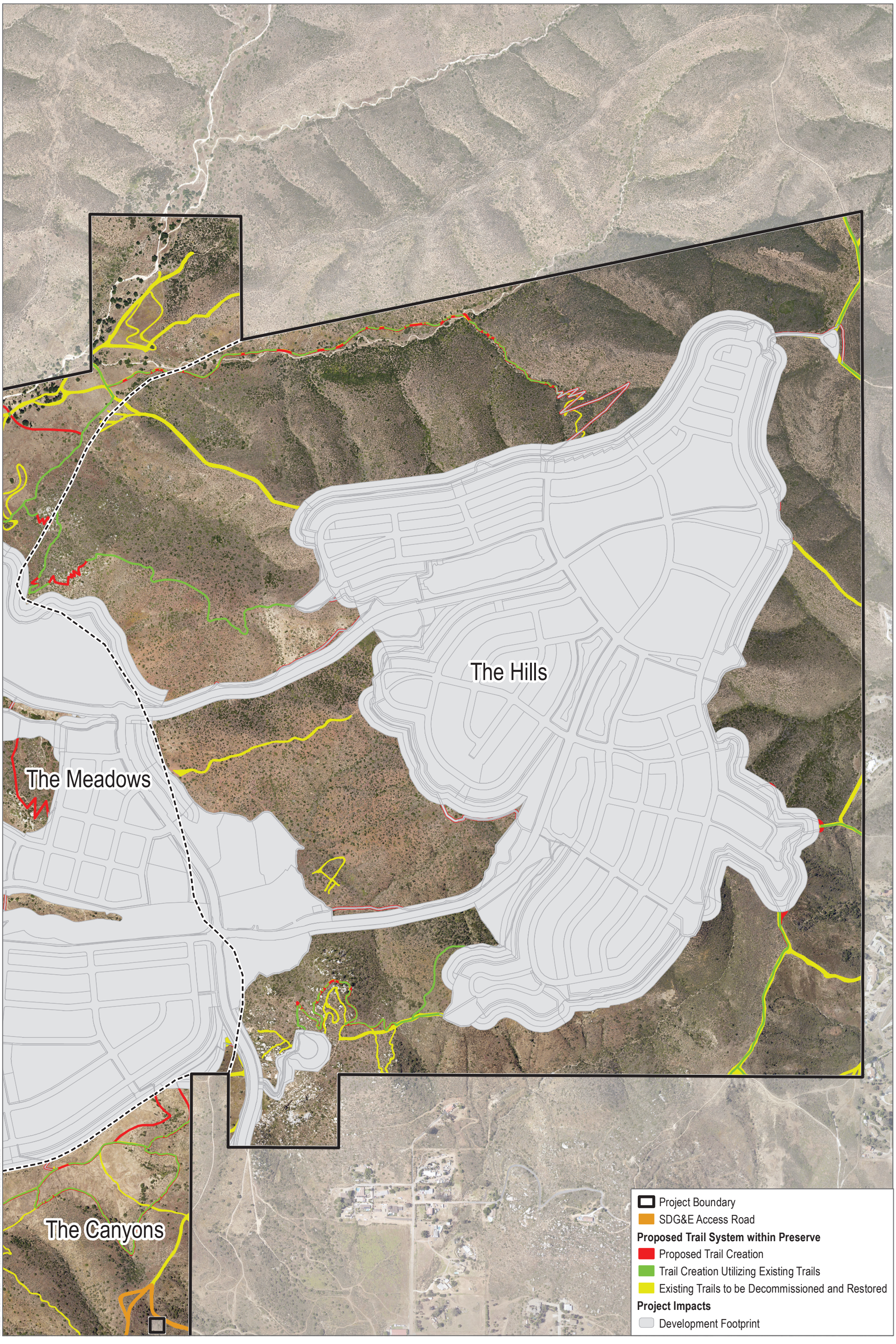
5.2.3 Southern Preserve Area Trail Network

Description

This area is south of Orchard Village and is characterized by south-trending ridgelines and dissected canyons (Figure 24, Southern Preserve Area Trail Network). Trails include a perimeter trail running along the border of the Habitat Preserve adjacent to existing development, several ridgeline trails crossing the Habitat Preserve, the SDG&E service road, and internal trail connections. Vegetation is predominantly sage scrub with patches of grassland scattered throughout. Trail connections would include links to Orchard Village, Fanita Parkway, and Cuyamaca Street.

Biological Resources/Constraints

This area contains the majority of the suitable habitat for the MSCP Covered Species coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) and the majority of coastal California gnatcatcher use areas. Given their persistence in many regional and wilderness parks, coastal California gnatcatchers generally appear to be tolerant of passive public uses, such as jogging, hiking, mountain biking, and equestrian use on designated trails. Therefore, trails are not considered impacts to coastal California gnatcatcher use areas within the Habitat Preserve. Management concerns for coastal cactus wren include urban-related predators (e.g., cats) and fire that can result in temporal habitat loss. This area contains potentially suitable habitat for the federally endangered Quino checkerspot butterfly and for the MSCP Covered Species Hermes copper butterfly. Impacts to these species could occur from off-trail use, which could resulting in trampling and prevention of adequate cover of host plants species. Fencing would be used to protect individual plants where trails represent a credible threat.



SOURCE: Hunsaker 2018, 2019; SANGIS 2017

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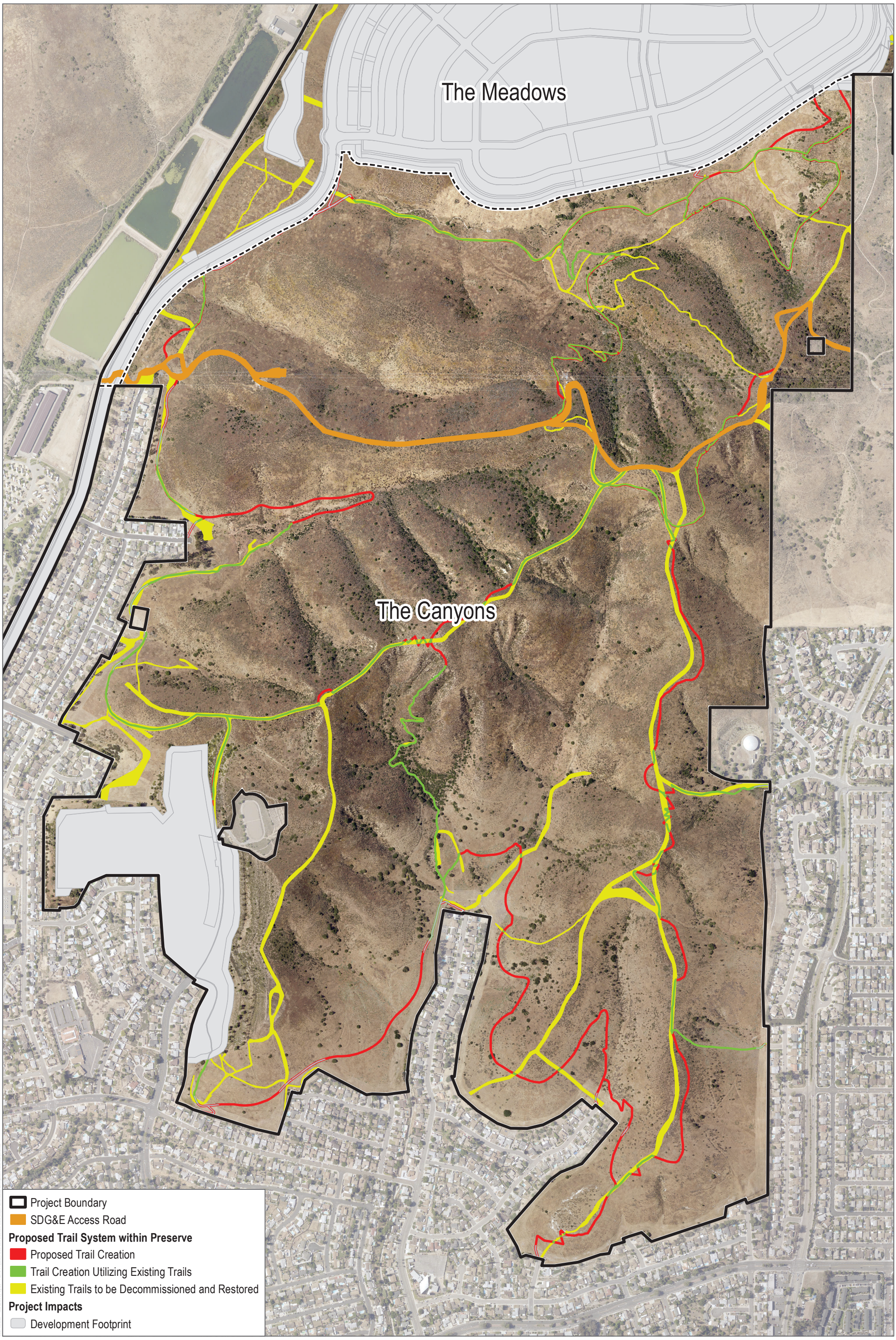
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FIGURE 23

Trails in The Hills

Fanita Ranch Habitat Preserve Public Access Plan

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SOURCE: Hunsaker 2018, 2019; SANGIS 2017

DUDEK

0 500 1,000 Feet

FIGURE 24

Trails in The Canyons

Fanita Ranch Habitat Preserve Public Access Plan

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6 IMPLEMENTATION

6.1 Maintenance and Management of Trails

Based on recommendations in the U.S. Department of Agriculture Trail Construction and Maintenance Notebook (USDA 2007), the following trail maintenance recommendations would be implemented for the Habitat Preserve:

- Maintain trails when the need is first noticed to prevent more severe and costly damage later.
- Keep surface water from running down trails. For rolling contour trails, keep grades sustainable by using the half rule (i.e., the trail grade is not more than half of the grade of the side-slope), and add reversals in grade to keep water moving across the trail with tread sloped outboard (i.e., rolling dips). Outboard sloping tread should be graded approximately 5% from the inside to outside edge to help move water across the trail.
- Keep trails well-drained to keep tread material on the trail.
- Compact trail surfaces to discourage damage by burrowing mammals (e.g., pocket mice, gophers).
- Maintain trail corridor clearing limits, including the area above and to the sides of the tread, by trimming vegetation and removing fallen logs. For safety, a clear zone should be maintained between 2 feet and 8 feet high within 3 feet of the trail. Additionally, any dead or dying trees or limbs overhanging the trail should be removed to reduce the likelihood of injury from falling debris.
- Outside of the 3-foot clearance zone, consider removing brush from only the uphill side of the trail. This approach encourages users to avoid using the trail's downhill edge, which would help maintain trail alignment.
- Tree roots can pose hazards for tripping and erosion. The following maintenance prescriptions apply to tree roots:
    - Remove roots that are parallel with the tread. These help funnel water down the trail and create slipping hazards.
    - Route trails around large trees. Construction of trails close to trees undermines their root systems, which may lead to premature tree mortality and safety issues.
    - Do not remove roots that are perpendicular to the tread, fairly flush, and not a tripping hazard.

- Maintain trail tread periodically. Trails should be monitored yearly as part of long-term management of the trail. Problems should be corrected as soon as they are noted to reduce the likelihood of continued damage and/or public safety issues. Tread maintenance includes the following:
    - Removing and scattering berm material that collects at the outside edge of the trail.
    - Reshaping the tread and restoring the out-slope.
    - Maintaining the tread at the designed width.
    - Removing debris that has fallen on the tread, including logs, sticks, stones, and trash.
    - Removing obstacles, such as protruding roots and rocks.
    - Repairing any sections that have been damaged by landslides, uprooted trees, washouts, or boggy conditions.
    - Compacting tread and sections of back-slope that have been reworked.
- Prevent the expansion of the trail cross-section over time. Over extended usage, trails tend to expand in width due to trampling of vegetation adjacent to the trail. This is particularly true in muddy locations, where trail users attempt to skirt the wet areas and thereby widen the trail footprint. Maintaining drainage on trails by sloping treads a minimum of 5% toward the downhill side would help to limit areas of poor drainage. Trails that lie in low areas should be relocated farther upslope, or, if relocation is not feasible, turnpikes may be required. A turnpike raises trails above the surrounding terrain using logs or rocks along the edges, with soil between, to elevate the tread (see Chapter Section 4.6).
- Maintain trails between 2 and 3 feet wide, unless otherwise noted in this Public Access Plan (such as for Nature Trails, the Stowe Trail, and the equestrian trail to Sycamore Canyon Park). Trails may have to be periodically closed to allow for revegetation in locations where habitat encroachment widens trails beyond their planned configuration. Temporary structures should be placed on both ends of a closed section to indicate that the trail segment is under renovation. Trail edges should be ripped to decompact soils, and these areas should be reseeded with a seed mix of species native to the Habitat Preserve. Work should be done immediately prior to the rainy season to improve germination success rates.
- Monitor trails for potential seasonal closures. Trails that experience repeated problems with erosion or habitat encroachment may require seasonal closure or, in extreme cases, permanent closure. Seasonally closed trails should be rehabilitated in the off-season. Trails impacting sensitive habitats may require relocation or permanent closure.
- Maintain trails on a regular schedule. In addition to the tread maintenance listed above, tasks include repairs to signs and fencing, landscaping and amenities at trail access points, drainage/stream crossings, and trash removal.

6.2 Closing Trails (Decommissioning)

This Public Access Plan requires closing a number of trails within the Habitat Preserve. Approximately 123,400 linear feet of trail would be closed and 137,900 linear feet of trail would be relocated through implementation of the proposed project or in avoidance of sensitive resources. Approximately 45,400 linear feet of existing trail would be retained and rehabilitated. Trail closures would be accomplished through installation of deterrents, including fencing on both sides of the closed segment with peeler-core fences (see Figure 19), placement of rocks, or screening with cut vegetation. Signage indicating "Keep Out. Habitat Restoration in Progress" would be posted at closure locations.

Trails to be closed located directly adjacent to existing trails that would remain open would be actively restored with native vegetation to deter encroachment. Restoration would include trail surface decompaction to encourage water infiltration and promote seed germination. Trail surfaces would be seeded with a native seed mix appropriate to the surrounding vegetation community. Trails not directly adjacent to existing trails that would remain open are expected to be restored passively through excluding access and allowing natural revegetation. If closed trails are excessively compacted, decompaction may be employed.

Closed trails should be monitored to ensure that they are no longer being used. If trails show signs of continued use, installation of additional screening and physical barriers are recommended. Shrubs that discourage passage may be planted on the opposite side of the fence from the trail. Some shrub species that may be effective at discouraging use of closed trails include chaparral yucca (*Hesperoyucca whipplei*), pricklypear (Opuntia sp.), and cholla (Cylindropuntia sp.) due to the presence of spines, or quick-growing woody native shrub species to serve as a physical and visual screen.

6.3 Mitigating Impacts to Sensitive Resources

Primary mitigation for potential impacts to sensitive resources within the Habitat Preserve would be through passive restoration, including closing trails that directly impact sensitive habitats, relocating trails to provide larger buffers, posting signage to enhance public awareness, improving trails to reduce erosion and enhance drainage crossings, protecting resources with fencing, and establishing guidelines for trail maintenance and management. Additional restoration would be employed, as needed, to deter encroachment into closed areas, as described in Section 6.2, Closing Trails (Decommissioning).

Additionally, the Habitat Preserve would be evaluated per the conditions in the Preserve Management Plan for impacts due to public access, such as encroachment, vandalism, and improper use, and actions would be taken to mitigate for impacts that damage preserved values.

Enforcement of proper trail use would be critical and would be provided through the Preserve Manager function. Table 4 contains potential actions to be taken for a variety of potential impacts.

Table 4.
Mitigating Impacts

Impact	Mitigation
Encroachment	Measures to close illicit trails will include hand-ripping compacted soils, revegetation, and fence and signage installation. If a particular route is prone to encroachment (e.g., a trail is re-established after being closed and revegetated), additional measures may be undertaken, including realignment of the original trail to avoid that area.
Vandalism	Responding to vandalism depends on the specifics of the vandalism act. If the vandalism is to an amenity, that amenity will be repaired, repainted, or replaced, depending on the extent and type of damage. Vandalism to the trail tread will require repairing the tread to its condition prior to the damage.
Erosion on trail	Erosion that damages the trail tread will be evaluated as to the cause. If feasible, the cause will be corrected and the erosion repaired. Trails with extensive damage (such as might occur from a landslide) may be abandoned in place and/or rerouted.
Erosion off trail	Erosion of an area around the trail that occurs as a result of the trail, such as concentrated runoff degrading a hill slope below a trail, will be repaired and corrective action taken. Actions may include armoring a section of the hillslope with rock, revegetating the area, regrading the trail to maintain sheet flow and avoid concentrating runoff, re-routing the flow, or other management practices.
Improper use by non-approved use type (e.g., motor vehicle, equestrian)	If unauthorized uses occur on the trails, increased enforcement methods will be undertaken to exclude those uses. Methods may include changing the type of gates at trail entrances, coordinating with the neighborhood to set up a community watch, or coordinating with law enforcement personnel for increased patrols. Damage because of unauthorized use will require repair of damaged areas, including decompaction of soils and revegetation of disturbed areas.
Short-cutting switchbacks	Short-cutting switchbacks is a form of encroachment with increased potential for stormwater runoff erosion, as water seeks the newly formed trail, which typically runs perpendicular to contours. Switchback short-cutting can often be discouraged through inclusion of a barrier between legs of the switchback, such as boulders, trees, shrubs, or fencing. Some shrubs, such as chaparral yucca (*Hesperoyucca whipplei*) and cactus, such as Opuntia sp., can discourage trailblazing due to presence of spines, stickiness, or stiffness of branches. Short cuts can be repaired through ripping soil (on-contour to avoid rilling) and revegetating.
Spread of invasive species	Allowing access to native areas by the public can result in the introduction of non-native invasive species through transporting seeds and/or spores on shoes or clothing. The Habitat Preserve will be monitored regularly by a qualified biologist as part of the Preserve Management Plan, and infestations of non-native invasive species, as defined by the California Invasive Plant Council as having High or Moderate threat level, will be removed before they can threaten native habitat values. Refer to the Preserve Management Plan for more information on invasive species control.
Wildlife harassment by pets	Trail signage will indicate that pets are required to be on a leash; however, leash laws are not always followed. Instances of pets harassing wildlife should be reported to the Preserve Manager and San Diego County Department of Animal Services. In some cases, the decision may be made to ban pets on certain trails that are in proximity to sensitive habitats, if harassment becomes a problem.

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APPENDIX A

Fanita Ranch Specific Plan Chapter 4

4.3 Trail Corridor & Landscape Standards

Thoughtful planning and design of trails is essential to encouraging their use for both transportation and recreation. In conformance with the Trails Element of the Santee General Plan, more than 35 miles of trails in Fanita Ranch are safe, multi-modal paths that allow access for pedestrians and bicyclists throughout the community and provide connections to downtown Santee and regional trails. To ensure the long-term quality and viability of the trail system, it's proposed to be maintained by the Fanita Ranch Homeowners' Association.

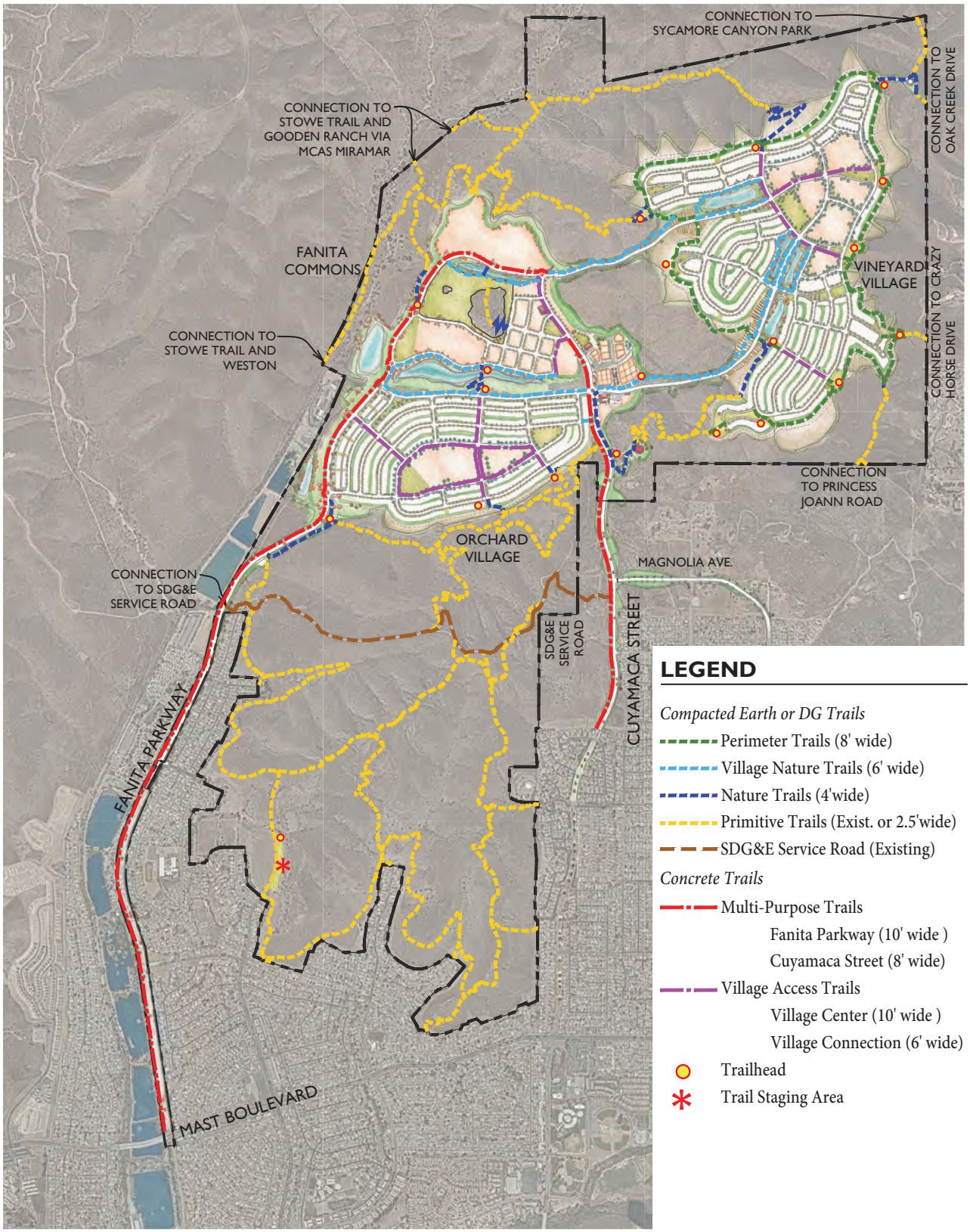
Trail surface type, width, grades, and vertical and horizontal clearances from vegetation and fixed objects will be designed in accordance with recognized standards as depicted in *Table 4.3: Trail Design.* While not all trails will meet access requirements, the community will comply with ADA accessibility requirements to the greatest extent practicable. Site amenities, such as trail maps, seating, shade and drinking fountains, will be sited at appropriate locations. Post and rail fencing will be used where appropriate for user safety and the protection of surrounding habitat. Landscaping styles will be determined by adjacent landscapes such as the Habitat Preserve, riparian corridors or village themes, and will conform to the approved Fire Protection Plan and habitat protection and restoration plans. *Exhibit 4.13: Trails Map* depict the Fanita Ranch trail system and *Exhibits 4.14.1 through 4.14.7* depict the standard trail sections.

Table 4.3: Trail Design

Trails Design Matrix						
Trail Type	Total Length (L.F.)	Width	Surface	Grade[1]	Vertical Clearance	Horizontal Clearance
Multi-Purpose	18,946 6,988	10' - Fanita Pkwy. 8' - Cuyamaca St.	Concrete	≤12%	10'	2'
Village Access	2,098 12,377	10' Village Centers 6' to Village Center	Concrete	≤12%	10'	2'
Perimeter	21,443	8'	Earth or DG	≤15%	10'	2'
Village Nature	25,233	6'	Earth or DG	≤15%	10'	1'
Nature	10,835	4'	Earth or DG	≤20%	10'	1'
Primitive - Existing	52,228	Existing	Native Earth	Existing	10'	To Edge
Primitive - New[2]	30,174	2.5'	Native Earth	≤20%	10'	To Edge
SDG&E Service Road	8,966	Existing	Native Earth	Existing	Per SDG&E	To Edge
Total Trails (Miles)	**35.9**					

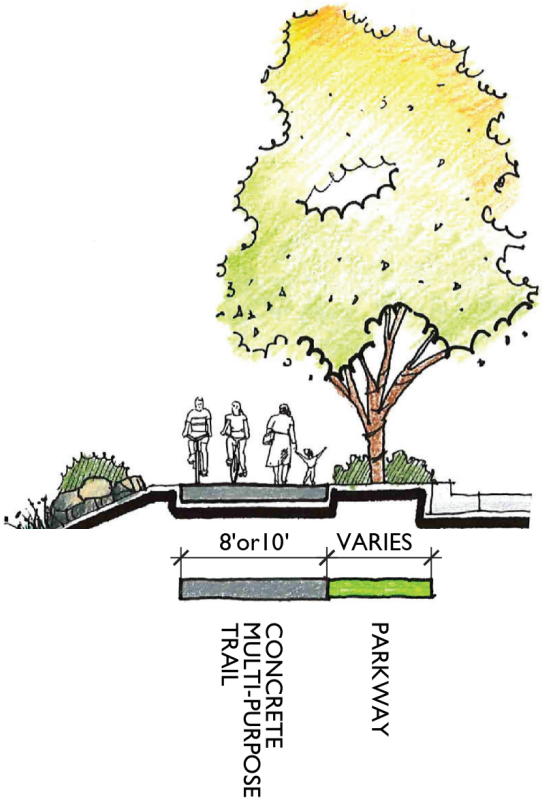
Notes:

1. These are optimum grade ranges. Actual grades will vary due to topography, existing conditions and environmental constraints.



not to scale

Exhibit 4.13: Trails Map

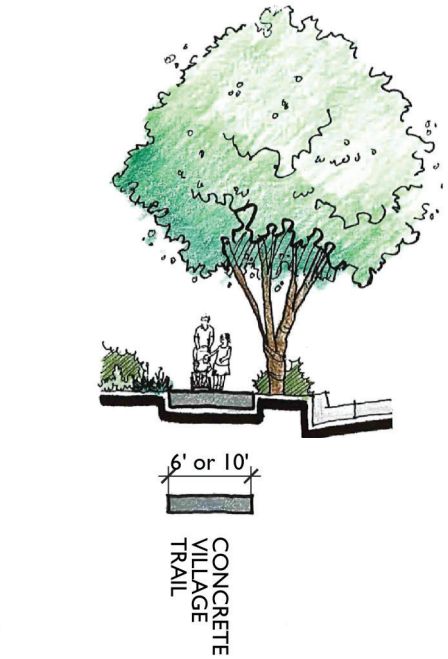


Multi-Purpose Trails are broad, all-weather, high user volume, concrete paved paths along Fanita Parkway and Cuyamaca Street that connect Fanita Ranch to Santee Lakes and greater Santee for transportation and recreational uses. Multi-Purpose Trails are separated from the roadways with a landscaped parkway strip that varies in width.

Design Standards	
Width	10 feet - Fanita Parkway 8 feet - Cuyamaca Street
Surface	Concrete
Modes	• Bicycle • Pedestrians

Refer to *Chapter 5: Landscaping, Community Design & Outdoor Lighting Design Guidelines* for specific plant palettes by Village.

Exhibit 4.14.1: Multi-Purpose Trail

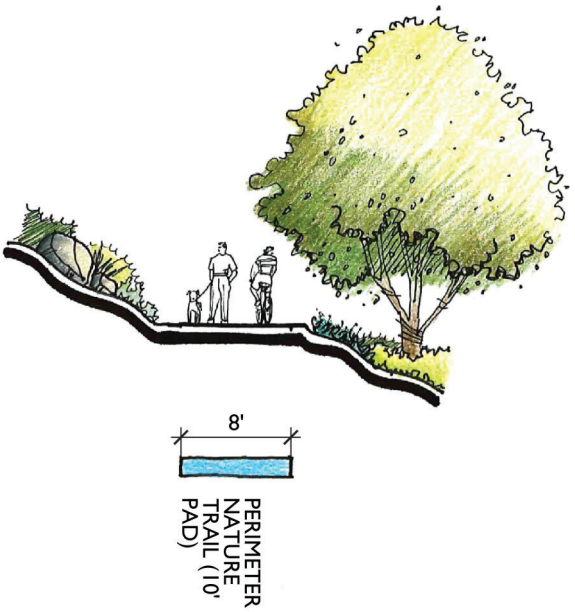


Village Access Trails are broad, all-weather, high user volume, concrete paved paths that connect Village Centers to the community-wide trail system for transportation and recreational uses.

Design Standards	
Width	10 feet wide and adjacent to curbs in Village Centers 6 feet elsewhere
Surface	Concrete
Modes	• Bicycles • Pedestrians

Refer to *Chapter 5: Landscaping, Community Design & Outdoor Lighting Design Guidelines* for specific plant palettes by Village.

Exhibit 4.14.2: Village Access Trail

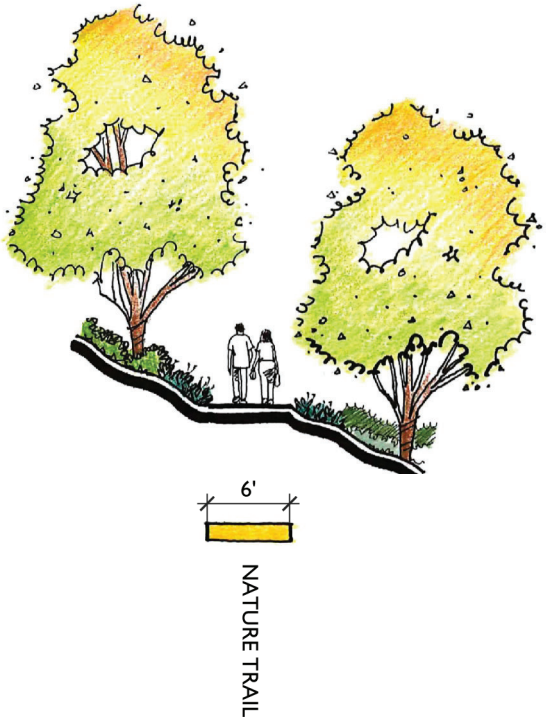


Perimeter Trails are 8-foot wide native earth or DG paths that loop around the Vineyard Village and is intended for recreational use. These trails also serve as maintenance access to the Village's extensive fuel modification zones. Neighborhood parks and mini-parks provide trail access points for compact and ATV maintenance vehicles and trailers. Pullouts and parking will be provided where practicable.

Design Standards	
Width	8 feet (10-foot bench)
Surface	Native Earth or DG
Modes	• Bicycles • Pedestrians

Refer to *Chapter 5: Landscaping, Community Design & Outdoor Lighting Design Guidelines* for specific plant palettes by Village.

Exhibit 4.14.3: Perimeter Trail

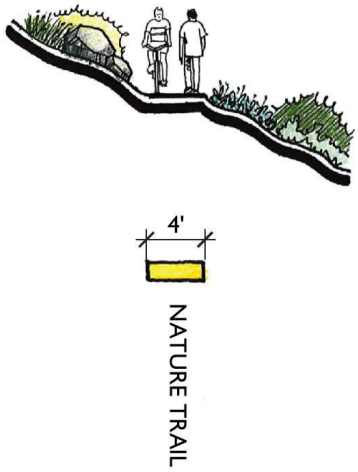


Village Nature Trails are 6-foot wide native earth or DG paths for transportation and recreation uses. These trails connect Vineyard Village to Fanita Commons and the Farm through the Habitat Preserve, and provide access to the riparian areas and basins from Fanita Commons and Orchard and Vineyard Villages.

Design Standards	
Width	6 feet
Surface	Native Earth or DG
Modes	• Bicycles • Pedestrians

Refer to *Chapter 5: Landscaping, Community Design & Outdoor Lighting Design Guidelines* for specific plant palettes by Village.

Exhibit 4.14.4: Village Nature Trail

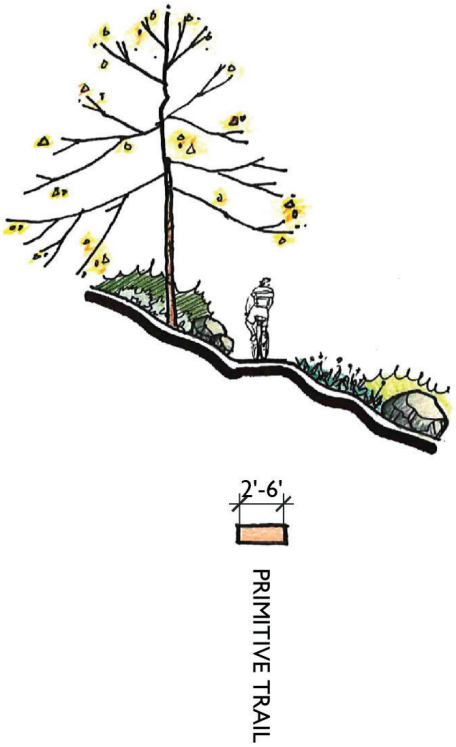


Nature Trails are 4-foot wide native earth or DG recreational trails located in developed areas. These trails provide access from the developed area to the existing Primitive Trails in the Habitat Preserve, often where grades are steep and challenging. The narrower cross section reduces grading and Habitat Preserve impacts.

Design Standards	
Width	4 feet
Surface	Native Earth or DG
Modes	• Bicycles • Pedestrians

Refer to *Chapter 5: Landscaping, Community Design & Outdoor Lighting Design Guidelines* for specific plant palettes by Village.

Exhibit 4.14.5: Nature Trail

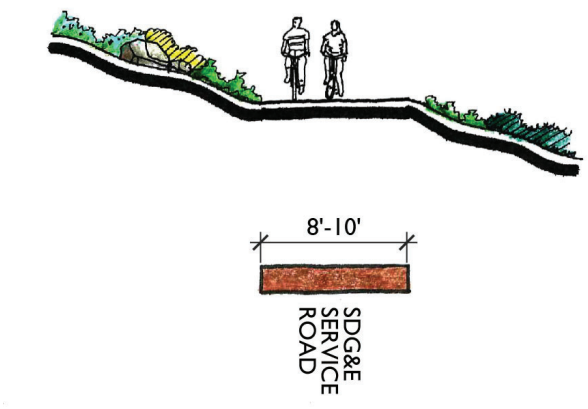


Primitive Trails are existing and new native earth recreational trails of varying widths located in the Habitat Preserve. Where existing trails have been identified as negatively impacting sensitive habitat, the trails will be removed, the impacted habitat restored, and new Primitive Trails constructed around the sensitive habitat.

Design Standards	
Width	Existing varies, new trails 2.5 feet
Surface	Native Earth
Modes	• Bicycles • Pedestrians

Refer to *Chapter 5: Landscaping, Community Design & Outdoor Lighting Design Guidelines* for specific plant palettes by Village.

Exhibit 4.14.6: Primitive Trail



The SDG&E Service Road is an existing native earth road of varying widths crossing through the southern Habitat Preserve utilized by SDG&E to access the existing power lines and towers. The road is also suitable for recreational use by pedestrians and bicyclists.

Design Standards	
Width	Existing
Surface	Native Earth
Modes	• Bicycles • Pedestrians

Refer to *Chapter 5: Landscaping, Community Design & Outdoor Lighting Design Guidelines* for specific plant palettes by Village.

Exhibit 4.14.7: SDG&E Service Road