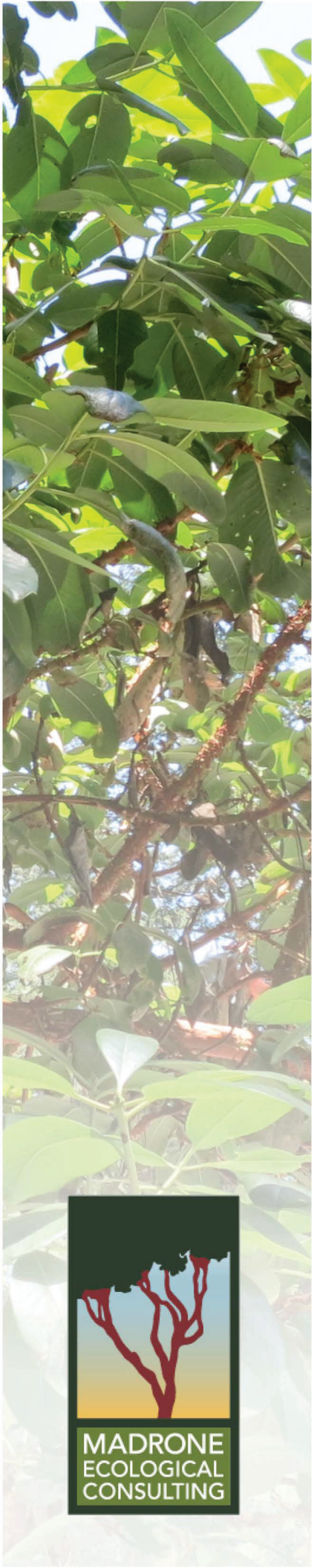
Appendix D



DRAFT

Biological Resources Assessment

Summer Villas

Elk Grove, Sacramento County, California

September 2025

MADRONE ECOLOGICAL CONSULTING

Prepared for:
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Attachments:

Attachment A. General Plan Amendment Exhibit, Summer Villas
Attachment B. IPaC Trust Resource Report for the Study Area
Attachment C. CNPS Inventory of Rare and Endangered Plants Query for the "Elk Grove, California" USGS Quadrangle and Eight Surrounding Quadrangles
Attachment D. Preliminary Jurisdictional Determination and Aquatic Resource Delineation Map
Attachment E. Special-Status Plant Survey Report
Attachment F. Giant Garter Snake Habitat Assessment

1.0 INTRODUCTION

This report presents the results of a Biological Resources Assessment (BRA) conducted for the Summer Villas General Plan Amendment (Project), which includes a development area (On-Site Area) and areas supporting associated off-site infrastructure (Off-Site Area) required for the Project. The on-site area and the off-site area are collectively referred to in this document as the Study Area. The 133.1-acre Study Area is located largely along Sheldon and Waterman Roads, and the southeastern corner of their intersection in the City of Elk Grove, Sacramento County, California (**Figure 1**). The Study Area is located in portions of Sections 19, 20, 29, and 30, Township 7 North, Range 6 East (MDB&M) as shown on the "Elk Grove, California" 7.5-Minute Series USGS Topographic Quadrangle (USGS 2022).

This document has been prepared to support the City of Elk Grove's (City's) California Environmental Quality Act (CEQA) review of the proposed Project.

1.1 Project Description

The Project is a General Plan/Rural Area Community Plan Amendment and a Rezone to allow for the creation of the 116-acre Summer Villas Special Planning Area (SPA). The Summer Villas SPA is proposed to contain three distinct sub-zones: an Active Adult Neighborhood (71.3 acres), the Laguna Creek Open Space (20.3 acres), and the Waterman Recreational Open Space (19.4 acres). A General Plan Amendment Exhibit is included as **Attachment A**. Development is not proposed at this time, and as such, final impact boundaries have not been identified. General impact and avoidance areas have been identified, and are shown on **Figure 2**; however, as the specific impact boundaries have not been identified, the impact analysis in this document is conducted in a programmatic fashion. It should be noted that the Project has been designed to avoid Laguna Creek and a vernal pool/seasonal wetland swale complex that drains into Laguna Creek in the southern portion of the Project Area.

Much of analysis throughout this document is subdivided into a description of the On-Site Area and the Off-Site Area. The Off-Site Area is the "Offsite Infrastructure Area" shown on **Figure 2**, and the On-site Area is the remainder of the Study Area on **Figure 2**.

2.0 REGULATORY SETTING

This section describes federal, state, and local laws and policies that are relevant to this assessment of biological resources.

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 protects species that are federally listed as endangered or threatened with extinction. FESA prohibits the unauthorized "take" of listed wildlife species. Take includes

harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such activities. Harm includes significant modifications or degradations of habitats that may cause death or injury to protected species by impairing their behavioral patterns. Harassment includes disruption of normal behavior patterns that may result in injury to or mortality of protected species. Civil or criminal penalties can be levied against persons convicted of unauthorized "take." In addition, FESA prohibits malicious damage or destruction of listed plant species on federal lands or in association with federal actions, and the removal, cutting, digging up, damage, or destruction of listed plant species in violation of state law. FESA does not afford any protections to federally listed plant species that are not also included on a state endangered species list on private lands with no associated federal action.

2.1.2 Clean Water Act, Section 404

Section 404 of the Federal Clean Water Act requires that a Department of the Army permit be issued prior to the discharge of dredged or fill material into waters of the United States, including some wetlands. The U.S. Army Corps of Engineers (USACE) administers this program, with oversight from the U. S. Environmental Protection Agency. As of the date of this document, waters of the United States (waters of the U.S.) are defined as follows (40 CFR 120.2):

1. Waters which are:
    i. Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
    ii. The territorial seas; or
    iii. Interstate waters;
2. Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under item (5) below;
3. Tributaries of waters identified in items (1) or (2) above that are relatively permanent, standing or continuously flowing bodies of water;
4. Wetlands adjacent to the following waters:
    i. Waters identified in item (1) of this section; or
    ii. Relatively permanent, standing or continuously flowing bodies of water identified in items (2) or (3) above and with a continuous surface connection to those waters;
5. Intrastate lakes and ponds not identified in paragraphs (1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in items (1) or (3) above.

Under the current definition of waters of the U.S., "adjacent" means *having a continuous surface connection*. Waters subject to regulation under Section 404 are referred to as "jurisdictional waters".

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any native migratory bird, their eggs, parts, and

nests, except as authorized under a valid permit (50 CFR 21.11.). Likewise, Section 3513 of the California Fish & Game Code prohibits the "take or possession" of any migratory non-game bird identified under the MBTA. Therefore, activities that may result in the injury or mortality of native migratory birds, including eggs and nestlings, would be prohibited under the MBTA.

2.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (as amended) provides for the protection of bald eagle and golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit [16 USC 668(a); 50 CFR 22]. The U.S. Fish and Wildlife Service (USFWS) may authorize take of bald eagles and golden eagles for activities where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided (50 CFR 22.26).

2.2 State Regulations

2.2.1 California Environmental Quality Act

CEQA requires evaluations of project effects on biological resources. Determining the significance of those effects is guided by Appendix G of the CEQA guidelines. These evaluations must consider direct effects on a biological resource within the project site itself, indirect effects on adjacent resources, and cumulative effects within a larger area or region. Effects can be locally important but not significant according to CEQA if they would not substantially affect the regional population of the biological resource. Significant adverse impacts on biological resources would include the following:

- Substantial adverse effects on any species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife (CDFW) or the USFWS (these effects could be either direct or via habitat modification);
- Substantial adverse impacts to species designated by CDFW as Species of Special Concern;
- Substantial adverse effects on riparian habitat or other sensitive habitat identified in local or regional plans, policies, or regulations or by CDFW and USFWS;
- Substantial adverse effects on federally protected wetlands defined under Section 404 of the Clean Water Act (these effects include direct removal, filling, or hydrologic interruption of marshes, vernal pools, coastal wetlands, or other wetland types);
- Substantial interference with movements of native resident or migratory fish or wildlife species population, or with use of native wildlife nursery sites;
- Conflicts with local policies or ordinances protecting biological resources (e.g. tree preservation policies); and
- Conflict with provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

2.2.2 State Endangered Species Act

With limited exceptions, the California Endangered Species Act (CESA) of 1984 protects state-designated endangered and threatened species in a way similar to FESA. For projects on private property (i.e., that for which a state agency is not a lead agency), CESA enables CDFW to authorize take of a listed species that is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish and Game Code Section 2081).

2.2.3 California Fully Protected Species

The State of California first began to designate species as "fully protected" prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code, § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit.

2.2.4 California Species of Special Concern

The Species of Special Concern (CSC) are defined by CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the federal or California ESAs or the California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not state) threatened or endangered or meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

CSC are typically associated with habitats that are threatened. Project-related impacts to CSC, state-threatened or endangered species are considered "significant" under CEQA.

2.2.5 Native Plant Protection Act

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations; emergencies; and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

2.2.6 Clean Water Act, Section 401

Section 401 of the Clean Water Act requires any applicant for a 404 permit in support of activities that may result in any discharge into waters of the United States to obtain a water quality certification with the Regional Water Quality Control Board (RWQCB). This program is meant to protect these waters and wetlands by ensuring that waste discharged into them meets state water quality standards. Because the water quality certification program is triggered by the need for a Section 404 permit (and both programs are a part of the Clean Water Act), the definition of waters of the United States under Section 401 is the same as that used by the USACE under Section 404.

2.2.7 California Water Code, Porter-Cologne Act

Waters that are not considered waters of the U.S. may be considered waters of the State of California (waters of the state) under the Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne, from Division 7 of the California Water Code, requires any person discharging waste or proposing to discharge waste that could affect the quality of waters of the state to file a report of waste discharge (RWD) with the RWQCB. The RWQCB can waive the filing of a report, but once a report is filed, the RWQCB must either waive or adopt water discharge requirements (WDRs). Waters of the state are defined as any surface water or groundwater, including saline waters, within the boundaries of the state of California. Wetlands that are waters of the state include natural wetlands; wetlands created by modification of a surface water of the state; and artificial wetlands that meet specific criteria.

2.2.8 California Fish and Game Code, Section 1600 – Streambed and Lake Alteration

The CDFW is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the Fish and Game Code, Section 1600, requires notification to CDFW of any proposed activity that may substantially modify a river, stream, or lake. Notification is required by any person, business, state or local government agency, or public utility that proposes an activity that will:

- substantially divert or obstruct the natural flow of any river, stream or lake;
- substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The California Code of Regulations defines a river or stream thusly: "A stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (CCR Title 14, Section 1.72). For the purposes of Section 1600, rivers, streams, and lakes include those that are dry for periods of time as well as those that flow year round. If notification is required and CDFW believes the proposed activity is likely to substantially adversely affect fish and wildlife resources, it will require that the parties enter into a Lake or Streambed Alteration Agreement (LSAA).

2.2.9 California Fish and Game Code, Section 3503.5 - Raptor Nests

Section 3503.5 of the Fish and Game Code makes it unlawful to take, possess, or destroy hawks or owls, unless permitted to do so, or to destroy the nest or eggs of any hawk or owl.

2.3 Local Regulations

2.3.1 City of Elk Grove General Plan

The City of Elk Grove (City) General Plan (last updated in 2021) contains a number of open-space and conservation related policies, including policies that address the location and uses of open space areas, special status species habitat preservation, wildlife movement, stream buffer zones, wetland and riparian area avoidance, tree preservation, and maintenance of water quality. The General Plan states that development should preserve and enhance natural areas that serve, or may potentially serve, as habitat for special-status species and that unavoidable impacts must be mitigated (Policy NR-1-2); retain movement corridor(s) adequate (both in size and in habitat quality) to allow for the continued wildlife use based on the species anticipated in the corridor (Policy NR-1.2b); avoid impacts to wetlands, vernal pools, marshland, and riparian (streamside) areas unless shown to be technically infeasible and ensure that no net loss of wetland areas occurs (Policy NR-1-4); preserve large native oak and other native tree species as well as large non-native tree species that are an important part of the City's historic and aesthetic character (Policy NR-2-1); and integrate sustainable stormwater management techniques in site design to reduce stormwater runoff and control erosion (Policy NR-3-2).

The General Plan identifies the Study Area as a potential infill area within the Eastern Elk Grove Community Plan area (City of Elk Grove 2021). The General Plan land use map shows most of the western half of the Project parcel as low-density residential and the eastern half and northwest corner of the Project parcel as resource management and conservation (City of Elk Grove 2021). As proposed, the Project maintains an open space area in the resource management and conservation portion, which facilitates avoidance of some of the wetlands in the Study Area and special status species that may use those wetlands and adjacent grassland areas, retains a clear north-south corridor of undeveloped land through which wildlife could move, and provides a storm water management system that would prevent impacts related to storm water runoff. Tree removal would be governed by the City's municipal code (see **Section 2.3.2** below). The Project would be required to mitigate impacts to aquatic resources as required by state and federal regulations.

2.3.2 City of Elk Grove Tree Preservation and Protection

The City has adopted regulations for the preservation and protection of certain trees within the City limits (Municipal Code Chapter 19.12). The City's adopted regulations apply to four types of trees as follows (referred to as "Protected Trees" throughout the remainder of this document):

- Landmark trees, which are trees specifically identified for protection by the Elk Grove City Council;
- Trees of local importance, which are trees of the following varieties that are greater than six inches in diameter:
  - Coast live oak (*Quercus agrifolia*);
  - Valley oak (*Quercus lobata*);
  - Blue oak (*Quercus douglasii*);
  - Interior live oak (*Quercus wislizenii*);
  - Oracle oak (*Quercus x moreha*);
  - California sycamore (*Platanus racemosa*); and
  - California black walnut (*Juglans hindsii*).
- Secured trees, which are trees that were mitigation for, or protected as part of, the development process for residential subdivisions and commercial developments; and
- Trees on City property or in the public right-of-way and that are landmark trees, trees of local importance, or secured trees.

A tree permit must be secured from the City prior to removal (or other work) on Protected Trees.

2.3.3 City of Elk Grove Swainson's Hawk Code

In 2003, the City established and adopted Chapter 16.130 of the Elk Grove Municipal Code (Swainson's Hawk Code) to provide options for mitigating a project's impacts to Swainson's hawk foraging habitat. Chapter 16.130 applies to projects that would subdivide parcels five (5) acres and larger zoned for agricultural uses. Chapter 16.130 outlines potential compensatory mitigation for projects that must comply with the Swainson's Hawk Code.

3.0 METHODOLOGY

3.1 Literature Review

A list of special-status species with potential to occur within the Study Area was developed by utilizing the following publicly available information sources:

- California Natural Diversity Database (CNDDB) (CNDDB 2024) query of the Study Area and all areas within 5 miles of the Study Area (Figures 3 and 4);
- USFWS Information for Planning and Conservation (IPaC) (USFWS 2024) query for the Study Area (Attachment B);

- California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (CNPS 2024) query of the "Elk Grove, California" USGS topo quadrangle, and the eight surrounding quadrangles (Attachment C);
- Verified records from Bumble Bee Watch (BBW 2024);
- Western Monarch Milkweed Mapper (WMMM) [Western Monarch and Milkweed Occurrence Database (WMMOD) 2024] and Western Monarch Overwintering Site Viewer (Xerces Society 2024) records;
- Research grade observations from iNaturalist (iNaturalist 2024);
- Confirmed nesting records and observation records from Cornell Laboratory of Ornithology's eBird database (Cornell Lab 2024); and
- Western Bat Working Group (WBWG) Species Matrix (WBWG 2024).

In addition, any special-status species that are known to occur in the region, but that were not identified in any of the above information sources were also analyzed for their potential to occur within the Study Area.

For the purposes of this Biological Resources Assessment, special-status species is defined as those species that are:

- listed as threatened or endangered, or proposed or candidates for listing by the USFWS or National Marine Fisheries Service;
- listed as threatened or endangered and candidates for listing by CDFW;
- identified as Fully Protected species or species of special concern by CDFW;
- identified as Medium or High priority species by the WBWG (WBWG 2024); and
- plant species considered to be rare, threatened, or endangered in California by the CNPS and CDFW [California Rare Plant Rank (CRPR) 1, 2, and 3]:
    - CRPR 1A: Plants presumed extinct.
    - CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere.
    - CRPR 2A: Plants extirpated in California, but common elsewhere.
    - CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.
    - CRPR 3: Plants about which the CNPS needs more information – a review list.

3.2 Field Surveys

Madrone Ecological Consulting (Madrone) biologists Daria Snider, Dustin Brown, and Matt Shaffer conducted site visits of the On-Site Area on 16 and 17 November and 13 and 21 December 2022; Madrone biologist Tara Collins visited the On-Site Area on 26 and 29 April, 9 May, and 21 June 2024; and Madrone biologist Daria Snider surveyed the Off-Site Area on 17 and 28 October 2024. During their site visits, Madrone biologists mapped vegetation communities, evaluated the location and extent of previously mapped aquatic resources, and generally evaluated habitat conditions in the Study Area.

During the 2022 site visits, Madrone updated the aquatic resource delineation map of the On-Site Area to reflect the current conditions, and enhanced linework precision. This updated aquatic resources delineation

was verified by the USACE in 2023 (Preliminary Jurisdictional Determination and associated map included as **Attachment D**) and is shown on **Figure 4**.

During the April through June 2024 site visits, Ms. Collins conducted a special-status plant survey of the On-Site Area in accordance with the U.S. Fish and Wildlife Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 1996), California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018), and the *CNPS Botanical Survey Guidelines* (CNPS 2001). A copy of the special-status plant survey report is included as **Attachment E**.

Lastly, during the October 2024 visits, Ms. Snider conducted an aquatic resources delineation and land cover mapping of the Off-Site Area. These data are presented in **Figure 4**.

4.0 EXISTING CONDITIONS

The On-Site Study Area is characterized by slightly rolling, cattle grazed annual brome grasslands interspersed with seasonal wetlands, seasonal wetlands, and vernal pools. Laguna Creek winds through the approximate center of the northern portion, and runs in and out of the eastern boundary of the southern portion of the On-Site Area. A rural residence is present in the northern portion of the On-Site Area, and high-tension power lines run through a broad corridor along the western edge. The elevation ranges from approximately 50 feet above mean sea level to approximately 75 feet along the western edge of the On-Site Area. The On-site Study Area is bordered by rural residential development on the northwest, north, northeast, and south sides. An undeveloped area borders the southeastern portion of the On-Site Area, and a wetland preserve is present across Waterman Road to the southwest.

The Off-Site Area runs along Sheldon Road, Waterman Road, and Elk Grove Florin Road. The Off-site Area is almost entirely comprised of paved roadways, but also includes slivers of rural residential, unvegetated, ruderal, and annual brome grassland. The majority of the aquatic resources in the Off-Site Area are roadside ditches and two small, constructed Detention Basins, but a portion of a vernal pool also occurs west of Waterman Road in the southern portion of the Off-Site Area. Elevations within the Off-Site Area range from approximately 45 feet along Elk Grove Florin Road to approximately 80 feet on the north end of Waterman Blvd. The Off-Site Area is largely bounded by rural residential, although they do run adjacent to some urban residential on the western and northern edges.

4.1 Terrestrial Land Covers

The On-Site Area and portions of the Off-Site Area are comprised of annual brome grassland (**Table 1** and **Figure 5**), as described below. The remainder of the Study Area is comprised of urban-associated landcovers. Areas mapped as "Road" on **Figure 5** are paved roadways, and a number of areas adjacent to the paved roadways are mapped as "Unvegetated" as they appear to be regularly maintained to be free of vegetation. "Ruderal" areas support scattered non-native forbs, such as filaree (*Erodium botrys*), Russian thistle (*Salsola tragus*), and stinkwort (*Dittrichia graveolens*). Lastly, "Rural Residential" areas were mapped

where the landcover was comprised of residential buildings and associated features such as driveways and maintained landscaping.

The annual brome grassland is primarily dominated by non-native annual grass species including soft chess (*Bromus hordeaceus*), Mediterranean barley (*Hordeum marinum*), and ryegrass (*Festuca perennis*). Common forb species within the annual brome grassland habitat include hairy hawkbit (*Leontodon saxatilis*), subterraneum clover (*Trifolium subterraneum*), cut leaf geranium (*Geranium dissectum*), and filaree (*Erodium botrys*). Immediately along Laguna Creek and its tributary, the annual brome grassland is interspersed with scattered native riparian vegetation, including Oregon ash (*Fraxinus latifolia*), California button willow (*Cephalanthus occidentalis*), Santa Barbara sedge (*Carex barbarae*), and western goldenrod (*Euthamia occidentalis*), as well as non-native species that often invade riparian areas, including Southern catalpa (*Catalpa bignonioides*), rattlebox (*Sesbania punicea*), eucalyptus (*Eucalyptus sp.*), and Himalayan blackberry (*Rubus armeniacus*). Scattered valley oak (*Quercus lobata*) trees occur along the northern boundary adjacent to Sheldon Road. One small area of a heavy clay inclusion was located near the southeast corner of the On-Site Area that was dominated by sparse, low-growing forbs, such as Douglas' microseris (*Microseris douglasii*), hairy hawkbit, South American soliva (*Soliva sessilis*), and filaree. The annual brome grasslands were moderately grazed.

Table 1. Terrestrial Land Covers and Aquatic Resources within the Study Area

Land Cover/Resource	Area (acres)
Terrestrial Land Covers	
Annual Brome Grassland	107.1
Road	13.2
Ruderal	1.7
Rural Residential	3.7
Unvegetated	1.4
Total Terrestrial Land Covers	*127.0*
Aquatic Resources	
Wetlands	
Seasonal Wetland	0.45
Seasonal Wetland Swale	0.29
Vernal Pool	1.30
Non-Wetlands	
Laguna Creek	3.26
Detention Basin	0.21
Ephemeral Drainage	0.14
Roadside Ditch	0.49
Total Aquatic Resources	*6.12*
Total	**133.1**

Summation errors may occur due to rounding.

4.2 Soils

The Natural Resources Conservation Service (NRCS) has mapped seven soil units within the Study Area (**Figure 5**) (NRCS 2024): (151) Galt clay, leveled, 0 to 1 percent slopes; (158) Hicksville loam, 0 to 2 percent slopes, occasionally flooded; (198) Redding gravelly loam, 0 to 8 percent slopes, MLRA 17; (213) San Joaquin silt loam, leveled, 0 to 1 percent slopes; (214) San Joaquin silt loam, 0 to 3 percent slopes; (215) - San Joaquin silt loam, 3 to 8 percent slopes; and (216) San Joaquin-Durixeralfs complex, 0 to 1 percent slopes.

These soils include acidic gravelly loams, neutral to acidic silt loams, slightly acidic loams, and slightly acidic clays (NRCS 2024). Alkaline soils do not occur within the Study Area.

4.3 Aquatic Resources

A protocol-level aquatic resources delineation was conducted for the Study Area. As noted above, a PJD has been issued for the On-Site Area by the USACE (**Attachment D**). The aquatic resources within the Off-Site area have not been submitted to the USACE for verification to date. Aquatic resources mapped within the Study Area are depicted in **Figure 5**. **Table 1** summarizes these mapped aquatic resource types and a description by type is included below.

4.3.1 Seasonal Wetland

A number of seasonal wetlands occur within the Study Area. Seasonal wetlands are depressional wetlands that pond water seasonally. These features are often topographically and hydrologically similar to vernal pools, but have a short hydroperiod, and as a result, support a slightly different plant community that is not characterized by a dominance of vernal pool endemics. The seasonal wetlands within the Study Area are largely dominated by ryegrass, Mediterranean barley, hyssop loosestrife (*Lythrum hyssopifolia*), toad rush (*Juncus bufonius*), and great valley popcornflower (*Plagiobothrys stipitatus*).

4.3.2 Seasonal Wetland Swale

The Study Area supports multiple wetland swales. Seasonal wetland swales are sloping, linear seasonal wetlands that convey surface runoff, and may detain it for short periods of time. The most common plants occurring within the wetland swales include ryegrass and Mediterranean barley.

4.3.3 Vernal Pool

The Study Area supports a number of vernal pools. Vernal pools are topographic basins that are underlain with an impermeable or semi-permeable hardpan or duripan layer. Vernal pools inundate during the wet season, and typically dry by late spring and remain dry through the summer months. The vernal pool was differentiated from depressional seasonal wetlands within the Study Area based upon the predominance of vernal pool endemic plant species. The vernal pools were dominated by vernal pool buttercup (*Ranunculus bonariensis*), Mediterranean barley, and great valley popcornflower. Longer ponding vernal pools also

supported creeping spikerush (*Eleocharis macrostachya*), California damasonium (*Damasonium californicum*), and bractless hedge-hyssop (*Gratiola ebracteata*).

4.3.4 Creek

The Study Area includes a portion of Laguna Creek and a portion of one of its tributaries. Laguna Creek is one of the primary creek corridors in southern Sacramento County. Historically, Laguna Creek and its tributaries were dry for much of the year, but agricultural and urban runoff have increasingly caused major sections to flow year-round, including the portions that run through the Study Area. Urbanization along other portions of Laguna Creek has led to issues with minor flooding along the more developed portions of the creek. Laguna Creek supports a mostly unvegetated rocky bottom with the creek margins dominated by the same species as found in the adjacent annual brome grassland, interspersed with scattered native riparian vegetation, including Oregon ash, California button willow, Santa Barbara sedge, and western goldenrod, as well as non-native species that often invade riparian areas, including Southern catalpa, rattlebox, eucalyptus, and Himalayan blackberry.

4.3.5 Ephemeral Drainage

Ephemeral drainages are linear features that exhibit a bed and bank and an OHWM. These features typically convey runoff for short periods of time, during and immediately following rain events, and are not influenced by groundwater sources at any time during the year. Four ephemeral drainages occur in the western portion of the Study Area within the annual brome grassland. These features are vegetated by annual grasses species including ryegrass, Mediterranean barley, and annual blue grass (*Poa annua*).

4.3.6 Roadside Ditch

Several roadside ditches run along the northern edge of the Study Area, on the southern edge of Sheldon Road. Additional roadside ditches occur along the western edge of the site, east of Waterman Road. These ditches are partially graveled and show sign of herbicide use nearby. Ruderal vegetation is present with dominants including turkey-mullein (*Croton setiger*), spotted spurge (*Euphorbia maculata*), and filaree.

4.4 Special Lands

The Study Area is not within the primary or secondary zones of the Sacramento-San Joaquin Delta. The site does not support critical habitat for any federally listed species and is not within the South Sacramento Habitat Conservation Plan area.

5.0 RESULTS

Table 2 provides a list of special-status species that were evaluated, including the listing status, habitat associations, and their potential to occur in the Study Area for each. The following criteria were used to determine each species' potential for occurrence in the Study Area:

- Present: Species occurs on the site based on CNDDB records, and/or was observed on the site during field surveys.
- High: The site is within the known range of the species and suitable habitat exists.
- Moderate: The site is within the known range of the species and very limited suitable habitat exists.
- Low: The site is within the known range of the species and there is marginally suitable habitat, or the species was not observed during protocol-level surveys conducted on-site.
- No Habitat Present: The site does not contain suitable habitat for the species or the site is outside the known range of the species.
- Absent: At least marginally suitable habitat is present, but the species was not observed during protocol-level surveys conducted on-site.

Figures 3 and **4** show CNDDB occurrences of special status plant species and wildlife species within five miles of the Study Area, respectively. A discussion of all special-status plant and animal species with potential to occur on the site follows **Table 2**.

5.1 Plants

5.1.1 Big-Scale Balsamroot

Big-scale balsamroot (*Balsamorhiza macrolepis*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It is a perennial herbaceous species that occurs in chaparral, cismontane woodland and valley and foothill grasslands between 150 and 5,100 feet (CNPS 2024a). Big-scale balsamroot blooms from March through June and may be found on serpentine soils, though it is known to grow on other soil types as well (CNPS 2024a).

The annual brome grassland throughout the Study Area represents suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

5.1.2 Bristly Sedge

Bristly sedge (*Carex comosa*) is not a state or federally listed species but is classified as a CRPR List 2B.1 plant. It is a perennial herbaceous species that occurs in Marshes and swamps along lake margins in coastal prairie and valley and foothill grasslands between sea level and 2,050 feet. Bristly sedge blooms from March through September (CNPS 2024).

The edges of Laguna Creek within the Study Area provide marginal habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area. Although this species was not a target for this survey, the survey was floristic in nature and conducted during the identifiable period for this bristly sedge; as such, if it were present, it would have been documented. This species has not been documented within five miles of the Study Area in the CNDDB (CNDDB 2024).

Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Plants				
Balsamorhiza macrolepis Big-scale balsamroot	--	CRPR 1B.2	Prefers chaparral, cismontane woodland, and valley and foothill grasslands. Often associated with serpentine soils (elevation 150'-5,100').	**Low.** Marginally suitable habitat for this species occurs within annual brome grasslands throughout the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area. However, small slivers of grassland in the Off-site Area have not yet been surveyed, and this plant has low potential to occur in those areas.
Brasenia schreberi Watershield	--	CRPR 2B.3	Freshwater marshes and swamps (0' - 7,220')	**No Habitat Present.** The Study Area does not support habitat for this species. Although the creek ponds, it does not move slowly enough to support this species.
Calycadenia spicata Spicate rosinweed	--	CRPR 1B.3	Occurs in disturbed areas and openings in cismontane woodland and annual grassland. Often associated with adobe clay, gravelly areas, rock outcrops and mine tailings (elevation 130'-4,600').	**No Habitat Present.** The Study Area is outside of the elevational range of the species.
Carex comosa Bristly sedge	--	CRPR 2B.1	Fresh water marshes or other wet habitats. Occurs between 0-2,050'.	**Absent.** Marginally suitable habitat for this species occurs along Laguna Creek within the On-site Area. This plant was not found during protocol surveys of the On-site Area in 2024. Although it was not a target of the survey, the survey was floristic in nature and would have detected the species.

Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Cicuta maculata var. bolanderi Bolander's water-hemlock	--	CRPR 2B.1	Coastal, fresh, or brackish marshes and swamps (0' – 656').	**No Habitat Present.** The Study Area does not support habitat for this species. The creek does not support marsh vegetation along its edges.
Cuscuta obtusiflora var. glandulosa Peruvian dodder	--	CRPR 2B.2	Freshwater marshes and swamp. Found in elevations between 50 to 920 feet.	**No Habitat Present.** The Study Area does not support habitat for this species. The creek does not support marsh vegetation along its edges.
Downingia pusilla Dwarf downingia	--	CRPR 2B.2	Mesic areas in valley and foothill grassland, and vernal pools (3' – 1,460').	**High.** Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents habitat in the Off-site Area has not yet been surveyed, and this plant has high potential to occur in that feature.
Gratiola heterosepala Boggs Lake hedge-hyssop	--	CE, CRPR 1B.2	Vernal pools and margins of lakes/ponds on clay soils (35' - 7,790').	**High.** Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents habitat in the Off-site Area has not yet been surveyed, and this plant has high potential to occur in that feature.

Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Hibiscus lasiocarpos var. occidentalis Woolly rose-mallow	--	CRPR 1B.2	Occurs in freshwater wetlands/marshes including edges. Often in riprap on sides of levees, but has also been found in detention basins. Found in elevations between sea level to 395 feet.	**Absent.** Marginally suitable habitat for this species occurs along Laguna Creek within the On-site Area. This plant was not found during protocol surveys of the On-site Area in 2024. Although it was not a target of the survey, the survey was floristic in nature and would have detected the species.
Juncus leiospermus var. ahartii Ahart's dwarf rush	--	CRPR 1B.2	Occurs along edges of vernal pool and other seasonally ponded features between 100 and 750 feet.	**High.** Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents habitat in the Off-site Area has not yet been surveyed, and this plant has high potential to occur in that feature.
Lasthenia chrysantha Alkali-sink goldfields	--	CRPR 1B.1	Alkaline vernal pools (0' - 655').	**No Habitat Present.** The Study Area does not support alkaline soils.
Lathyrus jepsonii var. jepsonii Delta tule pea	None	CRPR 1B.2	Prefers tidally influenced channels, brackish marshes and swamps below 15 feet.	**No Habitat Present.** The Study Area does not support habitat for this species and is outside of the elevational range.
Legenere limosa Legenere	--	CRPR 1B.1	Occurs in vernal pools between 5 and 2885 feet.	**Present.** This species was observed in a vernal pool within the On-Site Area during protocol surveys in 2024. One vernal pool that represents habitat in the Off-site Area has not yet been surveyed, and this plant has high potential to occur in that feature.
Lepidium latipes var. heckardii Heckard's pepper-grass	--	CRPR 1B.2	This annual prefers valley and foothill grasslands with alkaline soils.	**No Habitat Present.** The Study Area does not support alkaline soils.

Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Lilaeopsis masonii Mason's lilaeopsis	--	CR, CRPR 1B.1	This species prefers brackish or freshwater swamps, intertidal marshes, and riparian scrub at or below 35 feet.	**No Habitat Present.** The Study Area does not support habitat for this species and is outside of the elevational range.
Limosella australis Delta mudwort	--	CRPR 2B.1	Favors freshwater and brackish marshes, swamps, or riparian scrub. Usually found in association with muddy banks in the Delta. (0-10 feet)	**No Habitat Present.** The Study Area does not support habitat for this species and is outside of the elevational range.
Orcuttia tenuis Slender Orcutt grass	FT	CE, CRPR 1B.1	Occurs in vernal pools and other seasonally ponded features between 115 and 5775 feet.	**Low.** Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents marginal habitat in the Off-site Area has not yet been surveyed, and this plant has low potential to occur in that feature.
Navarretia myersii ssp. *myersii* Pincushion navarretia	--	CRPR 1B.1	Found in vernal pools (often acidic) (elevation 65' - 1,085').	**High.** Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents habitat in the Off-site Area has not yet been surveyed, and this plant has high potential to occur in that feature.

Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Orcuttia viscida Sacramento Orcutt grass	FE	CE, CRPR 1B.1	Occurs in vernal pools between 100 and 330 feet.	**Low.** Suitable habitat is present in seasonal wetlands, seasonal wetland swales and vernal pools within the Study Area. This plant was not found during protocol surveys of the On-site Area in 2024 and is considered absent from that area, but the one vernal pool that represents marginal habitat in the Off-site Area has not yet been surveyed, and this plant has low potential to occur in that feature.
Sagittaria sanfordii Sanford's arrowhead	--	CRPR 1B.2	Occurs in emergent marsh habitat, typically associated with drainages, canals, or irrigation ditches (0' - 2,135').	**Absent.** Suitable habitat for this species occurs along Laguna Creek within the On-site Area. This plant was not found during protocol surveys of the On-site Area in 2024.
Scutellaria galericulata Marsh skullcap	--	CRPR 2B.2	Lower montane coniferous forest, marshes and swamps, and mesic meadows and seeps (0' – 6,890')	**No Habitat Present.** The Study Area does not support habitat for this species. The creek does not support marsh vegetation along its edges.
Scutellaria lateriflora Side-flowering skullcap	--	CRPR 2B.2	Freshwater marshes or other wet habitats between 0 and 10 feet. Known in California only from the tidally influenced Sacramento San Joaquin Delta.	**No Habitat Present.** The Study Area does not support habitat for this species and is outside of the elevational range.
Trifolium hydrophilum Saline clover	--	CRPR 1B.2	Grows in marshes, swamps, and vernal pools with alkaline soils between sea level and 985 feet elevation.	**No Habitat Present.** The Study Area does not support alkaline soils.
Invertebrates				
Bombus crotchii Crotch's bumble bee	--	CC	Occurs in open grasslands and scrub habitats.	**High.** The annual grasslands could support suitable foraging flower populations.

Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Branchinecta lynchi Vernal pool fairy shrimp	FT	--	Occurs in vernal pools.	**High.** Vernal pools and seasonal wetlands in the Study Area provide suitable habitat for this species. The species has been observed adjacent to the Off-Site Area (CNDDB 2024).
Danaus plexippus Monarch	PT	--	Migratory species; most prevalent in the Central Valley in summer and early fall. Dependent upon milkweed (*Asclepias* species) plants as its exclusive larval host.	**Low.** Scattered individual milkweed plants are present on-site. No monarch butterflies or caterpillars were observed at the time of the special-status plant survey.
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT	--	Dependent upon elderberry (*Sambucus* species) plant as primary host species.	**No Habitat Present.** The Study Area does not support any elderberry shrubs.
Lepidurus packardi Vernal pool tadpole shrimp	FE	--	Occurs in vernal pools.	**High.** Vernal pools and seasonal wetlands in the Study Area provide suitable habitat for this species.
Fish				
Oncorhynchus mykiss irideus Steelhead – Central Valley Distinct Population Segment (DPS)	FE	--	This anadromous species requires freshwater water courses with gravelly substrates for breeding. The young remain in freshwater areas before migrating to estuarine and marine environments.	**No Habitat Present.** Downstream migration barriers preclude salmonid access to the portion of Laguna Creek that runs through the Study Area.
Amphibians				
Spea hammondii Western spadefoot	PT	CSC	Breeds in vernal pools, seasonal wetlands and associated swales. Forages and hibernates in adjacent grasslands.	**High.** Long-duration seasonal wetlands and vernal pools throughout the site are suitable habitat for this species.

Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Reptiles				
Actinemys marmorata Northwestern pond turtle	PT	CSC	Occurs in ponds, rivers, streams, wetlands, and irrigation ditches with associated marsh habitat.	**High.** Laguna Creek represents suitable habitat for this species. Turtles were observed within Laguna Creek in 2024, but they could not be identified to species.
Thamnophis gigas Giant garter snake	FT	CT	Occurs in rivers, canals, irrigation ditches, rice fields, and other aquatic habitats with slow moving water and heavy emergent vegetation.	**No Habitat Present.** A habitat assessment for this species was conducted for the On-Site Area (where potential habitat occurs). The assessment concluded that Laguna Creek does not represent suitable habitat for this species (**Attachment F**).
Birds				
Agelaius tricolor Tricolored blackbird	--	CE, CSC	Colonial nester in cattails (*Typha* species), bulrush (*Schoenoplectus* species), or blackberry (*Rubus* species) associated with marsh habitats.	**High.** The Study Area lacks suitable nesting habitat, but the annual brome grassland provides suitable foraging habitat for this species.
Aquila chrysaetos Golden eagle	--	CFP	Forages in open areas including grasslands, savannahs, deserts, and early successional stages of shrub and forest communities. Nests in large trees and cliffs.	**Low.** The Study Area lacks suitable nesting habitat. The site is surrounded by rural residential development, and while annual grassland provides suitable foraging habitat, this species is unlikely to forage in the Study Area.
Athene cunicularia Burrowing owl	--	CC, CSC	Nests in abandoned ground squirrel (*Otospermophilus beecheyi*) burrows associated with open grassland habitats.	**Low.** No ground squirrel burrows were observed within the Study Area, but marginally suitable burrow habitat may be present in debris scattered around the site.

Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area

Scientific Name **(Common Name)**	**Federal Status[1]**	**State Status[1]**	**Habitat Requirements**	**Potential for Occurrence**
Buteo swainsoni Swainson's hawk	--	CT	Nests in large trees, preferably in riparian areas. Forages in fields, cropland, irrigated pasture, and grassland near large riparian corridors.	**High.** Annual grassland in the Study Area provides suitable foraging habitat for this species. Suitable nest trees are located within and adjacent to the Study Area.
Circus hudsonius Northern harrier	--	CSC	Nests in emergent wetland/marsh, open grasslands, or savannah habitats. Forages in open areas such as marshes, agricultural fields, and grasslands.	**High.** Annual grassland in the Study Area provides suitable foraging habitat for this species, but suitable nesting habitat does not occur within the Study Area.
Elanus leucurus White-tailed kite	--	CFP	Open grasslands, fields, and meadows are used for foraging. Isolated trees in proximate to foraging habitat are used for perching and nesting.	**High.** Annual grassland in the Study Area provides suitable foraging habitat for this species. Suitable nest trees are located within and adjacent to the Study Area.
Haliaeetus leucocephalus Bald eagle	--	CE	Nest in large trees within 1 mile of lakes, rivers, or larger streams.	**No Habitat Present.** Laguna Creek does not represent foraging habitat for bald eagle due to its small size, intermittent nature, and lack of large fish. No suitable nesting trees are present.
Lanius ludovicianus Loggerhead shrike	--	CSC	Occurs in open areas with sparse trees, shrubs, and other perches.	**High.** Annual grassland in the Study Area provides suitable foraging habitat for this species. This species could nest in trees and shrubs within and adjacent to the Study Area.

Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Mammals				
Antrozous pallidus Pallid bat	--	CSC, WBWG H	Inhabits low elevation (<6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forests (>7,000 feet). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., bole cavities of oaks, exfoliating valley oak bark), and various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings.	**Moderate.** Limited suitable roosting habitat may be present in the residence within the On-site Area, and in the trees throughout the Study Area.
Corynorhinus townsendii townsendii Townsend's big-eared bat	--	CSC, WBWG H	Roosts in caves and cave analogues, such as abandoned mines, buildings, bridges, rock crevices and large basal hollows of coast redwoods (*Sequoia sempervirens*) and giant sequoia (*Sequoiadendron giganteum*). Extremely sensitive to human disturbance (WBWG 2022).	**Low.** Marginally suitable habitat may be present in abandoned or infrequently used buildings around the residence.
Lasionycteris noctivagans Silver-haired bat	--	WBWG M	Roosts in abandoned woodpecker holes, under bark, and occasionally in rock crevices. It forages in open wooded areas near water features.	**High.** Trees scattered throughout the Study Area, particularly along the Off-Site alignments, may provide suitable roosting habitat for this species.

Table 2. Special-Status Species with Potential to Occur within the Summer Villas Study Area

Scientific Name (Common Name)	Federal Status[1]	State Status[1]	Habitat Requirements	Potential for Occurrence
Lasiurus blossevillii Western red bat	--	CSC, WBWG H	Requires large leaf trees such as cottonwoods (*Populus* species), willows (*Salix* species), and fruit/nut trees for daytime roosts. Often associated with wooded habitats that are protected from above and open below. Often found in association with riparian corridors. Requires open space for foraging.	**High.** Trees scattered throughout the Study Area, particularly along the Off-Site alignments, may provide suitable roosting habitat for this species.
Lasiurus cinereus Hoary bat	--	WBWG M	Roosts primarily in foliage of both coniferous and deciduous trees at the edges of clearings (WBWG 2024).	**High.** Trees scattered throughout the Study Area are suitable roosting habitat for this species.
Taxidea taxus American badger	--	CSC	This species prefers dry open fields, grasslands, and pastures.	**Low.** The annual brome grassland represents marginally suitable habitat due to the relative isolation of this patch of habitat.

[1]*Status Codes:*

CC – California Candidate for Listing
CSC – CDFW Species of Concern
CE – California Endangered
CT – California Threatened
CR – California Rare
CFP – California Fully Protected
CRPR – California Rare Plant Rank
WL – CDFW Special Animals Watch List
WBWG H – Western Bat Working Group High Threat Rank
WBWG M – Western Bat Working Group Medium Threat Rank
FE – Federally Endangered
FT – Federally Threatened
FC – Federal Candidate for Listing
PT – Proposed for Federal Listing as Threatened

5.1.3 Dwarf Downingia

Dwarf downingia (*Downingia pusilla*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It is a diminutive annual herb that is strongly associated with vernal pools and other seasonally inundated features at elevations ranging from sea level to approximately 1,500 feet (CNPS 2024). Dwarf downingia is typically associated with areas that experience a moderate degree of disturbance, and it blooms from March to May.

The vernal pools, seasonal wetlands and seasonal wetland swales within the Study Area represent suitable habitat for this species. Dwarf downingia was previously documented within the southern portion of the Study Area in 1991 and 2002 (CNDDB Occurrence #54) (CNDDB 2024). This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Study Area, which was conducted when this species was identifiable at known locations in the vicinity. A single vernal pool within the Off-Site Area represents potential habitat for dwarf downingia. This feature was not surveyed in 2024. There are two records of dwarf downingia within five miles of the Study Area in the CNDDB (**Figure 2**), the nearest of which is the on-site Occurrence #54 discussed above. This species is considered to be absent from the On-Site Study Area, but has a high potential to occur in the un-surveyed vernal pool within the Off-site Area.

5.1.4 Boggs Lake Hedge-Hyssop

Boggs Lake hedge-hyssop (*Gratiola heterosepala*) is not federally listed, but it is a California endangered species and a CRPR List 1B.2 plant. Boggs Lake hedge-hyssop grows in vernal pools and around the perimeter of lakes and ponds between 30 and 7,800 feet (CNPS 2024). This small annual herb favors clay soils, and blooms from April to August (CNPS 2024).

The larger vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Study Area. A single vernal pool within the Off-Site Area represents potential habitat for Bogg's Lake hedge-hyssop. This feature was not surveyed in 2024. There are four records of Boggs Lake hedge-hyssop within five miles of the Study Area in the CNDDB (**Figure 2**) (CNDDB 2024). The nearest of these (CNDDB Occurrence #33) is located approximately 0.4 miles west and south of the Study Area (CNDDB 2024).

5.1.5 Woolly Rose-Mallow

Woolly rose-mallow (*Hibiscus lasiocarpus var. occidentalis*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It generally occurs in shallow freshwater marshy habitats along the edges of drainages and detention basins with perennial or nearly perennial inundation. This perennial rhizomatous species blooms from June through September and occurs from sea level to approximately 395 feet (CNPS 2024).

The edges of Laguna Creek within the Study Area represent marginally suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area, which covered all areas of suitable habitat for this species. This species has not been documented within five miles of the Study Area in the CNDDB (CNDDB 2024).

5.1.6 Ahart's Dwarf Rush

Ahart's dwarf rush (*Juncus leiospermus var. ahartii*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. Ahart's dwarf rush grows along the edges of seasonal wet habitats such as vernal pools and swales within valley and foothill grasslands between elevations of approximately 100 feet and 750 feet (CNPS 2024). This annual herb blooms from March to May (CNPS 2024).

The vernal pools, seasonal wetlands and seasonal wetland swales within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Study Area. A single vernal pool within the Off-Site Area represents potential habitat for Ahart's dwarf rush. This feature was not surveyed in 2024. This species has not been documented within five miles of the Study Area in the CNDDB (CNDDB 2024).

5.1.7 Legenere

Legenere (*Legenere limosa*) is not federally or state listed, but it is classified as a CRPR List 1B.1 species. This annual herb is primarily associated with vernal pools (CNPS 2024). Legenere occurs at elevations between 5 and 2885 feet, and blooms from April to June (CNPS 2024).

The larger vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was observed in one vernal pool along the southern border of the On-Site Area during the 2024 protocol-level special status plant surveys of the On-Site Study Area (**Figure 5**). A single vernal pool within the Off-Site Area represents potential habitat for legenere. This feature was not surveyed in 2024. There are nine records of Legenere within five miles of the Study Area in the CNDDB (**Figure 2**) (CNDDB 2024).

5.1.8 Pincushion Navarretia

Pincushion navarretia (*Navarretia myersii* ssp. *myersii*) is not federally or state listed, but it is classified as a CRPR List 1B.1 plant. This species is found in vernal pools, often on acidic micro habitats (CNPS 2024a). Pincushion navarretia is found between approximately 65 and 1,085 feet and blooms in April and May (CNPS 2024a).

The vernal pools, seasonal wetlands and seasonal wetland swales within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Study Area. A single vernal pool within the Off-Site Area represents potential habitat

for Ahart's dwarf rush. This feature was not surveyed in 2024. This species has not been documented within five miles of the Study Area in the CNDDB (CNDDB 2024).

5.1.9 Slender Orcutt Grass

Slender Orcutt grass (*Orcuttia tenuis*) is listed as threatened pursuant to the federal Endangered Species Act. A total of 82 occurrences are known, of which 76 are presumed to be extant (USFWS 2005). In addition to the counties listed in its historic range, slender Orcutt grass is also known from Lassen, Modoc, Butte, and Plumas Counties (USFWS 2005). The highest concentration of slender Orcutt grass occurs in Tehama County, where 27 natural occurrences are found (USFWS 2005).

The vernal pools within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Area. A single vernal pool within the Off-Site Area represents marginal habitat for slender Orcutt grass. This feature was not surveyed in 2024 but will be surveyed for this species in 2025. There are two records of slender Orcutt grass within five miles of the Study Area in the CNDDB (**Figure 2**) (CNDDB 2024). The nearest of these (CNDDB Occurrence #90) is located approximately 3.5 miles northeast of the site, 0.3-mile northeast of the intersection of Excelsior and Dierks Road, south of Laguna Creek (CNDDB 2024).

5.1.10 Sacramento Orcutt Grass

Sacramento Orcutt grass (*Orcuttia viscida*) is listed as endangered pursuant to the federal Endangered Species Act. The earliest collection of this species was in 1936 near Phoenix Field; however, by 1990, Sacramento Orcutt grass was known from seven natural occurrences and one introduction (USFWS 2005). The current distribution of the species is restricted to eight extant populations in Sacramento County. One additional population was discovered after 1990; but one known population and a portion of another have been extirpated (USFWS 2005). The highest concentration of occupied habitat occurs within a 2.3-square mile area near Rancho Cordova (USFWS 2005).

The vernal pools within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the On-Site Area. A single vernal pool within the Off-Site Area represents marginal habitat for Sacramento Orcutt grass. This feature was not surveyed in 2024 but will be surveyed for this species in 2025. There is one record of Sacramento Orcutt grass within five miles of the Study Area in the CNDDB (**Figure 2**) (CNDDB 2024). This occurrence (CNDDB Occurrence #20) is located approximately 4.4 miles northeast of the site, northeast of the intersection of Excelsior and Florin Road (CNDDB 2024).

5.1.11 Sanford's Arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It generally occurs in shallow freshwater habitats associated with drainages, canals, and larger

ditches that sustain inundation and/or slow-moving water into early summer. This perennial rhizomatous species blooms from May to October and occurs from sea level to approximately 2,000 feet (CNPS 2024).

Laguna Creek within the Study Area represent marginally suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area, which covered all areas of suitable habitat for this species. There are 16 records of Sanford's arrowhead within five miles of the Study Area in the CNDDB (**Figure 2**) (CNDDB 2024). The nearest of these (CNDDB Occurrence #58) is located in Laguna Creek within the Study Area (CNDDB 2024). This record was documented in 2002, but this population was not observed on-site during the special-status plant survey, which was conducted when the plant would have been identifiable.

5.2 Invertebrates

5.2.1 Crotch's Bumble Bee

Crotch's bumble bee (*Bombus crotchii*) is not federally listed but is a candidate for listing under CESA. The historic range of this species extends from central California south to Baja California del Norte, Mexico, and includes coastal areas east to the edges of the deserts and the Central Valley, but largely excluding mountainous areas of California (Thorp et al., 1983, Williams et al. 2014). Recent observations indicate declines in both relative abundance and persistence (IUCN 2023). This species was historically common in the Central Valley of California, but now appears to be absent from most of it, especially in the center of its historic range (Hatfield et al. 2014).

In California, this species inhabits open grasslands and scrub habitats. Like most bumble bees, Crotch's bumble bee may nest underground in abandoned rodent nests or above ground in tufts of grass, old bird nests, rock piles, or cavities in dead trees. Bumble bees are generalist foragers and have been reported visiting a wide variety of flowering plants. They require plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle, which is generally from March to August for Crotch's bumble bee (IUCN 2023).

The Study Area provides suitable foraging habitat for the species, but nesting or overwintering habitat is sparse. The CNDDB does not list any occurrences of this species within five miles of the Study Area. The nearest sighting recorded in Bumble Bee Watch is a total of five Crotch's bumble bees documented about 9.7 miles to the northeast, around Mather Regional Park in May and June 2024 (BBW 2024). The iNaturalist database shows one research grade record about 4.2 miles to the northwest of the Study Area, south of Elaine Drive and east of French Road, recorded in April 2024 (iNaturalist 2024).

5.2.2 Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp (*Branchinecta lynchi*) is listed as threatened pursuant to the federal Endangered Species Act. Historically, the range of vernal pool fairy shrimp extended throughout the Central Valley of California. Vernal pool fairy shrimp populations have been found in several locations throughout California,

with habitat extending from Stillwater Plain in Shasta County through the Central Valley to Pixley in Tulare County, and along the Central Coast range from northern Solano County to Pinnacles National Monument in San Benito County (Eng *et al.* 1990, Fugate 1992). Additional populations occur in San Luis Obispo, Santa Barbara, and Riverside counties. The historic and current ranges of vernal pool fairy shrimp are very similar in extent; however, the remaining populations are more fragmented and isolated than during historical times (USFWS 2005). The life cycle of vernal pool fairy shrimp is adapted to seasonally inundated features such as vernal pools, seasonal wetlands, and seasonal wetland swales. Fairy shrimp embryos survive the dry season in cyst form. Cysts "hatch" soon after pools become inundated during the wet season. Fairy shrimp complete their life cycle quickly and feed on small particles of detritus, algae, and bacteria (Eriksen and Belk 1999).

The vernal pools, seasonal wetlands, and seasonal wetland swales throughout the Study Area represent suitable habitat for this species. Protocol-level surveys for this species have not been conducted within the Study Area. There are 24 CNDDB occurrences of vernal pool fairy shrimp within five miles of the Study Area, the closest of which are two adjacent to the Off-Site Area (Occurrences #100 and #163) (CNDDB 2024).

5.2.3 Monarch

The monarch butterfly (*Danaus plexippus*) is proposed for listing as threatened under FESA. It is a large conspicuous species that occurs in North, Central, and South America; Australia; New Zealand; islands of the Pacific and Caribbean, and elsewhere (Malcolm and Zalucki 1993 in USFWS 2020). During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (*Asclepias* spp.), and larvae emerge after two to five days (Zalucki 1982 in USFWS 2020). Larvae develop over a period of 9 to 18 days, feeding on the milkweed and then pupate into chrysalis before eclosing 6 to 14 days later as an adult butterfly (USFWS 2020). Multiple generations of monarchs are produced during the breeding season, with most adult butterflies living approximately two to five weeks (USFWS 2020).

In California, monarchs continue to occupy and breed in areas near their overwintering groves along the California coast into northern Baja California throughout the year, and also disperse over multiple generations to occupy and breed throughout the state in the spring through fall (USFWS 2020). Migrating monarchs in western North America tend to occur more frequently near water sources such as rivers, creeks, roadside ditches, and irrigated gardens (Morris et al. 2015 in USFWS 2020). Adult monarch butterflies require a diversity of blooming nectar resources during breeding and migration (spring through fall). Monarchs also need milkweed (for both oviposition and larval feeding) embedded within this diverse nectaring habitat.

This species was not observed in the Study Area during Project-related surveys; however, a couple of patches of narrowleaf milkweed (*Asclepias fascicularis*) and woolypod milkweed (*Asclepias eriocarpa*) plants occur within the Study Area, which represent larval host plants for this species. No CNDDB occurrences of this species are documented within five miles of the Study Area, but the CNDDB only tracks over-wintering locations of this species, which occur near the coast (CNDDB 2024). iNaturalist reports five research-grade records of monarch butterflies within five miles of the Study Area (iNaturalist 2024). The WMMM shows

three records of monarchs within five miles of the Study Area (WMMOD 2024). None of the records in iNaturalist or WMMM document monarch breeding (iNaturalist 2024, WMMOD 2024). The site is not proximate to any overwintering areas for the species (Xerxes Society 2024, CNDDB 2024). Monarch butterfly could occur within the Study Area during the breeding season, and larval host plants are present within the Study Area that represent breeding habitat for Monarch butterfly.

5.2.4 Vernal Pool Tadpole Shrimp

The vernal pool tadpole shrimp (*Lepidurus packardi*) is listed as endangered pursuant to the federal Endangered Species Act. The historic range of the vernal pool tadpole shrimp likely extended throughout the Central Valley of California and has been documented from east of Redding in Shasta County south to Fresno County, and from the San Francisco Bay Wildlife Refuge in Alameda County. The historic and current ranges of vernal pool tadpole shrimp are very similar in extent; however, the remaining populations are more fragmented and isolated than during historical times (USFWS 2005).

This species is associated with long-duration seasonal pools in grasslands throughout the northern and eastern portions of the Central Valley (USFWS 2005). Suitable vernal pools and seasonal swales are generally underlain by hardpan or sandstone. Much like vernal pool fairy shrimp, vernal pool tadpole shrimp are adapted to seasonally inundated features such as vernal pools, seasonal wetlands, and seasonal wetland swales (USFWS 2005).

The vernal pools and seasonal wetlands throughout the Study Area represent suitable habitat for this species. Protocol-level surveys for this species have not been conducted within the Study Area. The CNDDB shows 24 occurrences of this species within five miles of the Study Area, the closest being a 2004 record about one mile to the northeast, in the Churchill Downs Wetland Preserve (Occurrence #165; CNDDB 2024).

5.3 Amphibians

5.3.1 Western Spadefoot

The western spadefoot (*Spea hammondii*) is proposed for listing as threatened under FESA and is a CDFW species of special concern. This amphibian is a nocturnal animal that forages in grassland, open chaparral, and pine-oak woodlands for a variety of invertebrates such as insects and worms (USFWS 2005). Western Spadefoot breeds from January through May in variety of temporary wetlands including creeks, pools in intermittent drainages, vernal pools, and seasonal wetlands, and other fish-free water features. The tadpoles develop in 3 to 11 weeks, and must complete their metamorphosis before the temporary pools dry. Post-metamorphic juveniles feed and then immediately seek underground refugia. Following metamorphosis, the adults are largely terrestrial in nature and will burrow into sandy or gravelly soils utilizing the "spades" on the hind feet. The majority of an adult's life is spent in underground burrows (USFWS 2005).

Several of the seasonal wetlands and vernal pools within the Study Area represent suitable breeding habitat for western spadefoot and the surrounding annual brome grasslands provide suitable dry-season habitat.

The CNDDB contains one record of this species within five miles of the Study Area (CNDDB 2024). This record (Occurrence #501) is approximately 4.6 miles north of the Study Area, and was documented in 1929 "approximately 7 mi E of Sacramento" (CNDDB 2024). nor does the iNaturalist database. The nearest recent, presumed extant record in the CNDDB is about 9.3 miles to the northeast, in Mather Regional Park (Occurrence #396; CNDDB 2024). Adults were first recorded in this location in 1993, and tadpoles were observed in 2018.

5.4 Reptiles

5.4.1 Northwestern Pond Turtle

The northwestern pond turtle (*Actinemys marmorata*) is proposed for listing as threatened under FESA and is designated as a CDFW species of special concern. Its favored habitats include streams, large rivers and canals with slow-moving water, aquatic vegetation, and open basking sites. Although the turtles must live near water, they can tolerate drought by burrowing into the muddy beds of dried drainages. This species feeds mainly on invertebrates such as insects and worms, but will also consume small fish, frogs, mammals and some plants. Northwestern pond turtle predators include raccoons, coyotes, raptors, weasels, large fish, and bullfrogs. This species breeds from mid to late spring in adjacent open grasslands or sandy banks.

Laguna Creek within the Study Area represents suitable aquatic habitat for this species. Because females move overland for up to 325 feet in the spring and summer to find suitable sites for egg-laying, areas within 325 feet of Laguna Creek could support dispersing turtles. The CNDDB lists two occurrences of this species within five miles of the Study Area, the nearest of which (Occurrence #233) was recorded in 2004 in the Sacramento Bufferlands, encompassing Lost Lake, Laguna Creek, and Fish Head Lake (CNDDB 2024).

5.5 Birds

5.5.1 Tricolored Blackbird

Tricolored blackbird (*Agelaius tricolor*) populations, which are currently in decline throughout the state, were listed as threatened under CESA by the California Fish and Game Commission on 19 April 2018. Historically, colonies were established in freshwater marshes dominated by cattails (*Typha* spp.) and bulrushes (*Scirpus* or *Schoenoplectus* spp.). More recently, they have utilized non-native mustards (*Brassica* spp.), blackberries (*Rubus* spp.), thistles (*Circium* spp.), and mallows (*Malva* spp.) as nesting substrate (Airola et al. 2016). Since the 1980s, the largest colonies have been observed in the San Joaquin Valley in cultivated fields of triticale, which is a hybrid of wheat and rye often grown as livestock fodder (Meese 2014). This current trend of nesting in active agricultural fields has further imperiled the species as nestlings typically are not fledged by the time the triticale is harvested.

Nesting habitat is not present within the Study Area, but the annual brome grassland throughout the Study Area represents suitable foraging habitat. The CNDDB shows 24 nesting records for tricolored blackbird within five miles of the Study Area, the closest of which is partially within the Study Area (CNDDB 2024).

This record (Occurrence #232) notes that successful nesting occurred at the site in 1992, 1993, 1994, 1995, and 1996. The last documented unsuccessful nesting attempt was made in 1999, and no birds were observed in 1997, 1998, 2000, 2011, and 2014. The nesting habitat was blackberry and wild rose along Laguna Creek (CNDDB 2024). The Cornell Lab of Ornithology's eBird database (eBird) shows quite a few observations of flyover birds within five miles of the Study Area, but no nesting observations in that area (Cornell Lab 2024).

5.5.2 Golden Eagle

The golden eagle (*Aquila chrysaetos*) is not federally or state listed but is a CDFW fully protected species and is protected under the federal Bald and Golden Eagle Protection Act. It is a very large solitary raptor that forages in large, expansive open grasslands and savannahs, and nests on cliff ledges or in large, lone trees in rolling to mountainous terrain (Shuford and Gardali 2008). Though its natural densities are generally believed to be low, it once was relatively common to the open areas of California.

The annual brome grasslands within the Study Area represent suitable foraging habitat for this species. The CNDDB does not list any occurrences of golden eagle nest sites within five miles of the Study Area (CNDDB 2024). Both eBird and iNaturalist show observations of the birds within five miles of the Study Area, but no nesting records (Cornell Lab 2024, iNaturalist 2024).

5.5.3 Burrowing Owl

Burrowing owl (*Athene cunicularia*) is a candidate for listing under the California Endangered Species Act and is designated as a species of special concern by CDFW. They typically inhabit dry open rolling hills, grasslands, desert floors, and open bare ground with gullies and arroyos. This species typically uses burrows created by fossorial mammals, most notably the California ground squirrel, but may also use man-made structures such as culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement (CDFG 1995). The breeding season extends from February 1 through August 31 (CBOC 1993, CDFG 1995).

The annual brome grasslands within the Study Area represent suitable foraging habitat for this species, but the lack of ground squirrel burrows for nesting habitat substantially reduces the potential for this species to occur. Debris piles in various locations throughout the Study Area could provide marginally suitable nesting or wintering habitat. The CNDDB lists 12 records for burrowing owl within five miles of the Study Area, the closest of which was recorded in 2007 approximately 1.6 miles southwest of the Study Area, near the Highway 99 southbound on-ramp at Laguna Boulevard (Observation #1258; CNDDB 2024). The closest eBird record is from 2014 and 2015 and is approximately 1.4 miles west of the west end of the Study Area, at the intersection of Sheldon Road and East Stockton Boulevard (Cornell Lab 2024).

5.5.4 Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is a raptor species that is not federally listed, but is listed as threatened under CESA. Breeding pairs typically nest in tall trees associated with riparian corridors, and forage in grassland, irrigated pasture, and cropland with a high density of rodents (Shuford and Gardali 2008). The Central Valley populations breed and nest in the late spring through early summer before migrating to Central and South America for the winter (Shuford and Gardali 2008).

Annual brome grasslands throughout the Study Area represent suitable foraging habitat for Swainson's hawk, and trees within the Study Area represent suitable nesting habitat. The CNDDB documents 49 records of Swainson's hawk nesting within five miles of the Study Area, the closest of which (about 0.3 miles to the northeast) was a Valley oak tree that was removed due to development in 2011 (Occurrence #2245; CNDDB 2024). eBird includes numerous observations of Swainson's hawks within five miles of the Study Area over the last 10 years (Cornell Lab 2024).

5.5.5 Northern Harrier

The northern harrier (*Circus hudsonius*) is not listed pursuant to either the California or federal Endangered Species Acts; however, it is considered to be a species of special concern by the CDFW. This species is known to nest within the Central Valley, along the Pacific Coast, and in northeastern California (Shuford and Gardali 2008). The northern harrier is a ground nesting species, and typically nests in emergent wetland/marsh, open grasslands, or savannah habitats. Foraging occurs within a variety of open habitats such as marshes, agricultural fields, and grasslands (Shuford and Gardali 2008).

Annual brome grasslands throughout the Study Area represent suitable foraging habitat for northern harrier, though the species is not likely to nest on-site due to the proximity to developed areas. The CNDDB does not list any occurrences of this species within five miles of the Study Area (CNDDB 2024), probably due to lack of reporting rather than scarcity of the species. eBird includes numerous observations of northern harriers within five miles of the Study Area over the last 10 years (Cornell Lab 2024). The nearest of these is three observations of a single bird on a parcel almost immediately northeast of the Study Area in 2021 (Cornell Lab 2024).

5.5.6 White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is not federally or state listed, but is a CDFW fully protected species. This species is a yearlong resident in the Central Valley and is primarily found in or near foraging areas such as open grasslands, meadows, farmlands, savannahs, and emergent wetlands (Shuford and Gardali 2008). White-tailed kites typically nest from March through June in trees within riparian, oak woodland, and savannah habitats of the Central Valley and Coast Range (Shuford and Gardali 2008).

Annual brome grasslands throughout the Study Area represent suitable foraging habitat for white-tailed kite, and trees within the Study Area could be used for perching and nesting. The CNDDB documents four

records of white-tailed kite nesting within five miles of the Study Area, the closest of which (about 2.6 miles to the north) was in 1990 on a rural residential property along McCoy Avenue (Occurrence #28; CNDDB 2024). eBird includes numerous observations of white-tailed kites within five miles of the Study Area over the last 10 years, including a record of a "probable nesting site" in a tree approximately 0.25 miles west of the On-Site Area and 0.25 mile south of the Off-Site Area in a tree at the end of St. Anthony Court in 2018 (Cornell Lab 2024).

5.5.7 Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is not listed and protected pursuant to either the California or federal Endangered Species Acts; but is a CDFW species of special concern. Loggerhead shrikes nest in small trees and shrubs in woodland and savannah vegetation communities, and forage in open habitats throughout California (Shuford and Gardali 2008). The nesting season ranges from March through June.

Annual brome grasslands within the Study Area represent suitable foraging habitat for this species, and it could use trees within the Study Area for perching. The CNDDB does not contain any occurrences of this species within five miles of the Study Area (CNDDB 2024), probably due to lack of reporting rather than scarcity of the species. eBird includes an unconfirmed 2013 observation record along the Elk Grove Creek Trail west of Highway 99 in Elk Grove, about 2.3 miles southwest of the Study Area (Cornell Lab 2024).

5.6 Mammals

5.6.1 Pallid Bat

Pallid bat (*Antrozous pallidus*) is not federally or state listed, but is considered a CDFW species of special concern and is classified by the WBWG as a High priority species. It favors roosting sites in crevices in rock outcrops, caves, abandoned mines, hollow trees, and human-made structures such as barns, attics, and sheds (WBWG 2024). Though pallid bats are gregarious, they tend to group in smaller colonies of 10 to 100 individuals. It is a nocturnal hunter and captures prey in flight, but unlike most American bats, the species has been observed foraging for flightless insects, which it seizes after landing (WBWG 2024).

Suitable roosting habitat may be present in the residence within the On-site Area, and in the trees throughout the Study Area. The annual grassland within the Study Area could provide foraging habitat. Neither the CNDDB nor iNaturalist contains any records of pallid bat within five miles of the Study Area (CNDDB 2024, iNaturalist 2024).

5.6.2 Townsend's Big-Eared Bat

Townsend's big-eared bat (*Corynorhinus townsendii*) is not federally or state listed, but is considered a CDFW species of special concern and is classified by the WBWG as a High priority species. Townsend's big-eared bat is a fairly large bat with prominent bilateral nose lumps and large rabbit-like ears. This species occurs throughout the west and ranges from the southern portion of British Columbia south along the

Pacific coast to central Mexico and east into the Great Plains. This species has been reported from a wide variety of habitat types and elevations from sea level to 10,827 feet (NPS 2023). Habitats used include coniferous forests, mixed mesophytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Its distribution is strongly associated with the availability of caves and cave-like roosting habitat including abandoned mines, buildings, bridges, rock crevices, and hollow trees. This species is readily detectable when roosting due to their habit of roosting pendant-like on open surfaces. Townsend's big-eared bat is a moth specialist with over 90 percent of its diet composed of Lepidopterans. Foraging habitat includes edge habitats along streams as well as adjacent to and within a variety of wooded habitats. This species often travels long distances when foraging and large home ranges have been documented in California (WBWG 2024).

The buildings in and around the residence within the Study Area may provide suitable roosting habitat for the Townsend's big-eared bat. The open areas within the Study Area provide suitable foraging habitat for this species. Neither the CNDDB nor iNaturalist contains any records of Townsend's big-eared bat within five miles of the Study Area (CNDDB 2024, iNaturalist 2024).

5.6.3 Silver-Haired Bat

Silver-haired bat (*Lasionycteris noctivagans*) is not federally or state listed but is classified by the WBWG as a Medium priority species. The silver-haired bat occurs in more xeric environments during winter and seasonal migrations (WBWG 2024). This species changes roosts frequently, and use multiple roosts within a limited area, indicating that clusters of large trees are necessary (WBWG 2024). Silver-haired bat roosts in hollow trees, abandoned woodpecker holes, under sloughing bark, in rock crevices, and occasionally under wood piles. They tend to forage above the canopy, over open meadows, and in the riparian zone along water courses. This species is known to eat a wide variety of species; however, moths appear to be a major portion of dietary prey (WBWG 2024).

Suitable roosting habitat may be present in trees throughout the Study Area. The annual grassland within the Study Area could provide foraging habitat. Neither the CNDDB nor iNaturalist contains any records of silver-haired bat within five miles of the Study Area (CNDDB 2024, iNaturalist 2024).

5.6.4 Western Red Bat

The Western red bat (*Lasiurus blossevillii*) is not federally or state listed, but is considered a CDFW species of special concern, and is classified by the WBWG as a high-priority species. This species is typically solitary, roosting primarily in the foliage of trees or shrubs (WBWG 2024). Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There may be an association with intact riparian habitat (particularly willows, cottonwoods, and sycamores). Roost sites are generally hidden from all directions except below; allowing the bat to drop downward for flight (WBWG 2024).

Suitable roosting habitat may be present in trees and shrubs throughout the Study Area. Neither the CNDDB nor iNaturalist contains any records of Western red bat within five miles of the Study Area (CNDDB 2024, iNaturalist 2024).

5.6.5 Hoary Bat

The hoary bat (*Lasiurus cinereus*) is not federally or state listed but is classified by the WBWG as a medium priority species. It is also considered to be one of the most widespread of all American bats with a range extending from Canada to central Chile and Argentina as well as Hawaii. Hoary bats are solitary and roost primarily in foliage of both coniferous and deciduous trees, and usually at the edge of a clearing (WBWG 2024). This species is primarily crepuscular or nocturnal and requires open areas to hunt its preferred prey item, moths. The hoary bat is considered a forest/woodland species, and in California they are often associated with undisturbed riparian or stream corridors (WBWG 2024).

Suitable roosting habitat may be present in trees throughout the Study Area. The annual grassland within the Study Area could provide foraging habitat. Neither the CNDDB nor iNaturalist contains any records of hoary bat within five miles of the Study Area (CNDDB 2024, iNaturalist 2024).

5.6.6 American Badger

The American badger (*Taxidea taxus*) is not federally or state listed but is designated as a species of special concern by CDFW. The species historically ranged throughout much of the state except in humid coastal forests. Badgers were once numerous in the Central Valley; however, populations now occur in low numbers in the surrounding peripheral parts of the valley and in the adjacent lowlands of eastern Monterey, San Benito, and San Luis Obispo counties (Williams 1986). Badgers occupy a variety of habitats, including grasslands and savannas. The principal requirements seem to be significant food supply, friable soils, and relatively open uncultivated ground (Williams 1986).

The annual brome grasslands within the Study Area provide only marginal habitat for American badger due to the parcel's small size and surrounding development. No evidence of this species was observed during surveys of the Study Area. Neither the CNDDB nor iNaturalist contains any records of American badger within five miles of the Study Area (CNDDB 2024, iNaturalist 2024).

6.0 IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES

This section details impacts to the biological resources discussed above that may be associated with development of the Project. As noted above, the Project is a General Plan/Rural Area Community Plan Amendment and a Rezone, and although general impact and avoidance areas have been identified, the specific impact boundaries have not. As such, the impact analysis below is programmatic in nature. **Figure 7** shows the Potential Development Areas overlaid on the terrestrial land covers and aquatic resources for illustrative purposes.

6.1 Terrestrial Land Covers

The Project may result in impacts to annual brome grassland, roads, ruderal, rural residential, and unvegetated areas. Impacts to annual brome grassland could affect lifecycle activities of species that rely on annual brome grassland for nesting and foraging, including Crotch's bumblebee, monarch, western spadefoot, northwestern pond turtle, several species of special-status birds, special-status bats, and American badger.

6.2 Aquatic Resources

The Project may result in impacts to seasonal wetlands, seasonal wetland swales, vernal pools, small portions of Laguna Creek, detention basins, ephemeral drainages, and/or roadside ditches. Impacts to the detention basins and roadside ditches within the off-site areas may be mostly temporary, but the impacts to other feature types would likely be mostly permanent.

6.3 Special-Status Plant Species

The Project as currently proposed would avoid the vernal pool that supports legenere, a CRPR 1B.1 species, but the final development plan could result in the fill of this vernal pool, which would permanently impact the legenere plants.

Additionally, at the time this document was produced, the Off-Site Area had not been surveyed for special-status plants. If construction would affect suitable habitat in the Off-Site Area and special status plants were present, they would be killed.

6.4 Crotch's Bumble Bee

The annual brome grassland within the Study Area represents suitable habitat for Crotch's bumble bee. The disturbance and/or removal of this habitat could adversely affect this species if construction activity results in the removal of active Crotch's bumble bee nests.

6.5 Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

Vernal pools, seasonal wetlands, and seasonal wetland swales that represent potential habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp may be filled as a result of construction. The Study Area has not been surveyed for vernal pool branchiopods, and unless surveys are performed in the future, it is assumed that these species could be present in the Study Area. As such, fill of any of these features is expected to adversely affect vernal pool fairy shrimp and vernal pool tadpole shrimp.

6.6 Monarch

The Study Area supports patches of narrow-leaf milkweed and wooly pod milkweed, host plants for monarch. If milkweed plants are removed during construction, and monarch eggs, larvae, and/or chrysalis are present, individuals of this species could be killed.

6.7 Western Spadefoot

Vernal pools and seasonal wetlands within the Study Area represent potential aquatic habitat for western spadefoot, and the surrounding annual brome grasslands provide suitable dry-season (upland) habitat. The Study Area has not been surveyed for western spadefoot, and this species could be present in the Study Area. If western spadefoot (any stage) is present in any of the ultimate construction areas, individuals could be injured or killed during construction.

6.8 Northwestern Pond Turtle

Laguna Creek within the Study Area represents potential aquatic habitat for northwestern pond turtle, and the surrounding annual brome grasslands provide suitable nesting habitat. If northwestern pond turtle are within these areas, and construction either results in direct impacts to the aquatic habitat or impacts to dispersing or nesting turtles, individual turtles could be injured or killed.

6.9 Nesting Raptors and Migratory Birds

Swainson's hawk, white-tailed kite, northern harrier, tricolored blackbird, and loggerhead shrike have the potential to nest within the Study Area, as do other more common bird species protected by the MBTA. If any of these protected species were nesting on-site during construction, nest disturbance or removal could result in injury or death. Additionally, birds nesting in avoided areas adjacent to active construction areas could be disturbed by construction, which could result in nest abandonment.

6.10 Foraging Raptors

The annual brome grassland within the Study Area provides suitable foraging habitat for burrowing owl, Swainson's hawk, white-tailed kite, northern harrier, and other more common raptors. Removal of the annual brome grassland by residential development could reduce reproductive success of raptors nesting in the area.

6.11 Burrowing Owl

The annual brome grassland throughout Study Area provides suitable foraging habitat for burrowing owl, and debris piles within the Study Area provide marginally suitable burrow habitat. If ground disturbance occurred while burrowing owls were in burrows, individuals of this species could be killed. If burrowing

owls were found foraging in the annual brome grassland, removal of the annual brome grassland by residential development could reduce potential foraging opportunities.

6.12 Roosting Bats

Trees and buildings within the Study Area could provide roosting habitat for special-status bats. If the buildings and/or trees or shrubs supported roosting bats, and development resulted in removal of the buildings and/or trees, individual bats could be killed.

6.13 American Badger

Annual brome grasslands provide habitat for this species, and if American badger were in a burrow on the site within a proposed development area, that individual could be killed by Project construction.

6.14 Native Trees and Other Protected Trees

Protected Trees may occur within the Study Area, and if present, could be impacted by Project construction, depending on the final development plan.

7.0 AVOIDANCE, MINIMIZATION, AND MITIGATION FOR IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES

The avoidance and minimization measures presented in this section may be required by the CEQA lead agency to mitigate impacts to sensitive biological resources associated with construction of the Project. Note that as development plans have not been prepared for the Project, it is unknown whether specific resources will be impacted. Therefore, measures have been prepared for all sensitive biological resources that have potential to occur within the Study Area; if the resource will be impacted by the Project when it has been designed, then the corresponding mitigation measure shall be implemented.

7.1 Aquatic Resources

The Project may result in the loss of aquatic resources. We recommend the following measures to ensure that impacts to aquatic resources are mitigated consistent with General Plan policy and state and federal regulations.

- For any areas within a proposed impact area that have not been verified by the USACE, submit an aquatic resources delineation map to the USACE with a request for verification. Alternatively, this map may be submitted as part of a permit application to the USACE.
- If the USACE determines that some or all of the aquatic resources in the Study Area that will be filled are waters of the U.S., the Project proponent shall obtain authorization to fill such waters of the U.S. under Clean Water Act Section 404. Aquatic resources that will be filled shall be replaced or rehabilitated on a "no-net-loss" basis. Habitat restoration, rehabilitation, and/or replacement

shall be at a location and by methods acceptable to the USACE. A Section 404 permit is not needed for the fill of aquatic resources that are not waters of the U.S.

- If the USACE determines that some or all of the aquatic resources in the Study Area that will be filled are waters of the U.S., the Project proponent shall apply for a Clean Water Act Section 401 water quality certification from the Central Valley RWQCB and adhere to the certification conditions. If the USACE determines that none of the aquatic resources in the Study Area that will be filled are waters of the U.S., the Project proponent shall submit a Report of Waste Discharge to the Central Valley RWQCB with a request for waste discharge requirements and adhere to the waste discharge requirements.
- If the final Project design will result in permanent impacts to aquatic resources that meet the definition of a river or stream under the California Code of Regulations, riparian vegetation or the 100-year floodplain of a river or stream, the Project proponent shall notify CDFW of the proposed alteration pursuant to Fish and Game Code Section 1600, Lake or Streambed Alteration. Minimization and avoidance measures will be proposed as appropriate and may include preconstruction species surveys and reporting, protective fencing around avoided biological resources, worker environmental awareness training, seeding disturbed areas adjacent to open space areas with native seed, and installation of project-specific storm water BMPs. Mitigation may include restoration or enhancement of resources on- or off-site, purchase of habitat credits from an agency-approved mitigation/conservation bank off-site, working with a local land trust to preserve land, or any other method acceptable to CDFW.

7.2 Special-Status Plant Species

The Study Area is known to support a population of legenere, a CRPR List 1B.1 species. The current development plan would avoid this population, but the final development plan could be different and result in impacts to this population. Additionally, populations of special-status plant species may be present within the unsurveyed Off-Site Area. If this the legenere population would be directly impacted by construction, or if populations of special-status plant species within the unsurveyed Off-Site Area would be impacted by construction, then following mitigation is recommended:

- The Project proponent shall conduct a special-status plant survey of all areas of suitable habitat for special-status plants within the final development footprint not surveyed during the 2024 protocol special-status plant survey. This survey shall be conducted in accordance with the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 2000), the *Botanical Survey Guidelines of the California Native Plant Society* (CNPS 2001), and *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). This protocol includes conducting surveys at the appropriate time of year, when plants are in bloom.
- If construction in areas surveyed in 2024 does not commence prior to July 1 of 2027, another round of special-status plant surveys shall be conducted in areas proposed for impact prior to commencement of construction. Surveys shall be conducted area in accordance with the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 2000), the *Botanical Survey Guidelines of the California Native Plant Society* (CNPS

2001), and *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). This protocol includes conducting surveys at the appropriate time of year, when the target plant species are in bloom.

- If the Project avoids the known special-status plant populations and an associated "Avoidance Zone," then no impacts to the plants would occur, and no mitigation is necessary. The size of the Avoidance Zone needed to prevent impacts may vary based on the plant species and their habitat requirements. If an ESA or CESA listed special-status plant is found and is to be avoided, then an appropriate Avoidance Zone shall be developed in consultation with USFWS or CDFW (as applicable). If the species is not listed under ESA or CESA, an appropriate Avoidance Zone shall be developed by a qualified botanist in consultation with the City. Avoidance Zone areas may differ by species and site-specific conditions, and they should be developed such that the avoided special-status plant population is likely to persist in perpetuity. Avoidance zones may be based on a fixed buffer distance from the special-status plant population, at the limit of a hydrologic break, or as otherwise determined appropriate for the species in question. A 100-foot buffer is an appropriate Avoidance Zone for legenere. This could be reduced if it could be demonstrated that a hydrologic break exists between the plants and proposed development such that the development would not impact hydrology for the plants. In addition to the Avoidance Zone, the Project shall be designed such that no unseasonal or landscaping water is directed into the wetland, and no residential backyards are located along the edge of the Avoidance Zone.
- If any impacts would occur to special-status plants, the Project Proponent shall mitigate according to one or a combination of the options below. A Special-Status Plant Mitigation Plan shall be developed and submitted to the City. The Special-Status Plant Mitigation Plan shall be approved by the City prior to issuance of a grading permit that would impact the plants. Note that the options below are minimum recommendations. Impacts would occur if grading or other disturbance occurs within mapped populations. Recommended mitigation for impacts is 1:1 for preservation of an existing population, or 2:1 for relocation/translocation of impacted plants/seeds. These ratios may be based on the acreage of occupied habitat or number of plants; this metric will be clearly defined in the Special-Status Plant Mitigation Plan.

Mitigation Options are as follows:

1. Preservation: Identify one or more existing, unprotected populations of the special-status plant that will be impacted by the Project in the Project vicinity and protect this population in perpetuity by establishing a preserve on the land that supports those populations. Once the proposed mitigation area is approved by the City, the mitigation area shall be protected by a recorded conservation easement or deed restriction and managed in accordance with a long-term management plan that maintains the habitats the conservation easement was established to protect (including the special-status plants). Additionally, a preserve management endowment shall be established to fund the long-term management outlined in the long-term management plan, or sufficient annual management funding shall be a condition of a Homeowner's Association, Community Services District, or other alternative as approved by the City. As this option would preserve an existing, established population, there would be no temporal loss, and low risk of failure. As a result, the required mitigation ratio for this option would be 1:1. This ratio may be

based on the acreage of occupied habitat or number of plants; this metric will be clearly defined in the Special-Status Plant Mitigation Plan. This option may be implemented at a mitigation/conservation bank if the target plant species is present at the bank, and the Special-Status Plant Mitigation Plan shall describe how the purchase of bank credits translates into appropriate 1:1 preservation.

2. Relocation or Translocation: Mitigate impacts by establishment of a new special-status plant population or expansion of an existing special-status plant population. The proposed mitigation area may be on-site or off-site and shall be permanently protected by the recordation of a conservation easement or deed restriction, development of a long-term management plan that maintains the habitats that the conservation easement was established to protect, and include the establishment of a preserve management endowment, or sufficient annual management funding shall be a condition of a Homeowner's Association, Community Services District, or other alternative as approved by the City or regulating agency. The Project proponent would locate and protect the mitigation area(s), translocate seeds or relocate perennial plants to the mitigation area(s), monitor the translocated/relocated seeds/plants for a minimum of five years, and meet established success criteria as detailed in the Special-Status Plant Mitigation Plan. The minimum success criterion for this option would be 2:1 replacement of directly impacted plants and 1:1 replacement for indirectly impacted plants by year five of monitoring. This ratio may be based on the acreage of occupied habitat or number of plants; this metric will be clearly defined in the Special-Status Plant Mitigation Plan. If the success criteria are not met, then additional habitat shall be set aside as set forth under Option 1 or as agreed upon by the City as appropriate. Because population sizes for annual plants can vary widely from year to year, for Option 2, population counts or acreage mapping would be conducted in the last two years of monitoring, and the highest count or acreage shall be at least equivalent to the number of required replacement plants.
3. Avoidance and Monitoring: If impacts will occur within the Avoidance Zone of a special-status plant population but the Applicant feels that work would not permanently impact the plant population, they may elect to monitor the potentially indirectly impacted plant population for five years to document the lack of impact. The Applicant will prepare a monitoring plan that will be submitted to the applicable agency (City, CDFW and/or USFWS) for approval prior to grading permit issuance, and that will include monitoring methodology, success criteria (i.e., what conditions will demonstrate the lack of impact), considerations for drought years and adjacent land uses, and reporting. If at the end of the monitoring period, the population is determined to have substantially decreased, the plants will be mitigated as outlined in Options 1 or 2 above at a ratio of 1:1.

7.3 Crotch's Bumble Bee

Crotch's bumble bee could utilize the annual brome grassland for foraging or nesting. Crotch's bumble bee was designated as a candidate for listing under the CESA in 2019, but no decision on listing has been published. If, at the time of project implementation, the species is not a CESA candidate or CESA listed, and it does not fall into any of the other special-status categories defined in **Section 3.0**, then it would not qualify for protections under CEQA and no mitigation is necessary.

Because Crotch's bumble bee is a candidate species, appropriate mitigation measures are still being developed and refined. The following measures have been developed based on current literature and research and CDFW's *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (CDFW 2023). If at a later date a different mitigation measure is determined to be more appropriate, that can be submitted to the City at that time for review and approval.

If Project activities will result in development within annual brome grassland, then:

- Initial ground-disturbing work (e.g., grading, vegetation removal, staging) shall take place between 1 September and 31 March (i.e., outside the colony active period), if feasible, to avoid impacts on Crotch's bumble bee.
- If completing all initial ground-disturbing work between 1 September and 31 March is not feasible, then a qualified biologist shall conduct a pre-construction survey for Crotch's bumble bee in the area proposed for impact no more than 14 days prior to the commencement of construction activities. The survey shall occur during the period from one hour after sunrise to two hours before sunset, with temperatures between 65° F and 90° Fahrenheit, with low wind and no rain. If the timing of the start of construction makes the survey infeasible due to the temperature requirements, the surveying biologist shall select the most appropriate days based on the National Weather Service seven-day forecast, and shall survey at a time of day that is closest to the temperature range stated above. The survey duration shall be commensurate with the extent of suitable floral resources (which represent foraging habitat) present within the area proposed for impact and the level of effort shall be based on the metric of a minimum of one person-hour of searching per three acres of suitable floral resources/foraging habitat. A meandering pedestrian survey shall be conducted throughout the area proposed for impact in order to identify patches of suitable floral resources. Suitable floral resources for Crotch's bumble bee include species in the following families: Apocynaceae, Asteraceae, Boraginaceae, Fabaceae, and Lamiaceae.
- At a minimum, pre-construction survey methods shall include the following:
    - Search areas with floral resources for foraging bumble bees. Observed foraging activity may indicate a nest is nearby, and therefore, the survey duration shall be increased when foraging bumble bees are present.
    - If bumble bees are observed, attempt to photograph the individual and identify it to species.
    - If Crotch's bumble bees are observed, watch the individuals and observe their flight patterns. Attempt to track their movements between foraging areas and the nest.
    - Visually look for nest entrances. Observe burrows, any other underground cavities, logs, or other possible nesting habitat.
    - If floral resources or other vegetation preclude observance of the nest, small areas of vegetation may be removed via hand removal, line trimming, or mowing to a height of no less than 4 inches to assist with locating the nest.
    - Look for concentrated special-status bumble bee activity.
    - Listen for the humming of a nest colony.
- The biologist conducting the survey shall record when the survey was conducted, a general description of any suitable foraging habitat/floral resources present, a description of observed bumble bee activity, a list of bumble bee species observed, a description of any vegetation removed

to facilitate the survey, and their determination of if survey observations suggest a special-status bumble bee nest(s) may be present or if construction activities could otherwise harm special-status bumble bees. The report shall be submitted to the City prior to the commencement of construction activities.

- If no bumble bees are located during the pre-construction survey or the bumble bees located are definitively identified as common (i.e., not special-status) species, then no further mitigation or coordination with the City and/or CDFW is required.
- If any sign(s) of a bumble bee nest is observed, and/or if it cannot be established the species present is not a special-status bumble bee, then construction shall not commence until either 1) the bumble bees present are positively identification as common (i.e., not special status) by an experienced bumble bee taxonomist, or 2) the completion of coordination with CDFW to identify appropriate mitigation measures, which may include but not be limited to waiting until the colony active season ends; establishment of nest buffers; or obtaining an Incidental Take Permit (ITP) from CDFW.
- It is recommended, but not required, that the Project proponent also survey the proposed impact areas the year before construction begins in order to avoid potential last-minute delays associated with identifying special-status bumble bees on-site immediately prior to construction activities. To be most effective, this optional survey should follow the protocol outlined above.
- If, after coordination with CDFW, impacts to Crotch's bumble bee cannot be avoided, the Project proponent shall obtain an ITP from CDFW prior to the City's approval of permits authorizing construction, and the Project proponent shall implement all conditions identified in the ITP. Mitigation required by the ITP may include but will not be limited to, the Project proponent translocating nesting substrate in accordance with the latest scientific research to another suitable location (i.e., a location that supports similar or better floral resources as the impact area), enhancing floral resources on areas of the Project site that will remain appropriate habitat, worker awareness training, and/or other measures specified by CDFW.

In addition to these measures, mitigation for the loss of Swainson's hawk foraging habitat would compensate for the loss of annual brome grassland that may be utilized by Crotch's bumble bee.

7.4 Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

The Project may result in the loss of potential vernal pool fairy shrimp and vernal pool tadpole shrimp habitat. The applicant may choose to conduct surveys for this species; these surveys shall be conducted in accordance with the *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2017). If vernal pool fairy shrimp and vernal pool tadpole shrimp are not found during protocol-level wet and dry season surveys, no further mitigation will be required. If protocol-level surveys of these features are not conducted, or if vernal pool fairy or vernal pool tadpole shrimp are found during protocol-level wet- or dry season surveys of the features, then the Project proponent shall consider redesigning the Project to avoid all potential vernal pool fairy shrimp and vernal pool tadpole shrimp habitat. If avoidance is not possible, then the Project Proponent or the USACE (depending on the regulatory mechanism) shall consult with the USFWS regarding impacts to vernal pool fairy shrimp associated with the Project. Regardless of the consultation method, it is expected that the USFWS will assign measures to avoid, minimize, and mitigate impacts to vernal pool fairy shrimp

and vernal pool tadpole shrimp and will require compensatory mitigation. As such, we recommend the following measures:

- The Project proponent shall prepare a Biological Assessment, which will include details on potential impacts to and mitigation for impacts to vernal pool fairy shrimp and vernal pool tadpole shrimp, to be submitted to the USACE and/or USFWS.
- The Project proponent shall abide by mitigation measures developed during the course of the FESA consultation. At a minimum, the applicant shall preserve 2 acres of vernal pool branchiopod habitat for each acre of unsurveyed or documented occupied habitat impacted. Measures could include preservation, restoration, or enhancement of habitat on- or off-site, purchase of habitat credits from a USFWS-approved mitigation/conservation bank, working with a local land trust to preserve land, or any other method acceptable to USFWS.
- The Project proponent shall ensure that vernal pools and seasonal wetlands that will not be filled are protected during construction by installing exclusion fencing at the edge of the permitted impact area. No construction-related activity may take place in the exclusion area, and exclusion fencing shall be designed to prevent the discharge of storm water runoff from the impact area into the exclusion zone. Exclusion fencing shall be inspected by the project biologist or a trained on-site monitor at least weekly and immediately before and after storm events. Any breaches to the exclusion fencing shall be reported to the project biologist and repaired promptly. The exclusion fencing shall remain in place until all ground-disturbing construction activity is completed.

7.5 Monarch Butterfly

Monarch butterfly has been proposed for federal listing as threatened under the ESA. If, at the time of project implementation, it is not a ESA candidate or ESA listed, and it does not fall into any of the other "special-status" categories defined in **Section 3.0**, then it would not qualify for protections under CEQA and no mitigation is necessary. As this is a proposed threatened species, appropriate mitigation measures are still being developed and refined for this species. We have developed the following measure based on current literature and research. If at a later date, a different mitigation measure is determined to be more appropriate, that can be submitted to the City and USFWS at that time for review and approval. Note that USFWS staff have stated that they will not formally consult on species proposed for listing or designated as candidates, so until such time as this species is formally listed, USFWS may not respond to communications regarding this species.

If construction will occur within annual brome grassland during the time when milkweed plants may host monarch eggs or caterpillars (approximately mid-March through late September), a pre-construction survey shall be conducted by a qualified biologist within 15 days prior to construction within the proposed impact area and a 50-foot buffer in accessible areas (cumulatively, Survey Area). The biologist shall comprehensively search the Survey Area for milkweed plants, and all milkweed plants found shall be surveyed for monarch eggs, larvae (i.e., caterpillars), and chrysalises. Additionally, other plants immediately adjacent to milkweed plants shall also be searched for chrysalises. If no eggs, caterpillars, or chrysalises are detected, no additional mitigation measures are necessary.

If eggs, caterpillars or chrysalises are found, the plants shall be avoided with a 50-foot buffer until metamorphosis is completed and adult butterflies emerge and voluntarily leave the host plant. If the eggs, larvae, or chrysalises cannot be avoided, all eggs, larvae, and chrysalises, including the portion of the plant to which they are attached, will be translocated to an alternative location. That location must be a minimum of 50 feet outside of the impact area and contain a similarly sized or larger population of larval host plants. The portions of the plants supporting eggs or chrysalises shall be tied to the live stem of the avoided larval host plant while caterpillars will be placed directly on a stem or leaf of a larval host plant. Should the species be listed under FESA in the future, coordination with USFWS shall be conducted prior to translocation.

7.6 Western Spadefoot

We recommend the following measures to avoid and minimize impacts to western spadefoot. Note that USFWS staff have stated that they will not formally consult on species proposed for listing or designated as candidates, so until such time as this species is formally listed, USFWS may not respond to communications regarding this species. Therefore in the measures below, "federally-listed" refers only to species formally listed as threatened or endangered under the ESA.

- Prior to construction, the Project proponent shall survey all suitable aquatic habitat on the Project site (including features proposed for avoidance) by sampling the features thoroughly with dipnets during March or early April, when spadefoot tadpoles would be present. In addition, one nocturnal acoustic survey of all areas within 300 feet of suitable aquatic habitat will be conducted. Acoustic surveys consist of walking through the area and listening for the distinctive snore-like call of this species. Timing and methodology for the aquatic and acoustic surveys shall be based on those described in *Distribution of the Western Spadefoot* (Spea hammondii) *in the Northern Sacramento Valley of California, with Comments on Status and Survey Methodology* (Shedd 2017). Note that due to the timing requirements, these surveys will likely occur several months before commencement of construction. If both the aquatic survey and the nocturnal acoustic survey are negative, no further mitigation is necessary.
- If western spadefoot is found within the proposed work area and the species is not a federally-listed species at the time of construction, the following mitigation measure will be implemented:
    - Western spadefoot tadpoles (as many as are reasonably possible to capture) shall be captured and relocated by a CDFW-approved biologist either to on-site avoided and fenced aquatic habitat, or to an off-site open space preserve with suitable habitat in the vicinity of the Study Area. If western spadefoot is observed within aquatic habitat proposed for avoidance, then the Project proponent may either (1) relocate the tadpoles to an off-site open space preserve with suitable habitat in the vicinity of the Study Area, or (2) install silt fencing along the edge of the proposed impact area within 300 feet of the occupied aquatic habitat to prevent metamorphosed individuals from dispersing into the construction area.
- If western spadefoot are found adjacent to but outside of the work area, the following measures shall be implemented:
    - The Project proponent shall install exclusion fencing to prevent western spadefoot from moving into the active construction area. Installation of spadefoot exclusion fencing shall be monitored

by a qualified biologist. The fencing shall be inspected and repaired, if necessary, at least weekly. The fencing may be removed following the completion of construction.
    - After the exclusion fencing is installed, a western spadefoot survey shall be conducted no more than 24 hours prior to construction in areas within 300 feet of suitable aquatic habitat. If no western spadefoot are found, no further mitigation is necessary. If a western spadefoot is observed within the proposed impact area, a CDFW-approved biologist shall relocate the individual to suitable habitat outside of the proposed impact area prior to construction.
    - If western spadefoot move into the work area at any time, work shall cease, and the Project biologist shall be notified. A CDFW-approved biologist shall relocate the individual to suitable habitat outside of the impact area.
- If western spadefoot is identified within the proposed work area and the species is a federally-listed species at the time of construction, the following mitigation measure will be implemented:
    - The Project proponent shall consult with the USFWS regarding impacts to western spadefoot associated with the proposed Project. The Project proponent shall obtain and comply with any conditions of the appropriate take authorization from the USFWS. The conditions in this take authorization may include, but will not be limited to fencing off avoided habitat, worker awareness trainings, preservation, restoration, or enhancement of habitat on- or off-site to compensate for indirect and/or direct effects; purchase of habitat credits from an agency-approved mitigation/conservation bank; working with a local land trust to preserve land; or any other method acceptable to USFWS.

7.7 Northwestern Pond Turtle

To minimize potential impacts to northwestern pond turtle, we recommend the following measures. Note that USFWS staff have stated that they will not formally consult on species proposed for listing or designated as candidates, so until such time as this species is formally listed, USFWS may not respond to communications regarding this species. Therefore in the measures below, "federally-listed" refers only to species formally listed as threatened or endangered under the ESA.

- If construction would affect inundated portions of Laguna Creek during the active season of northwestern pond turtle (generally April to September), the Project proponent shall conduct a northwestern pond turtle survey to determine whether this species is utilizing Laguna Creek. The survey shall be conducted consistent with visual encounter survey guidance provided in Chapter 4 of *Western Pond Turtle: Biology, Sampling Techniques, Inventory and Monitoring, Conservation, and Management* (Bury et al. 2012). If no northwestern pond turtles are observed utilizing the aquatic habitat, no further mitigation is necessary.
- If northwestern pond turtles are observed utilizing Laguna Creek within the proposed work area and the species is not a federally-listed species at the time of construction, the following measures shall be implemented:
    - Project work within 325 feet of Laguna Creek should be implemented during the turtles' active season (generally April through September). If northwestern pond turtles are documented to have left the vicinity of the Project, work within 325 feet of Laguna Creek may occur outside of this work window.

- Prior to dewatering the work area, a qualified biologist shall prepare a northwestern pond turtle avoidance and management plan for review and approval by the City. The plan will include requirements for monitoring during the dewatering process to ensure no turtles are harmed; turtle capture and relocation; exclusion fencing to prevent turtle movement into the work area following dewatering; and encounter protocol should northwestern pond turtles move into the work area following dewatering.

- If northwestern pond turtles are observed utilizing Laguna Creek adjacent to but outside of the work area, the following measures shall be implemented:
  - The Project proponent shall install exclusion fencing to prevent turtles from moving into the active construction area. The fencing shall be inspected and repaired, if necessary, at least weekly. The fencing may be removed following the completion of construction.
  - After the exclusion fencing is installed, a northwestern pond turtle survey shall be conducted no more than 24 hours prior to construction in areas within 325 feet of the limits of inundated areas of Laguna Creek. If no northwestern pond turtles are found, no further mitigation is necessary. If a northwestern pond turtle is observed within the proposed impact area, a qualified biologist shall relocate the individual to suitable habitat outside of the proposed impact area prior to construction.
  - If northwestern pond turtles move into the work area at any time, work shall cease, and the Project biologist shall be notified. A qualified biologist shall relocate the individual to suitable habitat outside of the impact area.
- If northwestern pond turtles are observed utilizing Laguna Creek within the proposed work area and the species is a federally-listed species at the time of construction, the following mitigation measure shall be implemented:
  - The Project proponent shall consult with the USFWS regarding impacts to northwestern pond turtle associated with the proposed Project. The Project proponent shall obtain and comply with any conditions of the appropriate take authorization from the USFWS. The conditions in this take authorization may include, but will not be limited to fencing off avoided habitat, ceasing construction around northwestern pond turtles found on-site, and allowing them to leave on their own, worker awareness trainings, preservation, restoration, or enhancement of habitat on- or off-site to compensate for indirect and/or direct effects; purchase of habitat credits from an agency-approved mitigation/conservation bank; working with a local land trust to preserve land; or any other method acceptable to USFWS.

7.8 Nesting Raptors and Other Birds

We recommend the following measures to avoid and minimize potential impacts to nesting raptors and other birds protected by the MBTA and/or state and federal regulations.

- If ground disturbance or other construction activities are proposed during the bird nesting season (February 1 – August 31), a focused survey for nesting raptors and migratory bird nests shall be conducted by a qualified biologist within 14 days prior to the beginning of construction activities in order to identify active nests. This survey shall be conducted within the proposed construction area and all accessible areas within the following buffer areas:

- 0.25 mile for Swainson's hawk,
- 500 feet for tree-nesting raptors and burrowing owls, and
- 50 feet for all other species

- Pre-construction (take avoidance) burrowing owl surveys of suitable habitat will be conducted consistent with the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). Non-breeding season protocol will be used for surveys conducted when construction begins between September 1 and January 31 and breeding season protocol will be used for surveys conducted when construction begins between February 1 and August 31.
- If no active nests/burrows are found, no further mitigation is required. Surveys must be repeated if a lapse in construction activity exceeds 14 days and construction resumes during the nesting season.
- If active nests/burrows are found:
  - Active raptor nests: no construction activities shall take place within 0.25-mile for Swainson's hawk or within 500 feet of other raptor nest(s). The buffer(s) may be removed once the young have fledged and/or are no longer dependent on the nest;
  - Occupied burrowing owl burrows: a minimum buffer of 164 feet shall established and maintain around the occupied burrow throughout construction. The actual buffer size shall be determined by the qualified biologist based on the time of year and level of disturbance in accordance with guidance provided in the CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) and may be as large as 1,640 feet. No construction activities shall take place within the buffer, and the no-disturbance buffer shall be marked on-site. The buffer may be removed once a qualified biologist determines that the burrow is no longer occupied ;
  - Active tricolored blackbird nests: no construction activities shall take place within 500 feet of active nesting colonies, and a no-disturbance buffer shall be marked on-site. The Project proponent shall coordinate with the City and CDFW to identify appropriate monitoring requirements;
  - Active nests of other birds: no construction activities shall take place within 100 feet of an active nest, and the no-disturbance buffer shall be marked on-site. The buffer may be removed once the young have fledged and/or are no longer dependent on the nest.
- No-disturbance buffers for all species may be reduced based on consultation and approval by the City and/or CDFW for Swainson's hawk, burrowing owl, and tricolored blackbird.
- The perimeter of protected areas on-site shall be indicated by bright orange temporary fencing. No construction activities or personnel shall enter protected areas, except with approval of the biologist. If trees containing nests or nests/burrows must be removed as a result of Project implementation, removal shall be completed during the nonbreeding season (September 1 to January 31) if possible, or after a qualified biologist determines that the young have fledged (during the breeding season).
- Survey results shall be provided to the City within 14 days of completion of all surveys.

7.9 Foraging Raptors

Impacts to Swainson's hawk foraging habitat shall be mitigated consistent with the City's Swainson's Hawk Code (Chapter 16.130 of the Elk Grove Municipal Code). The City's Swainson's Hawk Code allows a project applicant to provide mitigation by one or a combination of the following options:

1. Provide direct land preservation to the City by fee title or conservation easement on a per acre basis (one-to one mitigation ratio), including an endowment for easement monitoring. Interests in mitigation lands are to be held in trust by an entity acceptable to the City and/or the City in perpetuity.
2. Pay Swainson's Hawk impact mitigation fee on a per acre basis of habitat impacted. The current fee (January 2025) is $16,975 per acre, but the fee paid shall be that in affect at the time of application. The City utilizes the fees collected to mitigate the project's impacts by acquiring land in fee title and/or conservation easements on suitable Swainson's hawk foraging habitat. Note that payment of a Swainson's Hawk mitigation fee is limited to projects less than 40 acres and therefore may not be applicable to this project, depending on the final design.
3. Purchase mitigation credits at a 1:1 ratio at an accredited mitigation bank that is acceptable to the City and CDFW.
4. Purchase credits from a property owner with eligible credits for projects in Elk Grove that is acceptable to the City and CDFW.
5. Provide other instruments to preserve suitable habitat as determined by CDFW.

If nesting burrowing owls are found during the pre-construction survey, mitigation for the permanent loss of burrowing owl foraging habitat (defined as all areas of suitable habitat within 250 feet of the active burrow) shall be accomplished at a 1:1 ratio or at a ratio acceptable to the City. The mitigation provided shall be consistent with recommendations in the CDFW *Staff Report on Burrowing Owl Mitigation* and may be accomplished within the Swainson's hawk foraging habitat mitigation area for the Project if burrowing owls have been documented utilizing that area, or if the qualified biologist, the City, and CDFW collectively determine that the mitigation strategy is suitable for both species.

7.10 Roosting Bats

- A qualified biologist shall conduct a bat habitat assessment of all potential roosting habitat features, including trees and structures within the proposed impact footprint. This habitat assessment shall identify all potentially suitable roosting habitat and may be conducted up to one (1) year prior to the start of construction.
- If potential roosting habitat is identified (cavities in trees or potential roosts within structures) within the areas proposed for impact, the biologist shall survey the potential roosting habitat within 7 days prior to habitat removal. As roosting bats are seasonally active, it may be beneficial to conduct an additional survey well ahead of the preconstruction survey during the active season (generally April through October or from January through March on days with temperatures in excess of 50 degrees F) to determine presence of roosting bats. These surveys are recommended to be conducted utilizing methods that are considered acceptable by CDFW and bat experts. Methods may include

evening emergence surveys, acoustic surveys, inspecting potential roosting habitat with fiberoptic cameras or a combination thereof.

- If pre-construction surveys indicate that no roosts of special-status bats are present, or that roosts are inactive or potential habitat is unoccupied, no further mitigation is required.
- If roosting bats are identified within any of the trees planned for removal, or if presence is assumed, the trees shall be removed outside of pup season only on days with temperatures in excess of 50 degrees F. Pup season is generally during the months of May through August. Two-step tree removal shall be utilized under the supervision of the qualified biologist. Two-step tree removal involves removal of all branches of the tree that do not provide roosting habitat on the first day, and then the next day cutting down the remaining portion of the tree.
- Additionally, it is recommended that all other tree removal be conducted from January through March on days with temperatures in excess of 50 degrees F to avoid potential impacts to foliage-roosting bat species.
- If roosting bats are identified within any structures planned for removal, a bat exclusion plan shall be prepared by a qualified bat biologist describing the methods to be used to humanely exclude bats prior to disturbance. Each exclusion is specific to the structure and no two are the same. All exclusions involve the installation of one-way doors or flaps during the non-breeding season that allow the bats to leave and not re-enter the structure. This plan shall be approved by the County and by CDFW and shall be implemented prior to the start of construction.

7.11 Native Trees and Other Protected Trees

The City of Elk Grove regulates impacts to Protected Trees. If any Protected Trees are within the proposed development area, the applicant shall inventory all Protected Trees and apply for a Tree Permit from the City.

The project applicant shall implement all mitigation required by the Tree Permit. As outlined in City Code, impacts to Protected Trees shall be mitigated at a 1:1 ratio (one diameter inch of new trees per each diameter inch of lost trees). The applicant for the tree permit shall prepare a Tree Mitigation Plan for review and approval by the City Arborist. Trees planted as mitigation shall be of an equivalent species as those being removed, with consideration given to species diversity and ensuring that the right tree is planted in the right location. One or more of the following mitigation options shall be identified in the Tree Mitigation Plan.

A. On-Site or Off-Site Replacement. The plan shall specify where the tree(s) shall be planted and how the tree(s) shall be monitored and maintained for a minimum of five years. The City may require the establishment of a performance bond or other surety as a way to ensure that the replacement trees survive for the minimum establishment period. The City will allow the use of on-site trees planted under a mitigation plan as a way to meet any other on-site landscaping requirement, including parking lot shading, street landscaping, and street trees on residential lots.
B. Payment of an In-Lieu Fee as Adopted by Resolution of the City Council. The applicant may pay an in-lieu fee for the loss of the tree(s) at a rate established by the City Council. Such monies shall be deposited in the tree preservation fund.

C. Credit for Existing Trees Smaller Than When a Permit Is Required. An applicant may be entitled to mitigation credit when they preserve species of trees that are listed in EGMC Section 19.12.040 (Trees of local importance) but are smaller than six (6") inches in diameter. The City Arborist shall make the determination after reviewing the location of the tree(s), the quality of the environment (both pre- and post-project) in which the tree(s) is located, potential impacts to the tree(s) from proposed development, and other relevant factors that the City Arborist deems relevant to the long-term viability of the tree(s). If approved for credit, retained trees shall receive a credit of one (1") inch per tree for trees between two (2") and five (5") inches in diameter. The City may require the establishment of a performance bond or other surety as a way to ensure that the tree(s) survive for the minimum establishment period.

The following equivalent sizes shall be used whenever new trees are planted (either on site or off site) under a mitigation plan:

- Smaller than fifteen (15) gallon container = one (1") inch diameter.
- Fifteen (15) gallon container or larger = two (2") inch diameter.

7.12 Worker Environmental Awareness Training

We recommend the following measure to ensure that construction crews understand potential biological resource concerns and the need for awareness during construction.

Prior to any ground-disturbing or vegetation-removal activities, a Worker Environmental Awareness Training (WEAT) shall be prepared and administered to the construction crews. The WEAT will address the state and federal Endangered Species Act; the Clean Water Act and/or Porter-Cologne; the Project's permits and CEQA documentation and associated mitigation measures; consequences and penalties for violation or noncompliance with applicable laws and regulations; identification of special-status wildlife; location of any avoided resources; hazardous substance spill prevention and containment measures; and the contact person in the event of the discovery of a special-status species. The WEAT will also discuss the different habitats used by the species' different life stages and the annual timing of these life stages. A handout summarizing the WEAT information shall be provided to workers to keep on-site for future reference. Upon completion of the WEAT training, workers will sign a form stating that they attended the training, understand the information presented and will comply with the regulations discussed. Workers will be shown designated avoidance areas during the WEAT training; worker access should be restricted to outside of those areas to minimize the potential for inadvertent environmental impacts. If not already required, fencing and signage around the boundary of avoidance areas may be helpful.

8.0 REFERENCES

Airola, Daniel A., Deren Ross, Christopher W. Swarth, Dawn Lasprugato, Robert J. Meese, and Montana C. Marshall. 2016. *Breeding Status of the Tricolored Blackbird in the Grassland-Dominated Region of the Sierra Nevada, California in 2016*

Bumble Bee Watch (BBW). 2024. Query of the Bumble Bee Sightings Map database. https://www.bumblebeewatch.org/app/#/bees/map. Accessed December 2024.

Bury, R. Bruce, Hartwell H Welsh, Jr., David J Germano, and Donald T. Ashton, editors. 2012. *Western Pond Turtle: Biology, Sampling Techniques, Inventory and Monitoring, Conservation, and Management*. In Northwest Fauna Number 7, Society For Northwestern Vertebrate Biology, Olympia, Washington.

California Burrowing Owl Consortium (CBOC). 1993. *Burrowing Owl Survey Protocol and Mitigation Guidelines*. Dated April 1993.

California Department of Fish and Game (CDFG). 1995. *Staff Report on Burrowing Owl Mitigation*. Dated 25 September 1995.

California Department of Fish and Game (CDFG). 2012. *Staff Report on Burrowing Owl Mitigation*. Dated 7 March 2012.

California Department of Fish and Wildlife (CDFW). 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. State of California Natural Resource Agency Department of Fish and Wildlife. 20 March.

California Department of Fish and Wildlife (CDFW). 2023. *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*. Published June 6 2023.

California Native Plant Society (CNPS). 2024. Inventory of Rare and Endangered Plants (online edition, v9.5). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org. Accessed 1 November 2024.

California Native Plant Society (CNPS). 2001. *CNPS botanical survey guidelines*. Pages 38-40 in California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (D.P. Tibor, editor). Sixth edition. Special Publication No. 1, California Native Plant Society, Sacramento, 387 pp.

California Natural Diversity Database (CNDDB). 2024. *RareFind 6*. California Department of Fish and Wildlife. Accessed December 2024.

City of Elk Grove. 2021. *Elk Grove General Plan*. Adopted August 11 2021.

Cornell Lab of Ornithology. 2024. *eBird database queries for the Study Area and surrounding region*. https://ebird.org/. Accessed December 2024.

Eng, L., D. Belk, and C. Eriksen. 1990. *Californian Anostraca: Distribution, Habitat, and Status*. Journal of Crustacean Biology 10(2):247-277.

Eriksen, C. and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Mad River Press, Inc. Eureka, CA.

Fugate, M. 1992. *Speciation in the fairy shrimp genus* Branchinecta *(Crustacea: Anostraca) from North America*. Ph.D. thesis, University of California, Riverside.

Hatfield, R., Jepsen, S., Thorp, R., Richardson, L. & Colla, S. 2014. *Bombus bimaculatus*. The IUCN Red List of Threatened Species 2014: e.T44937719A69000240.

iNaturalist. 2024. *iNaturalist Observation Database*. https://www.inaturalist.org/. Accessed December 2024.

International Union for Conservation of Nature and Natural Resources (IUCN). 2023. *RED List information for Crotch bumble bee*. Available online at https://www.iucnredlist.org/species/44937582/46440211. Accessed November.

Meese, R.J. 2014. *Results of the 2014 Tricolored Blackbird Statewide Survey*. Available from the Tricolored Blackbird Portal: http://tricolor.ice.ucdavis.edu/reports

Shedd, J.O. 2017. *Distribution of the Western Spadefoot (Spea hammondii) in the Northern Sacramento Valley of California, with Comments on Status and Survey Methodology* (PDF Download Available). Available from: https://www.researchgate.net/publication/312153742_Distribution_of_the_Western_Spadefoot_Spea_hammondii_in_the_Northern_Sacramento_Valley_of_California_with_Comments_on_Status_and_Survey_Methodology.

Shuford, W. D., and Gardali, T., editors. 2008. *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California*. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture (NRCS). 2024. *Web Soil Survey*. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed December 2024.

Thorp, R.W., Horning, D.S., & Dunning, L.L. 1983. *Bumble bees and cuckoo bumble bees of California* (Hymenoptera, Apidae).

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 1996. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*. Sacramento, CA.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2005. *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*. Portland, Oregon. xxvi + 606 pages.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2020. *Monarch* (Danaus plexippus) *Species Status Assessment Report*. September.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2024. *IPaC Trust Resource Report for the Study Area.* Generated from http://ecos.fws.gov/ipac/ on 16 December 2024.

U.S. Geological Survey (USGS). 2022. *"Elk Grove, California"* 7.5-Minute Series Topographic Quadrangle Map. U.S. Geological Survey. Denver, Colorado.

Western Bat Working Group (WBWG). 2024. *Species Matrix and Species Accounts*. Available on-line at http://wbwg.org/ . Accessed December 2024.

Western Monarch and Milkweed Occurrence Database. 2024. *Data accessed from the Western Monarch Milkweed Mapper, a project by the Xerces Society, U.S. Fish and Wildlife Service, Idaho Department of Fish and Game, and Washington Department of Fish and Wildlife*. Available: www.monarchmilkweedmapper.org. Accessed: December 2024.

Williams, D. F. 1986. *Mammalian Species of Special Concern in California*. State of California Department of Fish and Game, Wildlife Management Division. Sacramento, California. 112pp.

Williams, P. H., R. W. Thorp, L. L. Richardson, and S. R. Colla. 2014. *The Bumble bees of North America: An Identification guide*. Princeton University Press, Princeton.

Xerxes Society for Invertebrate Conservation (Xerxes Society). 2024. *Western monarch overwintering site viewer*. Accessed December 2024.

Figures

Figure 1. Site and Vicinity

Figure 2. Programmatic Project Areas

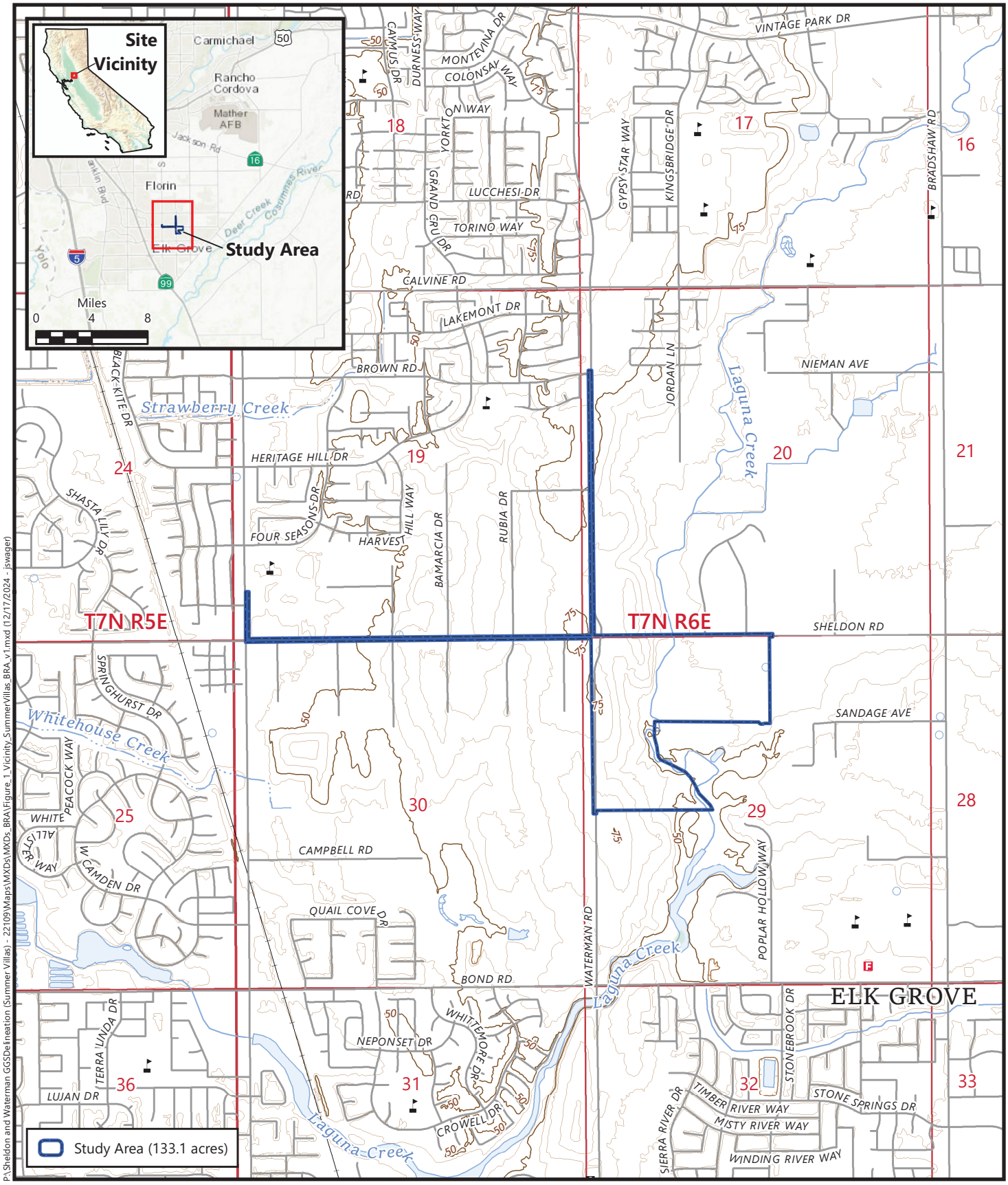
Figure 3. California Natural Diversity Database Occurrences of Plant Species

Figure 4. California Natural Diversity Database Occurrences of Wildlife Species

Figure 5. Terrestrial Vegetation Communities and Aquatic Resources in the Study Area

Figure 6. Natural Resources Conservation Service Soils

Figure 7. Impacts Associated with Potential Development Plan



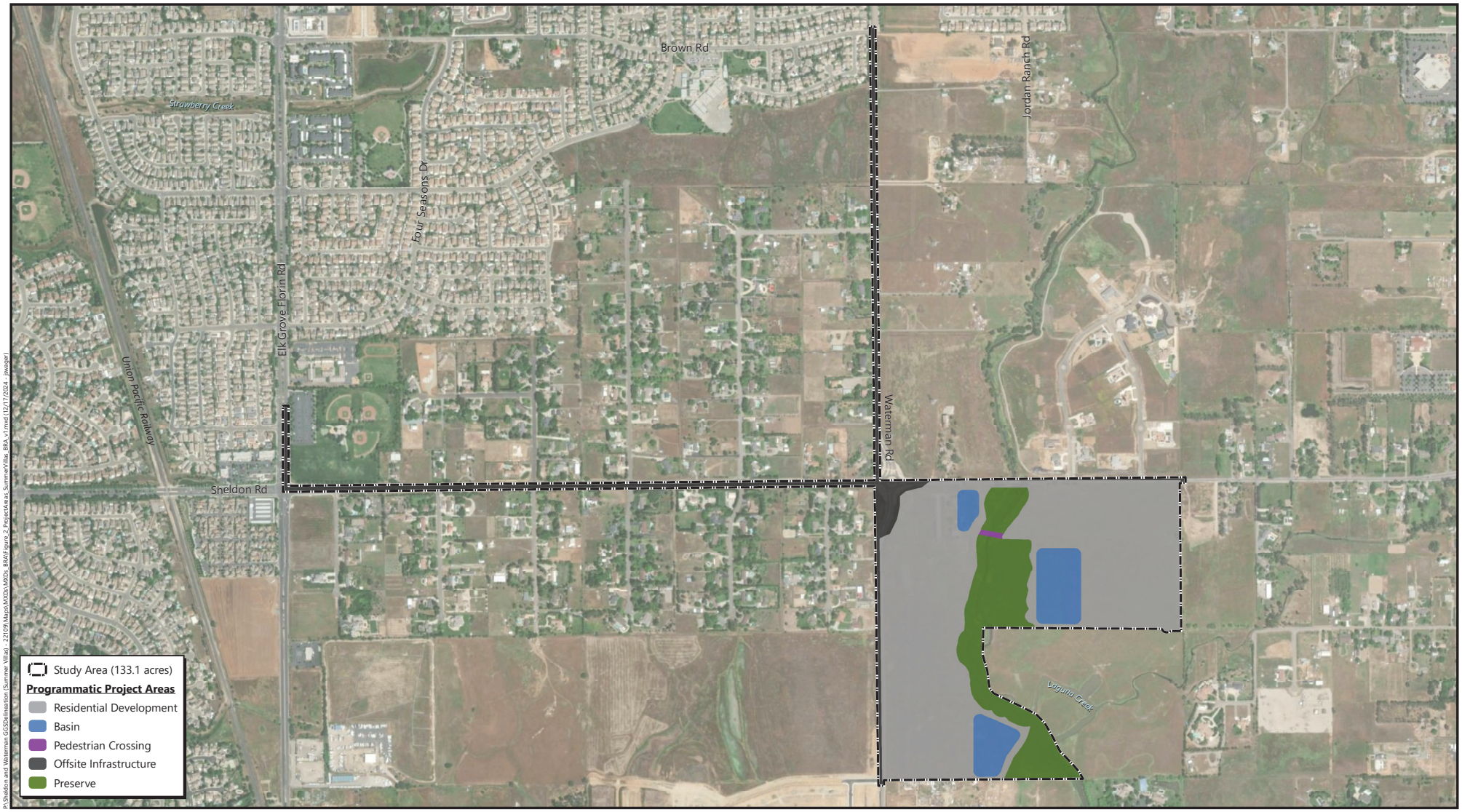
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Source: United States Geologic Survey, 2022
"Elk Grove, California" 7.5-Minute Topographic Quadrangle
Sections 19-20, 29-30, Township 7 North, Range 6 East, MDBM
Latitude (NAD83): 38.435564°, Longitude (NAD83): -121.350312°

Figure 1
Site and Vicinity

Summer Villas
Elk Grove, Sacramento County, California

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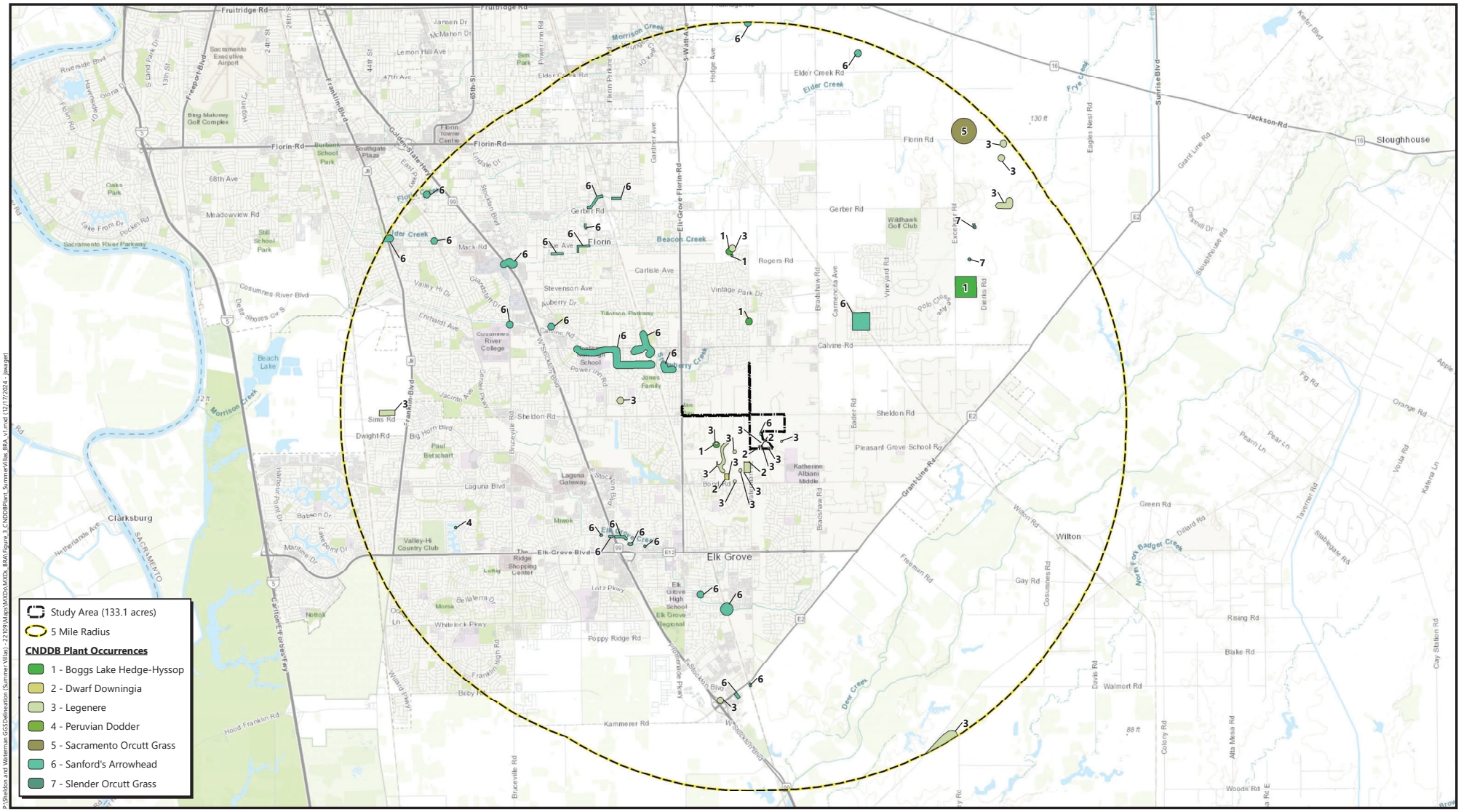
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Boundary Source: Wood Rodgers
Aerial Source: Maxar, 26 April 2022

Figure 2
Programmatic Project Areas

Summer Villas
Elk Grove, Sacramento County, California

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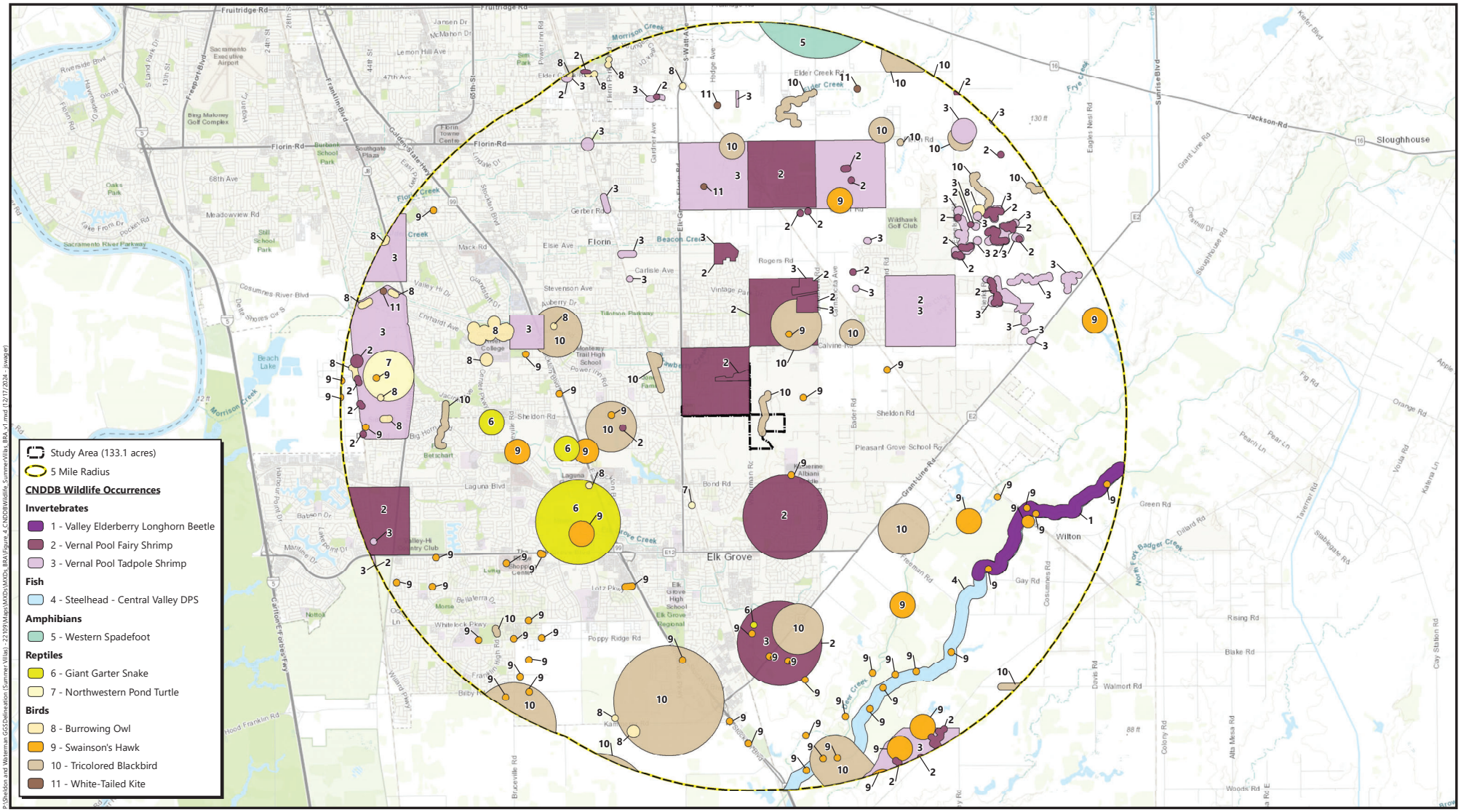
Source: California Department of Fish and Wildlife, November 2024
Basemap Source: ESRI World Topographic Map

Figure 3
California Natural Diversity Database Occurrences of Plant Species

Summer Villas
Elk Grove, Sacramento County, California

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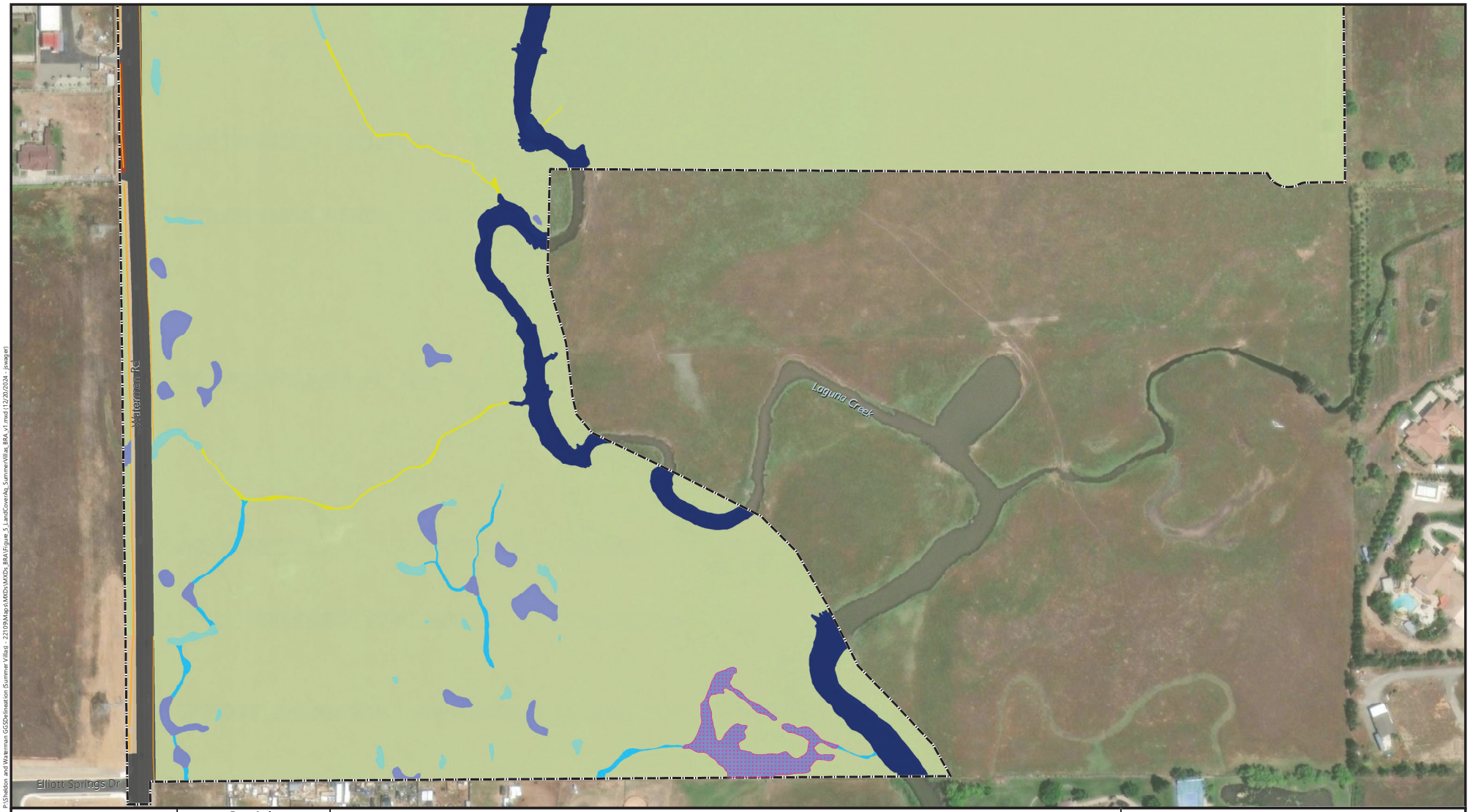
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Source: California Department of Fish and Wildlife, November 2024
Basemap Source: ESRI World Topographic Map

Figure 4
California Natural Diversity Database Occurrences of Wildlife Species

Summer Villas
Elk Grove, Sacramento County, California

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Boundary Source: Wood Rodgers
Aerial Source: Maxar, 26 April 2022

Page Index



Study Area (133.1 acres)

Special-Status Plant Populations

Legenere limosa (0.525 acre)

Overall Terrestrial Vegetation (127.0 acres)

- Annual Grassland (107.1 acres)
- Road (13.1 acres)
- Ruderal (1.7 acres)
- Rural Residential (3.7 acres)
- Unvegetated (1.4 acres)

Overall Aquatic Resources (6.12 acres)

Wetlands (2.03 acres)

- Seasonal Wetland (0.45 acre)
- Seasonal Wetland Swale (0.29 acre)
- Vernal Pool (1.30 acres)

Other Waters (4.09 acres)

- Creek (3.26 acres)
- Detention Basin (0.21 acre)
- Ephemeral Drainage (0.14 acre)
- Roadside Ditch (0.49 acre)

Figure 5
Terrestrial Vegetation Communites and Aquatic Resources in the Study Area
(Page 1 of 6)
Summer Villas
Elk Grove, Sacramento, California

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Boundary Source: Wood Rodgers
Aerial Source: Maxar, 26 April 2022

Page Index



Study Area (133.1 acres)

Overall Terrestrial Vegetation (127.0 acres)
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Figure 5
Terrestrial Vegetation Communites and Aquatic Resources in the Study Area
(Page 2 of 6)
Summer Villas
Elk Grove, Sacramento, California

MADRONE ECOLOGICAL CONSULTING



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Boundary Source: Wood Rodgers
Aerial Source: Maxar, 26 April 2022

Page Index



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Figure 5
Terrestrial Vegetation Communites and Aquatic Resources in the Study Area
(Page 3 of 6)

Summer Villas
Elk Grove, Sacramento, California

MADRONE ECOLOGICAL CONSULTING

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Boundary Source: Wood Rodgers
Aerial Source: Maxar, 26 April 2022

Page Index



Study Area (133.1 acres)

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- Roadside Ditch (0.49 acre)

Figure 5
Terrestrial Vegetation Communites and Aquatic Resources in the Study Area
(Page 4 of 6)
Summer Villas
Elk Grove, Sacramento, California

MADRONE ECOLOGICAL CONSULTING



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Boundary Source: Wood Rodgers
Aerial Source: Maxar, 26 April 2022

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Figure 5
Terrestrial Vegetation Communites and Aquatic Resources in the Study Area
(Page 5 of 6)
Summer Villas
Elk Grove, Sacramento, California

MADRONE ECOLOGICAL CONSULTING

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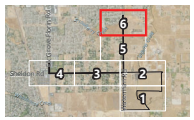


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Boundary Source: Wood Rodgers
Aerial Source: Maxar, 26 April 2022

Page Index



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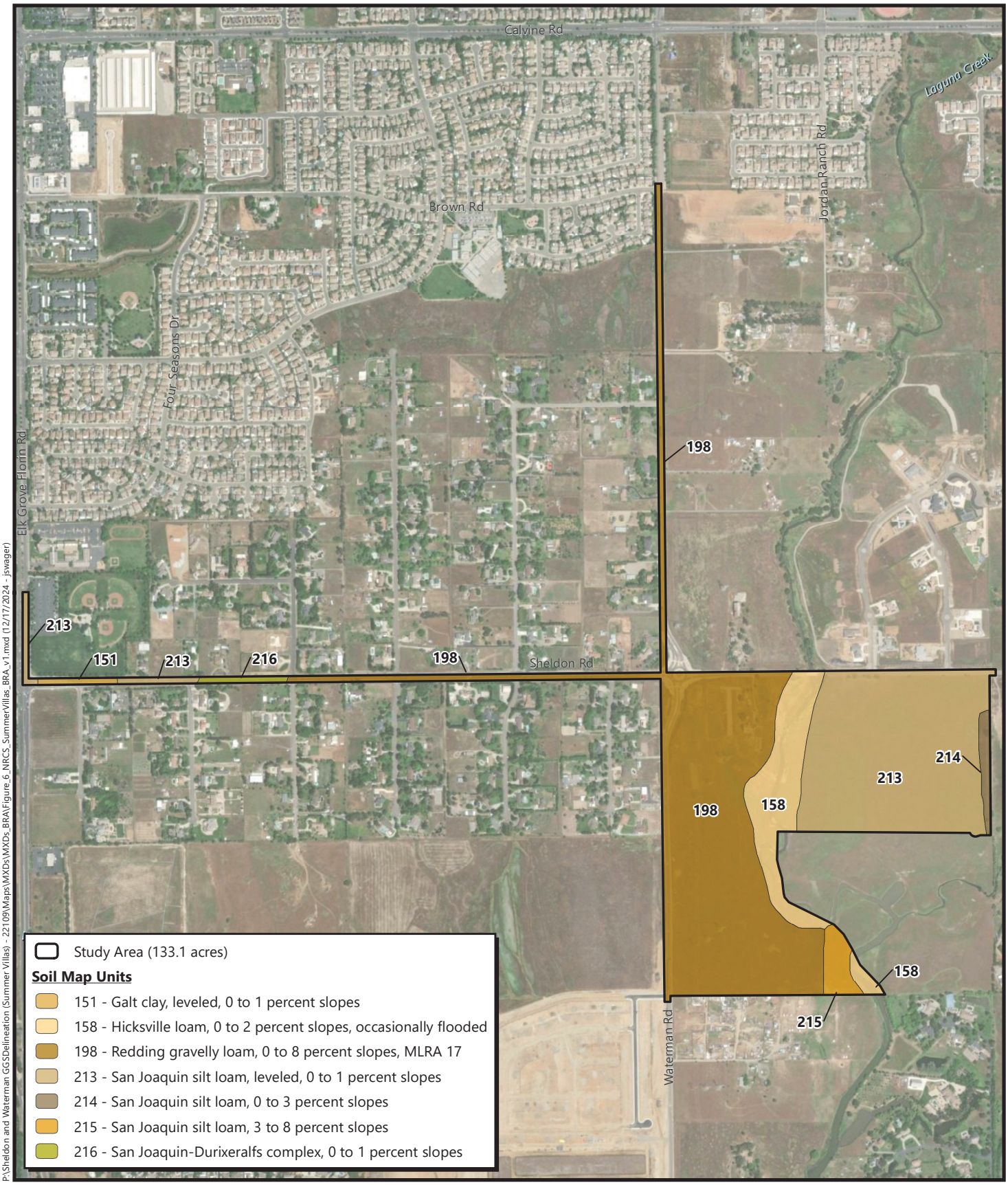
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- Ephemeral Drainage (0.14 acre)
- Roadside Ditch (0.49 acre)

Figure 5
Terrestrial Vegetation Communites and Aquatic Resources in the Study Area
(Page 6 of 6)

Summer Villas
Elk Grove, Sacramento, California

MADRONE ECOLOGICAL CONSULTING

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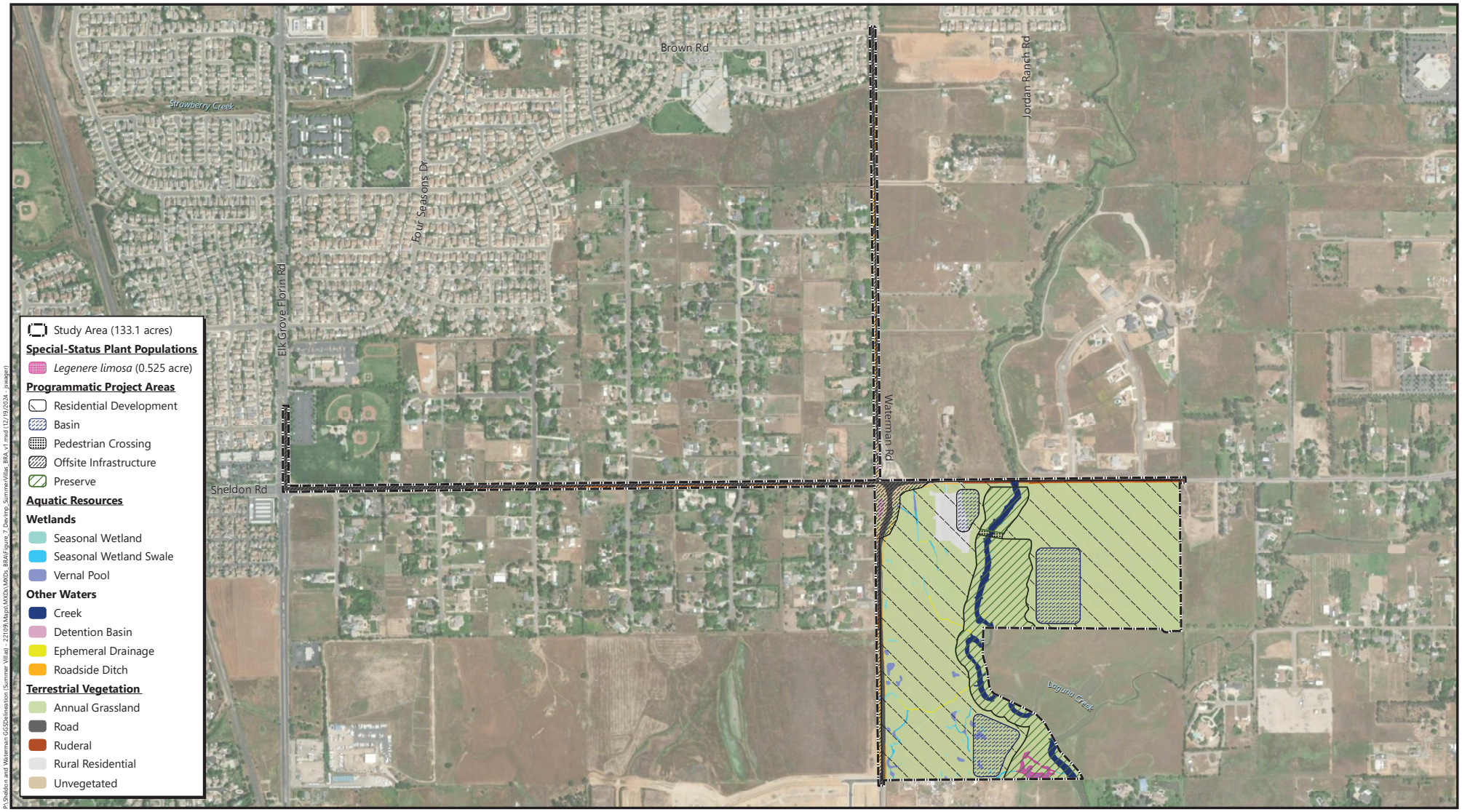
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Soil Survey Source: *USDA, Natural Resources Conservation Service Soil Survey Geographic (SSURGO) database for Sacramento County, California*
Aerial Source: Maxar, 26 April 2022

Figure 6
Natural Resources Conservation Service Soils

Summer Villas
Elk Grove, Sacramento County, California

MADRONE ECOLOGICAL CONSULTING



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Boundary Source: Wood Rodgers
Aerial Source: Maxar, 26 April 2022

Figure 7
Impacts Associated with Potential Development Plan

Summer Villas
Elk Grove, Sacramento County, California

MADRONE ECOLOGICAL CONSULTING

Attachments

Attachment A. General Plan Amendment Exhibit, Summer Villas

Attachment B. IPaC Trust Resource Report for the Study Area

Attachment C. CNPS Inventory of Rare and Endangered Plants Query for the "Elk Grove, California" USGS Quadrangle and Eight Surrounding Quadrangles

Attachment D. Preliminary Jurisdictional Determination and Aquatic Resource Delineation Map

Attachment E. Special-Status Plant Survey Report

Attachment F. Giant Garter Snake Habitat Assessment

Attachment A

General Plan Amendment Exhibit
Summer Villas

GENERAL PLAN AMENDMENT EXHIBIT

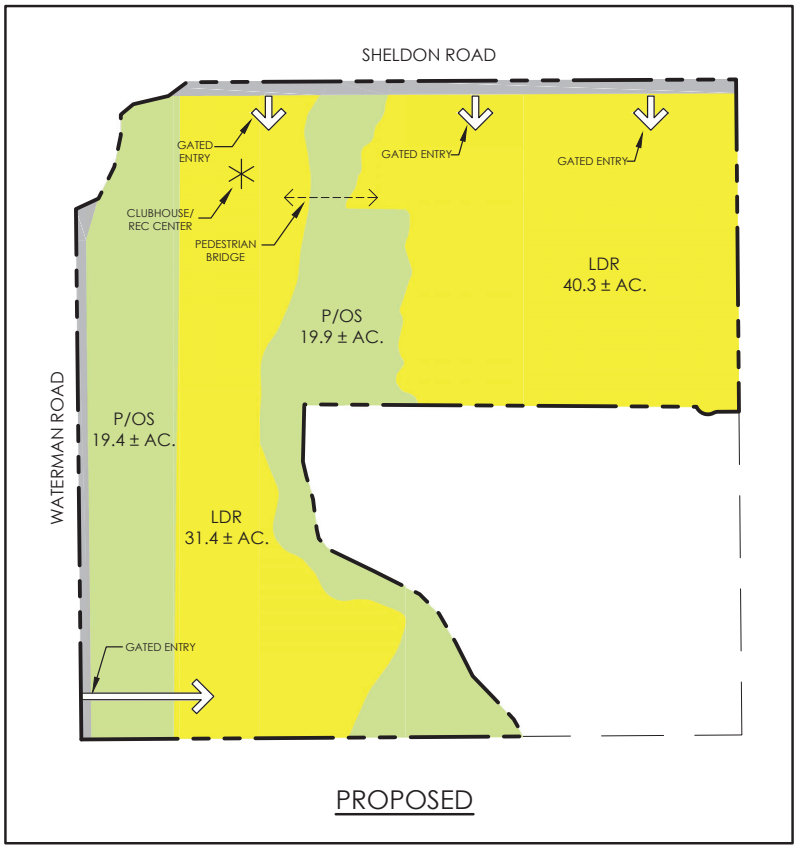
SUMMER VILLAS

CITY OF ELK GROVE, CALIFORNIA

OCTOBER 13, 2023



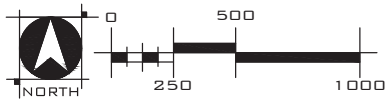
EXISTING



PROPOSED

SUMMARY TABLE

	DESIGNATION	LAND USE	EXISTING AC.	PROPOSED AC.	DIFF.
	RR	AGRICULTURAL RESIDENTIAL	115.9	0.0	-115.9
	LDR	LOW DENSITY RESIDENTIAL	0.0	71.7	71.7
	P/OS	PARKS AND OPEN SPACE	0.0	39.3	39.3
	RIGHT OF WAY	WATERMAN ROAD & SHELDON ROAD	0.0	4.9	4.9
	TOTAL		**115.9**	**115.9**	**0.0**



WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
3301 C St, Bldg. 100-B
Sacramento, CA 95816
Tel 916.341.7760
Fax 916.341.7767

X:\1000s-1999s-Sheldon Farms SE - City\Planning\Exhibits\SEPL_GPA_EXZ_20230000Z.dwg 10/13/2023 1:37 PM Abby Kleinwaks

Attachment B

IPaC Trust Resource Report
for the Study Area

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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Location

Sacramento County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

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Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

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2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened
Northwestern Pond Turtle *Actinemys marmorata* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
Western Spadefoot *Spea hammondii* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* Wherever found There is **proposed** critical habitat for this species. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

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NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Sacramento Orcutt Grass *Orcuttia viscida* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5507	Endangered
Slender Orcutt Grass *Orcuttia tenuis* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1063	Threatened

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Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

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NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31

Golden Eagle Aquila chrysaetos

Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

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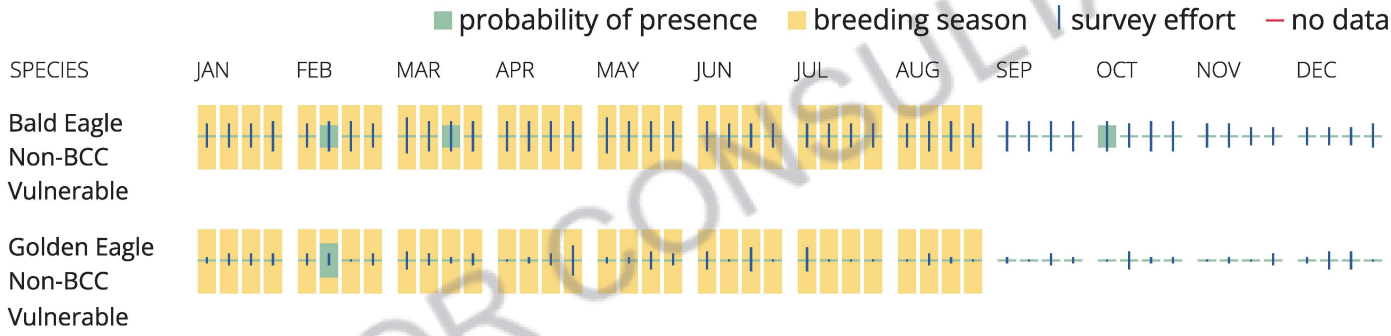
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid

cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around

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your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Common Yellowthroat *Geothlypis trichas sinuosa* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31

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Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Spinus lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Northern Harrier Circus hudsonius — Breeds Apr 1 to Sep 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker Dryobates nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Santa Barbara Song Sparrow Melospiza melodia graminea — Breeds Mar 1 to Sep 5

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/5513

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

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Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
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To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

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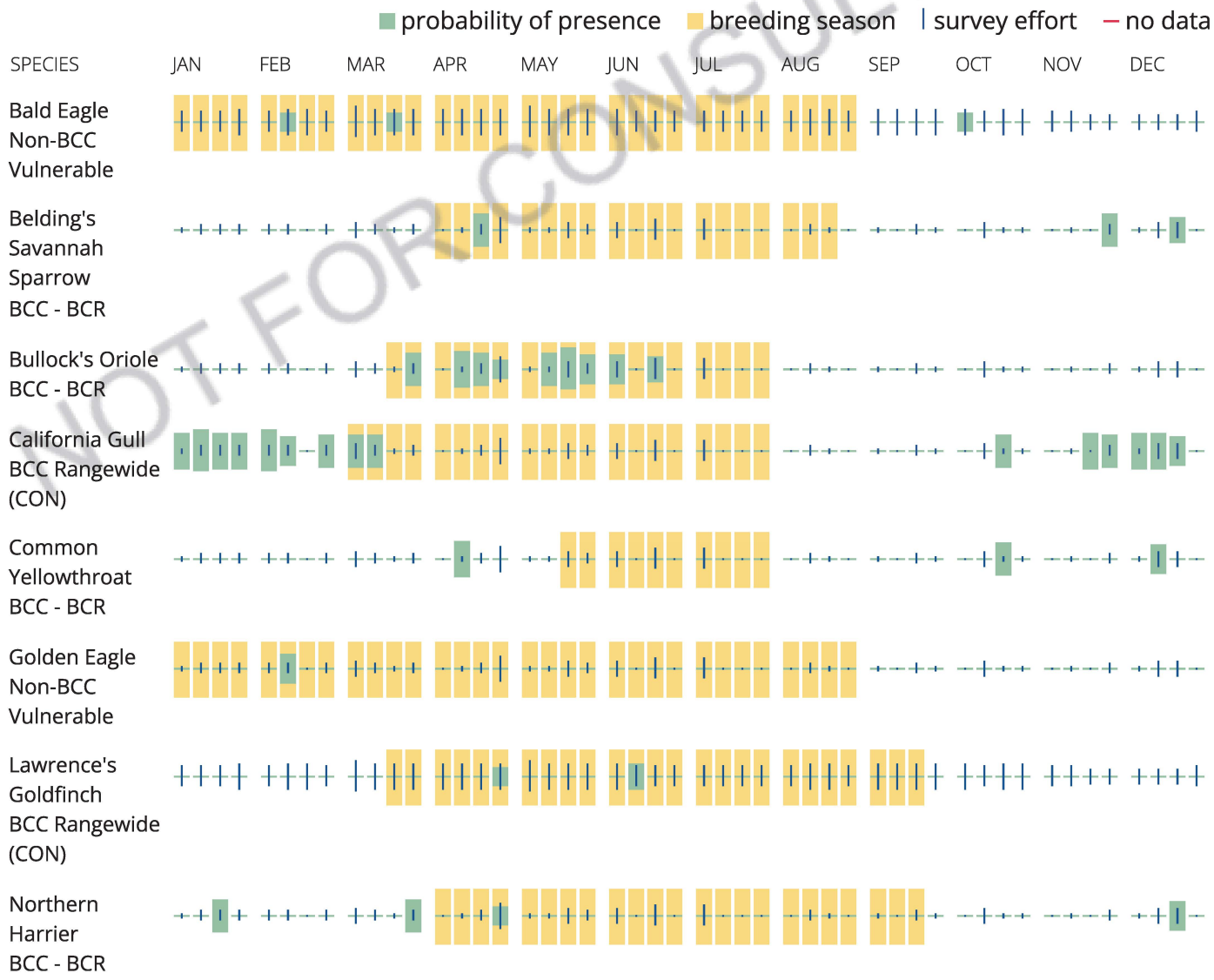
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

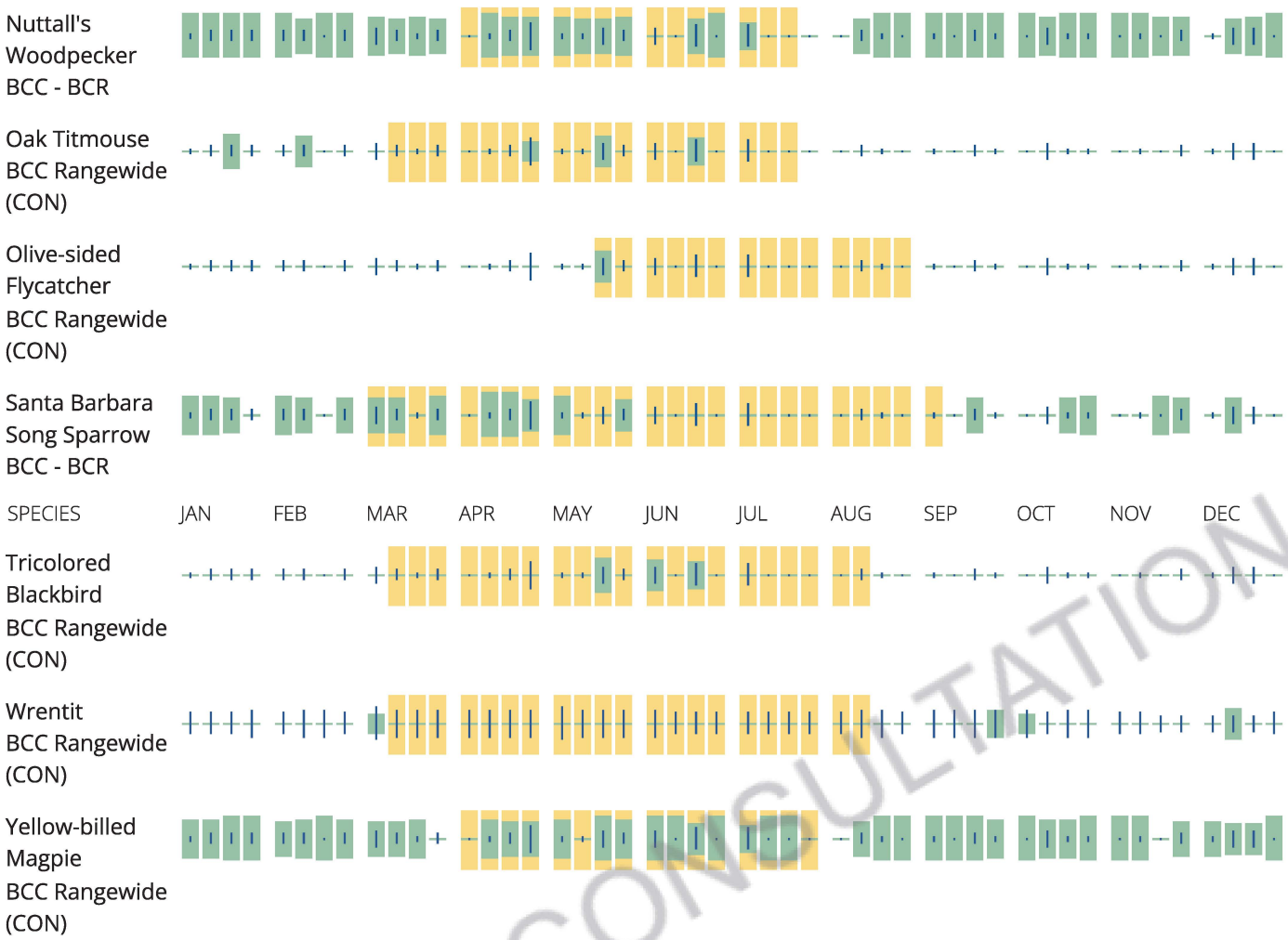
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

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Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

NOT FOR CONSULTATION

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

PEM1C

FRESHWATER FORESTED/SHRUB WETLAND

PSSC

FRESHWATER POND

PUBHx

PUBFx

RIVERINE

R4SBC

R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

NOT FOR CONSULTATION

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Attachment C

CNPS Inventory of Rare and Endangered Plants Query for the "Elk Grove, California" USGS Quadrangle and Eight Surrounding Quadrangles

CALIFORNIA NATIVE PLANT SOCIETY

CNPS Rare Plant Inventory

Search Results

21 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [**1A:1B:2A:2B:3**] , 9-Quad include [**3812132:3812153:3812143:3812142:3812133:3812152:3812144:3812134:3812154**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	BLOOMING PERIOD	FED LIST	STATE LIST	CA RARE PLANT RANK	GENERAL HABITATS	MICROHABITATS	LOWEST ELEVATION (FT)	HIGHEST ELEVATION (FT)
Brasenia schreberi	watershield	Cabombaceae	Jun-Sep	None	None	2B.3	Marshes and swamps (freshwater)		0	7220
Calycadenia spicata	spicate calycadenia	Asteraceae	May-Sep	None	None	1B.3	Cismontane woodland, Valley and foothill grassland	Adobe, Clay, Disturbed areas, Dry, Gravelly, Openings, Roadsides, Rocky	130	4595
Carex comosa	bristly sedge	Cyperaceae	May-Sep	None	None	2B.1	Coastal prairie, Marshes and swamps (lake margins), Valley and foothill grassland		0	2050
Cicuta maculata var. *bolanderi*	Bolander's water-hemlock	Apiaceae	Jul-Sep	None	None	2B.1	Marshes and swamps (brackish, coastal, freshwater)		0	655
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	Convolvulaceae	Jul-Oct	None	None	2B.2	Marshes and swamps (freshwater)		50	920
Downingia pusilla	dwarf downingia	Campanulaceae	Mar-May	None	None	2B.2	Valley and foothill grassland (mesic), Vernal pools		5	1460
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	Apr-Aug	None	CE	1B.2	Marshes and swamps (lake margins), Vernal pools	Clay	35	7790
Hibiscus lasiocarpos var. *occidentalis*	woolly rose-mallow	Malvaceae	Jun-Sep	None	None	1B.2	Marshes and swamps (freshwater)		0	395

Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	Juncaceae	Mar-May	None	None	1B.2	Valley and foothill grassland (mesic)		100	750
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	Feb-Apr	None	None	1B.1	Vernal pools	Alkaline	0	655
Lathyrus jepsonii var. *jepsonii*	Delta tule pea	Fabaceae	May-Jul(Aug-Sep)	None	None	1B.2	Marshes and swamps (brackish, freshwater)		0	15
Legenere limosa	legenere	Campanulaceae	Apr-Jun	None	None	1B.1	Vernal pools		5	2885
Lepidium latipes var. *heckardii*	Heckard's pepper-grass	Brassicaceae	Mar-May	None	None	1B.2	Valley and foothill grassland (alkaline flats)		5	655
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	Apr-Nov	None	CR	1B.1	Marshes and swamps (brackish, freshwater), Riparian scrub		0	35
Limosella australis	Delta mudwort	Scrophulariaceae	May-Aug	None	None	2B.1	Marshes and swamps (brackish, freshwater), Riparian scrub	Streambanks (usually)	0	10
Orcuttia tenuis	slender Orcutt grass	Poaceae	May-Sep(Oct)	FT	CE	1B.1	Vernal pools	Gravelly (often)	115	5775
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	Apr-Jul(Sep)	FE	CE	1B.1	Vernal pools		100	330
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	May-Oct(Nov)	None	None	1B.2	Marshes and swamps (shallow freshwater)		0	2135
Scutellaria galericulata	marsh skullcap	Lamiaceae	Jun-Sep	None	None	2B.2	Lower montane coniferous forest, Marshes and swamps, Meadows and seeps (mesic)		0	6890
Scutellaria lateriflora	side-flowering skullcap	Lamiaceae	Jul-Sep	None	None	2B.2	Marshes and swamps, Meadows and seeps (mesic)		0	1640
Trifolium hydrophilum	saline clover	Fabaceae	Apr-Jun	None	None	1B.2	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools		0	985

Showing 1 to 21 of 21 entries

Suggested Citation:

Attachment D

Preliminary Jurisdictional Determination and Aquatic Resource Delineation Map

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

May 26, 2023

Regulatory Division (SPK-1990-01278)

Sheldon Business Park
Attn: Mr. Bryan Wilson
8940 Elder Creek Road
Sacramento, California 95829-1031
bryancwr@gmail.com

Dear Mr. Wilson:

We are responding to your March 10, 2023, request for a preliminary jurisdictional determination (JD) for the *Sheldon at Waterman site*. The approximately 161-acre project site is located on 9350 Sheldon Road, Latitude 38.43448°, Longitude -121.34858°, Elk Grove, Sacramento County, California.

Based on available information, we concur with your aquatic resources delineation for the site as depicted on the enclosed January 10, 2023, *Aquatic Resources Delineation Sheldon at Waterman Sacramento County, California* drawing prepared by Madrone Ecological Consulting (*enclosure 1*). The approximately 3.18 acres of wetlands, 6.24 acre of creek, 0.14 acre of ephemeral drainage, and 3,630 linear feet of roadside ditch present within the survey area are potential jurisdictional aquatic resources ("waters of the United States") regulated under Section 404 of the Clean Water Act. This letter verifies that the location and boundaries of wetlands were delineated consistent with the wetland definition at 33 CFR §328.3(c)(16), the 1987 *Corps of Engineers Wetlands Delineation Manual* (Wetlands Research Program Technical Report Y-87-1) and the applicable regional supplements; the location and boundaries of tidal waters conform with the high tide line defined at 33 CFR §328.3(c)(4); and the location and boundaries of non-tidal waters conform with the ordinary high water mark definition at 33 CFR §328.3(c)(7), Regulatory Guidance Letter 05-05, and any applicable regional guide.

At your request, we have completed a preliminary JD for the site. Enclosed find a copy of the *Preliminary Jurisdictional Determination Form* (*enclosure 2*). Please sign and return the completed form to the address listed below within 30 days of the date of this letter. If you do not return the signed form within 30 days, we will presume concurrence and finalize the preliminary jurisdictional determination.

We recommend you provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries for the particular site identified in this request. This preliminary jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work.

You may request an approved JD for this site at any time prior to starting work within waters, including after a permit decision is made. To request an approved JD for this site, complete the attached *Request for Aquatic Resources Delineation or Jurisdictional Determination Form* (*enclosure 3*) and return it to this office at the address listed below. A *Notification of Appeal Process and Request for Appeal Form* is attached below to notify you of your options with this determination.

We appreciate feedback, especially about interactions with our staff and processes.

Please refer to identification number SPK-1990-01278 in any correspondence concerning this project. If you have any questions, please contact Jeffrey Wang by email at *Jeffrey.H.Wang@usace.army.mil*, or telephone at (916) 557-5269. For program information or to complete our Customer Survey, visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx*.

Sincerely,



FOR
Mary Pakenham-Walsh
Chief, CA Delta Section

Enclosures
cc: Sarah VonderOhe, Madrone Ecological Consulting, *svonderohe@MadroneEco.com*

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: Sheldon Business Park, Attn: Mr. Bryan Wilson	File No.: SPK-1990-01278	Date: May 26, 2023
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
→	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at *http://www.usace.army.mil/cecw/pages/reg_materials.aspx* or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process, you may contact:

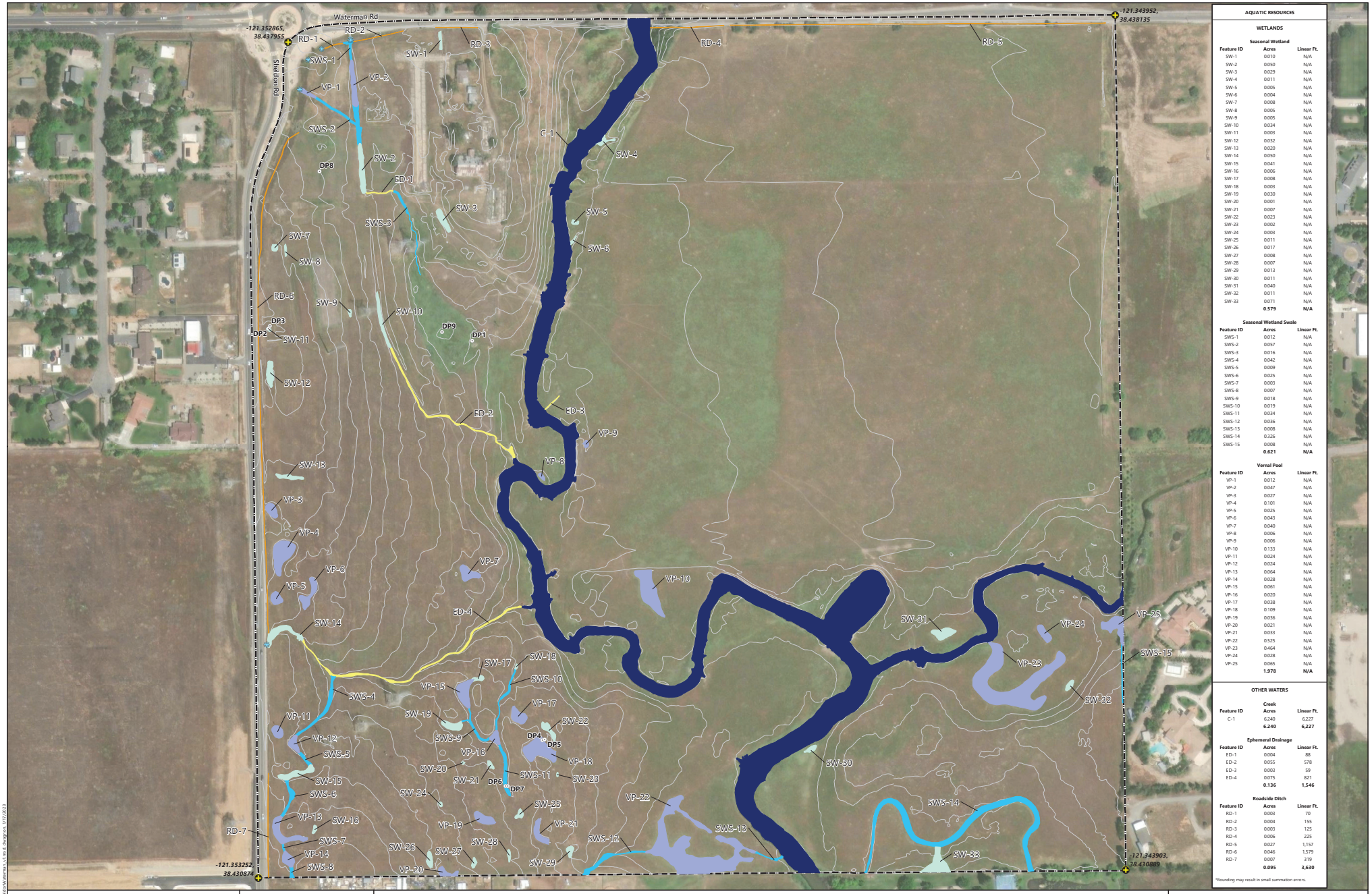
Jeffrey Wang
Regulatory Project Manager
Delta Section
U.S. Army Corps of Engineers
1325 J Street, Sacramento, CA 95814
Phone: (916) 557-5269, FAX 916-557-7803
Email: *Jeffrey.H.Wang@usace.army.mil*

If you only have questions regarding the appeal process, you may also contact:

Thomas J. Cavanaugh
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division
1455 Market Street, 2052B
San Francisco, California 94103-1399
Phone: 415-503-6574, FAX: 415-503-6646)
Email: *Thomas.J.Cavanaugh@usace.army.mil*

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		



AQUATIC RESOURCES

WETLANDS

Seasonal Wetland

Feature ID	Acres	Linear Ft.
SW-1	0.010	N/A
SW-2	0.050	N/A
SW-3	0.029	N/A
SW-4	0.011	N/A
SW-5	0.005	N/A
SW-6	0.004	N/A
SW-7	0.008	N/A
SW-8	0.005	N/A
SW-9	0.005	N/A
SW-10	0.034	N/A
SW-11	0.003	N/A
SW-12	0.032	N/A
SW-13	0.020	N/A
SW-14	0.050	N/A
SW-15	0.041	N/A
SW-16	0.006	N/A
SW-17	0.008	N/A
SW-18	0.003	N/A
SW-19	0.030	N/A
SW-20	0.001	N/A
SW-21	0.007	N/A
SW-22	0.023	N/A
SW-23	0.002	N/A
SW-24	0.003	N/A
SW-25	0.011	N/A
SW-26	0.017	N/A
SW-27	0.008	N/A
SW-28	0.007	N/A
SW-29	0.013	N/A
SW-30	0.011	N/A
SW-31	0.040	N/A
SW-32	0.011	N/A
SW-33	0.071	N/A
	0.579	**N/A**

Seasonal Wetland Swale

Feature ID	Acres	Linear Ft.
SWS-1	0.012	N/A
SWS-2	0.057	N/A
SWS-3	0.016	N/A
SWS-4	0.042	N/A
SWS-5	0.009	N/A
SWS-6	0.025	N/A
SWS-7	0.003	N/A
SWS-8	0.007	N/A
SWS-9	0.018	N/A
SWS-10	0.019	N/A
SWS-11	0.034	N/A
SWS-12	0.036	N/A
SWS-13	0.008	N/A
SWS-14	0.326	N/A
SWS-15	0.008	N/A
	0.621	**N/A**

Vernal Pool

Feature ID	Acres	Linear Ft.
VP-1	0.012	N/A
VP-2	0.047	N/A
VP-3	0.027	N/A
VP-4	0.101	N/A
VP-5	0.025	N/A
VP-6	0.043	N/A
VP-7	0.040	N/A
VP-8	0.006	N/A
VP-9	0.006	N/A
VP-10	0.133	N/A
VP-11	0.024	N/A
VP-12	0.024	N/A
VP-13	0.064	N/A
VP-14	0.028	N/A
VP-15	0.061	N/A
VP-16	0.020	N/A
VP-17	0.038	N/A
VP-18	0.109	N/A
VP-19	0.036	N/A
VP-20	0.021	N/A
VP-21	0.033	N/A
VP-22	0.525	N/A
VP-23	0.464	N/A
VP-24	0.028	N/A
VP-25	0.065	N/A
	1.978	**N/A**

OTHER WATERS

Creek

Feature ID	Acres	Linear Ft.
C-1	6.240	6,227
	6.240	**6,227**

Ephemeral Drainage

Feature ID	Acres	Linear Ft.
ED-1	0.004	88
ED-2	0.055	578
ED-3	0.003	59
ED-4	0.075	821
	0.136	**1,546**

Roadside Ditch

Feature ID	Acres	Linear Ft.
RD-1	0.003	70
RD-2	0.004	155
RD-3	0.003	125
RD-4	0.006	225
RD-5	0.027	1,157
RD-6	0.046	1,579
RD-7	0.007	319
	0.095	**3,630**

*Rounding may result in small summation errors.

Notes:
Map Scale: 1 inch = 200 feet
Coordinate System: NAD 1983 State Plane California II
Datum: NAD83 (North American Datum 1983)
Projection: Lambert Conformal Conic
Vertical Data: NAVD88 (North American Vertical Datum 1988)
Topographic Data: 2-ft. Contours, Wood Rodgers, 2016
2-ft. Contours, Sacramento County, 2018
Aerial Base: Maxar, WV02, 26 April 2022
Date Map Prepared: 10 January 2023
Map Prepared by: D. Wagnon
Delineation Performed by: D. Snider, D. Brown, M. Shaffer
Definitions:
NAD = North American Datum
NAVD = North American Vertical Datum
USGS = United States Geological Survey

Prepared For:
Bryan Wilson
Sheldon Business Park
8940 Elder Creek Road
Sacramento, CA 95829

N
Feet
0 100 200

- Study Area Boundary (161 acres)
- Data Points
- Culverts
- Reference Points
- 2-ft. Topographic Contours

Aquatic Resources (9.650 acres, 11,403 linear feet)

Wetlands (3.178 acres)
- Seasonal Wetland (0.579 acre)
- Seasonal Wetland Swale (0.621 acre)
- Vernal Pool (1.978 acres)

Other Waters (6.472 acres, 11,403 linear feet)
- Creek (6.240 acres, 6,227 linear feet)
- Ephemeral Drainage (0.136 acre, 1,546 linear feet)
- Roadside Ditch (0.095 acre, 3,630 linear feet)

Aquatic Resources Delineation

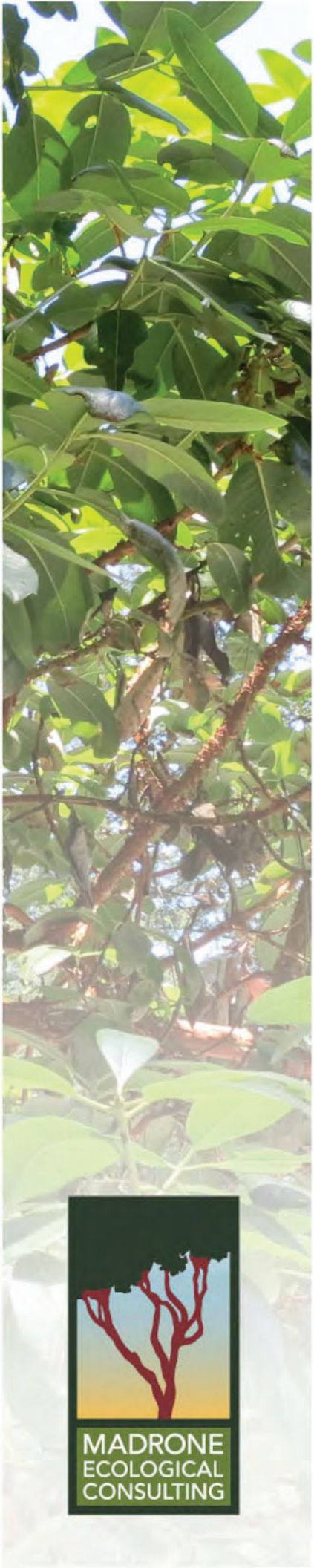
Sheldon at Waterman
Sacramento County, California

MADRONE ECOLOGICAL CONSULTING
8421 Auburn Boulevard, Suite 248
Citrus Heights, California 95610
(916) 822.3230 | www.madroneeco.com

C:\Projects\2019\Sheldon\Waterman\MXD\JANDS_AERIALSACS_ARD_Sheldon@Waterman_Vernal_Pools.mxd 1/17/2023

Attachment E

Special-Status Plant Survey Report



Special-Status Plant Survey Report

Summer Villas

City of Elk Grove, Sacramento County

November 2024

MADRONE ECOLOGICAL CONSULTING

Prepared for:
Bryan Wilson
Sheldon Business Park
8940 Elder Creek Road
Sacramento, CA 95829

Recommended Citation:
Madrone Ecological Consulting, LLC (Madrone). 2024. *Special-Status Plant Survey Report for Summer Villas*. Prepared for Bryan Wilson. Published on 21 November 2024.

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Summer Villas

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Figure 2. Terrestrial Vegetation and Aquatic Resources

Figure 3. Special-Status Plant Locations

Figure 4. Natural Resources Conservation Service Soils

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Attachment A: Botanist Qualifications

Attachment B: Target Plant Species Reference Population Information

Attachment C: Plant Species Observed within the Summer Villas Study Area

1.0 INTRODUCTION

This report presents the results of special-status plant surveys conducted for the approximately 161-acre Summer Villas Project (Study Area). The Study Area is also known as the Sheldon and Waterman Project. The Study Area is located southeast of the intersection of Waterman Road and Sheldon Road in Sacramento County, California. The Study Area is located in portions of Section 20 and 29, Township 7 North, Range 6 East (MDB&M) of the "Elk Grove, California" 7.5-Minute Series USGS Topographic Quadrangles (USGS 2022) (**Figure 1**).

2.0 METHODOLOGY

Madrone Ecological Consulting, LLC (Madrone) botanist Tara Collins conducted special-status plant surveys of the Study Area on 26 and 29 April, 9 May, and 21 June 2024. The special-status plant surveys were conducted in accordance with the U.S. Fish and Wildlife Service's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 1996), the California Department of Fish and Wildlife's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018), and the *CNPS Botanical Survey Guidelines* (CNPS 2001).

A list of special-status plant species with potential to occur within the Study Area was developed by reviewing the following literature, and then refining the list based on habitats present within the Study Area:

- The California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (CNPS 2024a) query of CRPR Lists 1A, 1B, 2A, 2B, and 3 within the "Elk Grove, California" (USGS 2022) and eight surrounding quadrangles; and
- The California Natural Diversity Database occurrences of special-status plant species within 5 miles of the Study Area (CNDDB 2024).

The target species for this survey were:

- Big-scale balsamroot (*Balsamorhiza macrolepis*);
- Dwarf downingia (*Downingia pusilla*);
- Boggs Lake hedge-hyssop (*Gratiola heterosepala*);
- Ahart's dwarf rush (*Juncus leiospermus var. ahartii*);
- Legenere (*Legenere limosa*);
- Pincushion navarretia (*Navarretia myersii* ssp. *myersii*);
- Slender Orcutt grass (*Orcuttia tenuis)*;
- Sacramento Orcutt grass (*Orcuttia viscida*); and
- Sanford's arrowhead (*Sagittaria sanfordii*).

Meandering pedestrian surveys were conducted throughout the Study Area. The surveys were floristic in nature, which means that all plant species observed on-site were identified to the taxonomic level necessary to determine rarity. Thus, if a special-status plant was present but not on the target list, it would have been detected and documented. Plant taxonomy was based on the nomenclature in the *Jepson eFlora* (Jepson

Flora Project 2024). Vegetation communities were classified according to the *Manual of California Vegetation, Second Edition* as updated online (CNPS 2024b). Qualifications for the botanist that conducted the survey are included in **Attachment A,** a list of reference populations of target plants visited is included in **Attachment B**, and a comprehensive list of all plant species observed during surveys of the Study Area is included in **Attachment C**.

3.0 EXISTING SITE CONDITIONS

The Study Area is characterized by gently rolling topography supporting annual grassland interspersed with wetlands and drainages. Laguna Creek runs north-south through the general center of the site, with an east-west running tributary joining Laguna Creek near the southeast corner. The elevation of the Study Area ranges from approximately 50 to 80 feet. A residential home is present near the northwestern corner of the site with ungrazed lots to the east and west, each approximately 4.5 acres in size. The remainder of the Study Area had been grazed by livestock, mainly cattle, but also a couple horses. Three large power lines run north-south along the western boundary of the Study Area. The Study Area is surrounded by a mixture of residential developments, rural residences and undeveloped land.

3.1 Terrestrial Vegetation Communities

The Study Area includes five terrestrial vegetation types. These are shown on **Figure 2** and described further below.

3.1.1 Annual Brome Grassland

The majority of the Study Area supports the Wild Oats (*Avena* spp.) and Annual Brome (*Bromus* spp.) Herbaceous Semi-Natural Alliance as described in *A California Manual of Vegetation* (CNPS 2024b) (hereafter "annual brome grassland") and is primarily dominated by non-native annual grass species including soft chess (*Bromus hordeaceus*), Mediterranean barley (*Hordeum marinum*), and ryegrass (*Festuca perennis*). Common forb species within the annual brome grassland habitat include hairy hawkbit (*Leontodon saxatilis*), subterraneum clover (*Trifolium subterraneum*), cut leaf geranium (*Geranium dissectum*), and filaree (*Erodium botrys*). Immediately along Laguna Creek and its tributary, the annual brome grassland is interspersed with scattered native riparian vegetation, including Oregon ash (*Fraxinus latifolia*), California button willow (*Cephalanthus occidentalis*), Santa Barbara sedge (*Carex barbarae*), and western goldenrod (*Euthamia occidentalis*), as well as non-native species that often invade riparian areas, including Southern catalpa (*Catalpa bignonioides*), rattlebox (*Sesbania punicea*), eucalyptus (*Eucalyptus sp.*), and Himalayan blackberry (*Rubus armeniacus*). Scattered valley oak (*Quercus lobata*) trees occur along the northern boundary adjacent to Sheldon Road. One small area of a heavy clay inclusion was located near the southeast corner and was dominated by sparse, low-growing forbs, such as Douglas' microseris (*Microseris douglasii*), hairy hawkbit, South American soliva (*Soliva sessilis*), and filaree. The annual brome grasslands were moderately grazed.

3.1.2 Road and Unvegetated

The Study Area includes portions of Sheldon Road and Waterman Road, which are paved single loaded roads with associated road shoulders, most of which were treated with herbicides and generally devoid of vegetation Landscaping and hardscaping occurs in the northwest corner at the round-about intersection of Sheldon Road and Waterman Road. These developed areas do not provide suitable habitat for any special-status plant species and were not included in the special-status plant survey.

3.1.3 Ruderal

A strip along the northern boundary of the Study Area adjacent to Sheldon Road supports ruderal vegetation composed primarily of nonnative plant species characteristic of recently disturbed sites. Dominant plant species within the ruderal vegetation communities in the Study Area include black mustard (*Brassica nigra*), filaree, radish (*Raphanus sativus)*, rose clover, (*Trifolium hirtum*), and Italian thistle (*Carduus pycnocephalus)*.

3.1.4 Rural Residential-Developed

Near the northwest corner of the Study Area is a rural residential-developed area. This area is approximately 2.96-acres in size and includes an occupied house, a garage, graveled/dirt roads, old building foundations, a large covered dirt stockpile, and various disturbed areas with stored materials. Many of these areas are characterized as bare dirt, while others are occupied by landscaping (near the house) and ruderal vegetation (non-native forbs and grasses characteristic of recently disturbed sites). These rural residential-developed areas do not provide suitable habitat for any special-status plant species and were not included in the special-status plant survey.

3.2 Soils

According to the Natural Resources Conservation Service (NRCS) Soil Survey Database (NRCS 2024), five soil mapping units occur within the Study Area (**Figure 3**): (158) Hicksville loam, 0 to 2 percent slopes, occasionally flooded; (198) Redding gravelly loam, 0 to 8 percent slopes, MLRA 17; (213) San Joaquin silt loam, leveled, 0 to 1 percent slopes; (214) San Joaquin silt loam, 0 to 3 percent slopes; and (215) San Joaquin silt loam, 3 to 8 percent slopes. All five soil types are moderately well drained and contain hydric inclusions (NRCS 2024). The various San Joaquin silt loam soil types have low permeability resulting in pooled water for short periods after heavy winter/spring rains or over-irrigation. One small area of heavy clay soils was located in the southeast corner of the Study Area within the (215) San Joaquin silt loam, 3 to 8 percent slopes soil type.

3.3 Aquatic Resources

A protocol-level aquatic resources delineation was conducted for the Study Area (Madrone 2023). Aquatic resources mapped within the Study Area during this survey are depicted in **Figure 2**. **Table 1** summarizes these mapped aquatic resource types and a description by type is included below.

Table 1. Aquatic Resources Mapped within the Study Area

Waters Type	Acreage
Wetlands	
Seasonal Wetland	0.58
Seasonal Wetland Swale	0.62
Vernal Pool	1.98
Other Waters	
Creek (Laguna Creek and Tributary to Laguna Creek)	6.24
Ephemeral Drainage	0.14
Roadside Ditch	0.10
Total	**9.65**

3.2.1 Seasonal Wetland

A number of seasonal wetlands occur within the Study Area. Seasonal wetlands are depressional wetlands that pond water seasonally. These features are often topographically and hydrologically similar to vernal pools, but have a short hydroperiod, and as a result, support a slightly different plant community that is not characterized by a dominance of vernal pool endemics. The seasonal wetlands within the Study Area are largely dominated by ryegrass, Mediterranean barley, hyssop loosestrife (*Lythrum hyssopifolia*), toad rush (*Juncus bufonius*), and great valley popcornflower (*Plagiobothrys stipitatus*).

3.2.2 Seasonal Wetland Swale

The Study Area supports multiple wetland swales. Seasonal wetland swales are sloping, linear seasonal wetlands that convey surface runoff, and may detain it for short periods of time. The most common plants occurring within the wetland swales include ryegrass and Mediterranean barley.

3.2.3 Vernal Pool

The Study Area supports a number of vernal pools. Vernal pools are topographic basins that are underlain with an impermeable or semi-permeable hardpan or duripan layer. Vernal pools inundate during the wet season, and typically dry by late spring and remain dry through the summer months. The vernal pool was differentiated from depressional seasonal wetlands within the Study Area based upon the predominance of vernal pool endemic plant species. The vernal pools were dominated by vernal pool buttercup (*Ranunculus bonariensis*), Mediterranean barley, and great valley popcornflower. Longer ponding vernal pools also

supported creeping spikerush (*Eleocharis macrostachya*), California damasonium (*Damasonium californicum*), and bractless hedge-hyssop (*Gratiola ebracteata*).

3.2.4 Creek

The Study Area includes a portion of Laguna Creek and a portion of one of its tributaries. Laguna Creek is one of the primary creek corridors in southern Sacramento County. Historically, Laguna Creek and its tributaries were dry for much of the year, but agricultural and urban runoff have increasingly caused major sections to flow year-round, including the portions that run through the Study Area. Urbanization along other portions of Laguna Creek has led to issues with minor flooding along the more developed portions of the creek. Laguna Creek supports a mostly unvegetated rocky bottom with the creek margins dominated by the same species as found in the adjacent annual brome grassland, interspersed with scattered native riparian vegetation, including Oregon ash, California button willow, Santa Barbara sedge, and western goldenrod, as well as non-native species that often invade riparian areas, including Southern catalpa, rattlebox, eucalyptus, and Himalayan blackberry.

3.2.5 Ephemeral Drainage

Ephemeral drainages are linear features that exhibit a bed and bank and an OHWM. These features typically convey runoff for short periods of time, during and immediately following rain events, and are not influenced by groundwater sources at any time during the year. Four ephemeral drainages occur in the western portion of the Study Area within the annual brome grassland. These features are vegetated by annual grasses species including ryegrass, Mediterranean barley, and annual blue grass (*Poa annua*).

3.2.6 Roadside Ditch

Several roadside ditches run along the northern edge of the Study Area, on the southern edge of Sheldon Road. Additional roadside ditches occur along the western edge of the site, east of Waterman Road. These ditches are partially graveled and show sign of herbicide use nearby. Ruderal vegetation is present with dominants including turkey-mullein (*Croton setiger*), spotted spurge (*Euphorbia maculata*), and filaree.

4.0 SURVEY RESULTS

4.1 Big-Scale Balsamroot

Big-scale balsamroot (*Balsamorhiza macrolepis*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It is a perennial herbaceous species that occurs in chaparral, cismontane woodland and valley and foothill grasslands between 150 and 5,100 feet (CNPS 2024a). Big-scale balsamroot blooms from March through June and may be found on serpentine soils, though it is known to grow on other soil types as well (CNPS 2024a).

The annual brome grassland throughout the Study Area represents suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

4.2 Dwarf Downingia

Dwarf downingia (*Downingia pusilla*) is not federally or state listed, but it is classified as a CRPR List 2B.2 plant. It is a diminutive annual herb that is strongly associated with vernal pools mesic valley and foothill grassland habitats at elevations ranging from five to 1,460 feet (CNPS 2024a). Dwarf downingia is typically associated with areas that experience a moderate degree of disturbance, and it blooms from March to May.

The vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

4.3 Boggs Lake Hedge-Hyssop

Boggs Lake hedge-hyssop (*Gratiola heterosepala*) is not federally listed, but it is a California endangered species and a CRPR List 1B.2 plant. Boggs Lake hedge-hyssop grows in vernal pools and around the perimeter of marshes and swamps between 35 and 7,790 feet (CNPS 2024a). This small annual herb favors clay soils, and blooms from April to August (CNPS 2024a).

The larger/longer-ponding vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

4.4 Ahart's Dwarf Rush

Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. Ahart's dwarf rush grows in mesic valley and foothill grassland habitats between elevations of approximately 100 feet and 750 feet (CNPS 2024a). This annual herb blooms from March to May (CNPS 2024a).

The vernal pools, seasonal wetlands, and seasonal wetland swales within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

4.5 Legenere

Legenere (*Legenere limosa*) is not federally or state listed, but it is classified as a CRPR List 1B.1 species. This annual herb is primarily associated with vernal pools (CNPS 2024a). Legenere occurs at elevations between 5 and 2,885 feet, and blooms from April to June (CNPS 2024a).

The larger/longer-ponding vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was observed in one vernal pool during the 2024 protocol-level special status plant surveys of the Study Area.

4.6 Pincushion Navarretia

Pincushion navarretia (*Navarretia myersii* ssp. *myersii*) is not federally or state listed, but it is classified as a CRPR List 1B.1 plant. This species is found in vernal pools, often on acidic micro habitats (CNPS 2024a). Pincushion navarretia is found between approximately 65 and 1,085 feet and blooms in April and May (CNPS 2024a).

The vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

4.7 Slender Orcutt Grass

Slender Orcutt grass (*Orcuttia tenuis*) is a federally threatened and California endangered species and is classified as a CNPS 1B.1 listed plant. This annual herb is often found in vernal pools with gravelly substrates and is found at elevations generally ranging between 115 and 5,775 feet (CNPS 2024a). Slender Orcutt grass typically blooms from May to October (CNPS 2024a).

The larger/longer-ponding vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol level special-status plant surveys of the Study Area.

4.8 Sacramento Orcutt Grass

Sacramento Orcutt grass (*Orcuttia viscida*) is listed as both a federally and state endangered species and is classified as a 1B.1 List plant. This herbaceous annual favors vernal pool habitats and is found between elevations of 100 and 330 feet (CNPS 2024a). Sacramento Orcutt grass typically blooms from April to July though it has been occasionally known to bloom as late as September (CNPS 2024a).

The larger/longer-ponding vernal pools and seasonal wetlands within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol level special-status plant surveys of the site.

4.9 Sanford's Arrowhead

Sanford's arrowhead (*Sagittaria sanfordii*) is not federally or state listed, but it is classified as a CRPR List 1B.2 plant. It generally occurs in shallow freshwater habitats associated with marshes and swamps, including drainages, canals, and larger ditches that sustain inundation and/or slow moving water into early summer.

This emergent perennial rhizomatous species blooms from May to October (November) and occurs from sea level to 2,135 feet (CNPS 2024a).

Laguna Creek and its tributary within the Study Area represent suitable habitat for this species. This species was not observed during the 2024 protocol-level special status plant surveys of the Study Area.

5.0 CONCLUSION

Legenere was observed during the 2024 protocol-level special-status plant surveys of the Summer Villas Study Area along the southern boundary (**Figure 4**). Hogwallow starfish (*Hesperevax caulescens*), a California Rare Plant Rank 4.2 species, was also found within the Study Area near the southeast corner and is shown on **Figure 4**.

6.0 REFERENCES

California Department of Fish and Wildlife (CDFW). 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. State of California Natural Resource Agency Department of Fish and Wildlife. Dated 20 March 2018. Website https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959 [Accessed January through May 2024].

California Native Plant Society (CNPS). 2001. *CNPS botanical survey guidelines*. Pages 38-40 in California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (D.P. Tibor, editor). Sixth edition. Special Publication No. 1, California Native Plant Society, Sacramento, 387 pp.

California Native Plant Society (CNPS). 2024a. *Inventory of Rare and Endangered Plants (online edition, v9.5)*. California Native Plant Society, Sacramento, CA. Website: http://www.rareplants.cnps.org [Accessed January through May 2024].

California Native Plant Society (CNPS). 2024b. *A Manual of California Vegetation, Online Edition*. California Native Plant Society, Sacramento, CA. Website: http://www.cnps.org/cnps/vegetation/ [Accessed May 2024].

California Natural Diversity Database (CNDDB). 2023. *RareFind 6*. California Department of Fish and Wildlife. Dated January 2023.

Jepson Flora Project (eds.) 2024. *Jepson eFlora*. Website: http://ucjeps.berkeley.edu/eflora/ [Accessed March through May 2024].

Madrone Ecological Consulting, LLC (Madrone). 2023. *Aquatic Resources Delineation Sheldon at Waterman, Sacramento County, California*. Prepared for Sheldon Business Park. Dated 10 January 2023.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). 2024. *Soil Survey Geographic (SSURGO) Database for Solano County, California* [Accessed October 2024].

U.S. Geological Survey (USGS). 2015. "*Elk Grove, California*" 7.5-Minute Series Topographic Quadrangle. U.S. Geological Survey. Denver, Colorado.

U.S. Department of the Interior, Fish and Wildlife Service (USFWS). 2020. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*. Sacramento, CA.

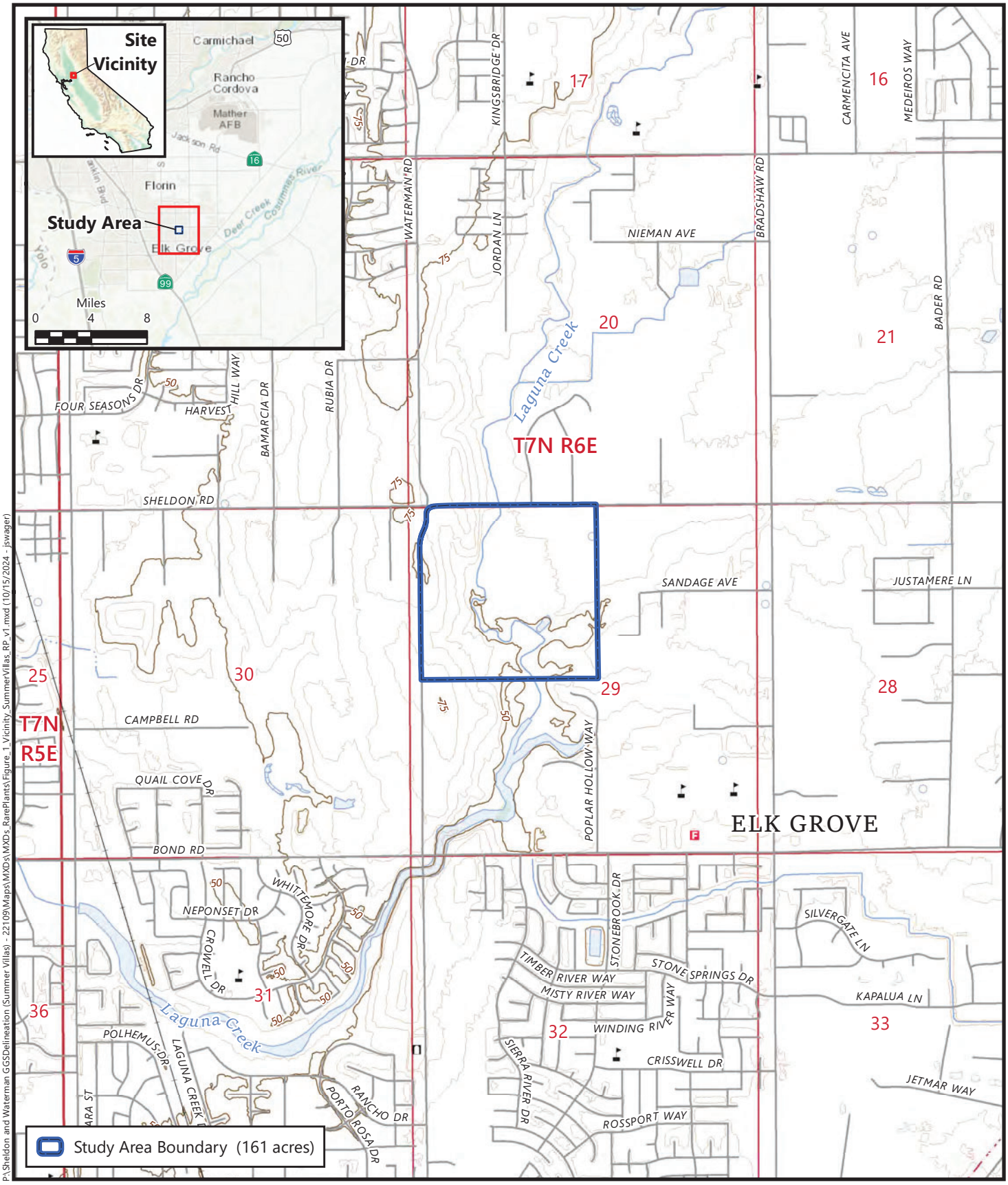
Figures

Figure 1. Site and Vicinity

Figure 2. Terrestrial Vegetation and Aquatic Resources

Figure 3. Special-Status Plant Locations

Figure 4. Natural Resources Conservation Service Soils



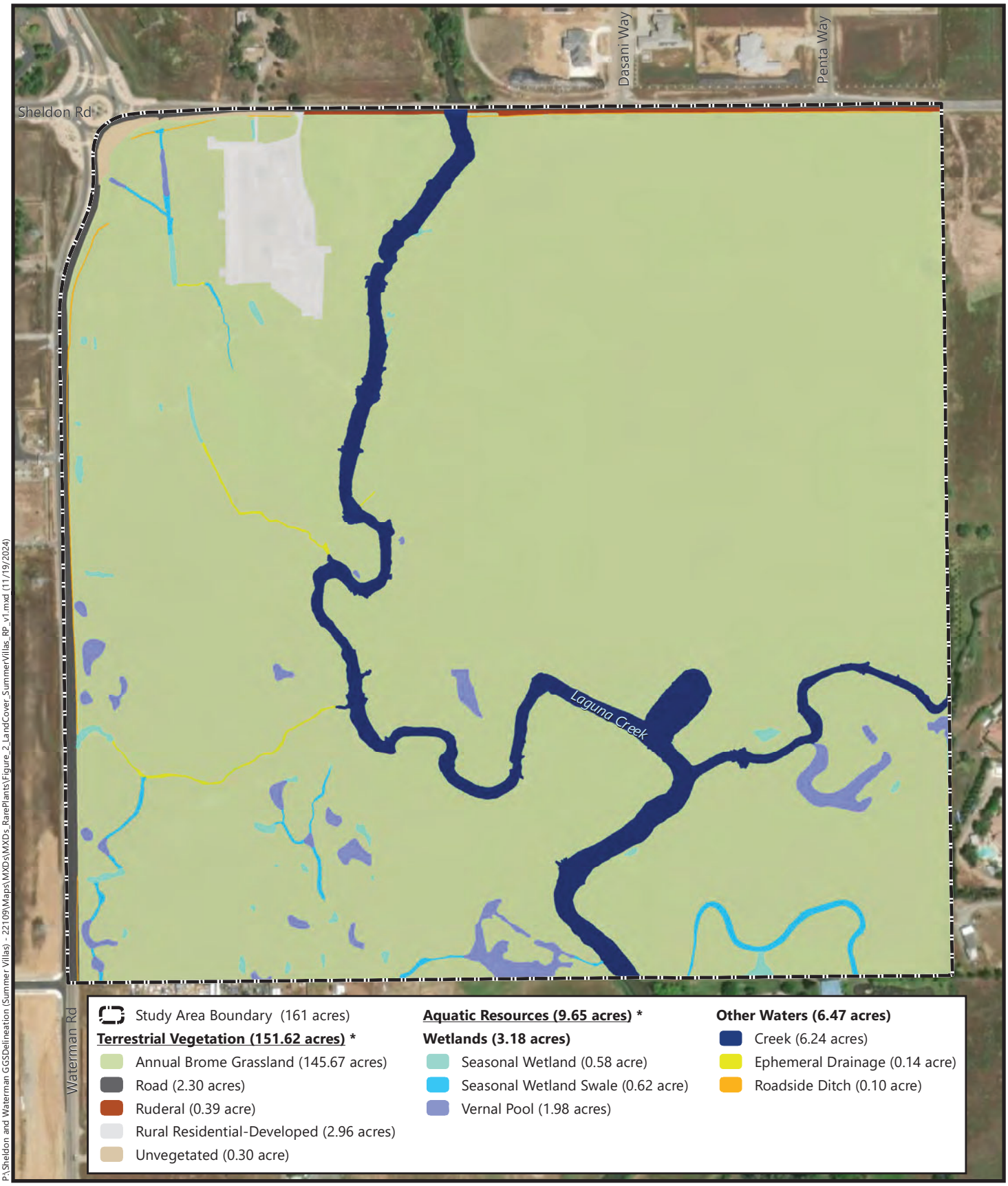
P:\Sheldon and Waterman GGSDelineation (Summer Villas) - 22109\Maps\MXDs\MXDs_RarePlants\Figure_1_Vicinity_SummerVillas_RP_v1.mxd (10/15/2024 - jswager)

Source: United States Geologic Survey, 2022
"Elk Grove, California" 7.5-Minute Topographic Quadrangle
Sections 20, 29, Township 7 North, Range 6 East, MDBM
Latitude (NAD83): 38.434485°, Longitude (NAD83): -121.34857°

Figure 1
Site and Vicinity

Summer Villas
Sacramento County, California

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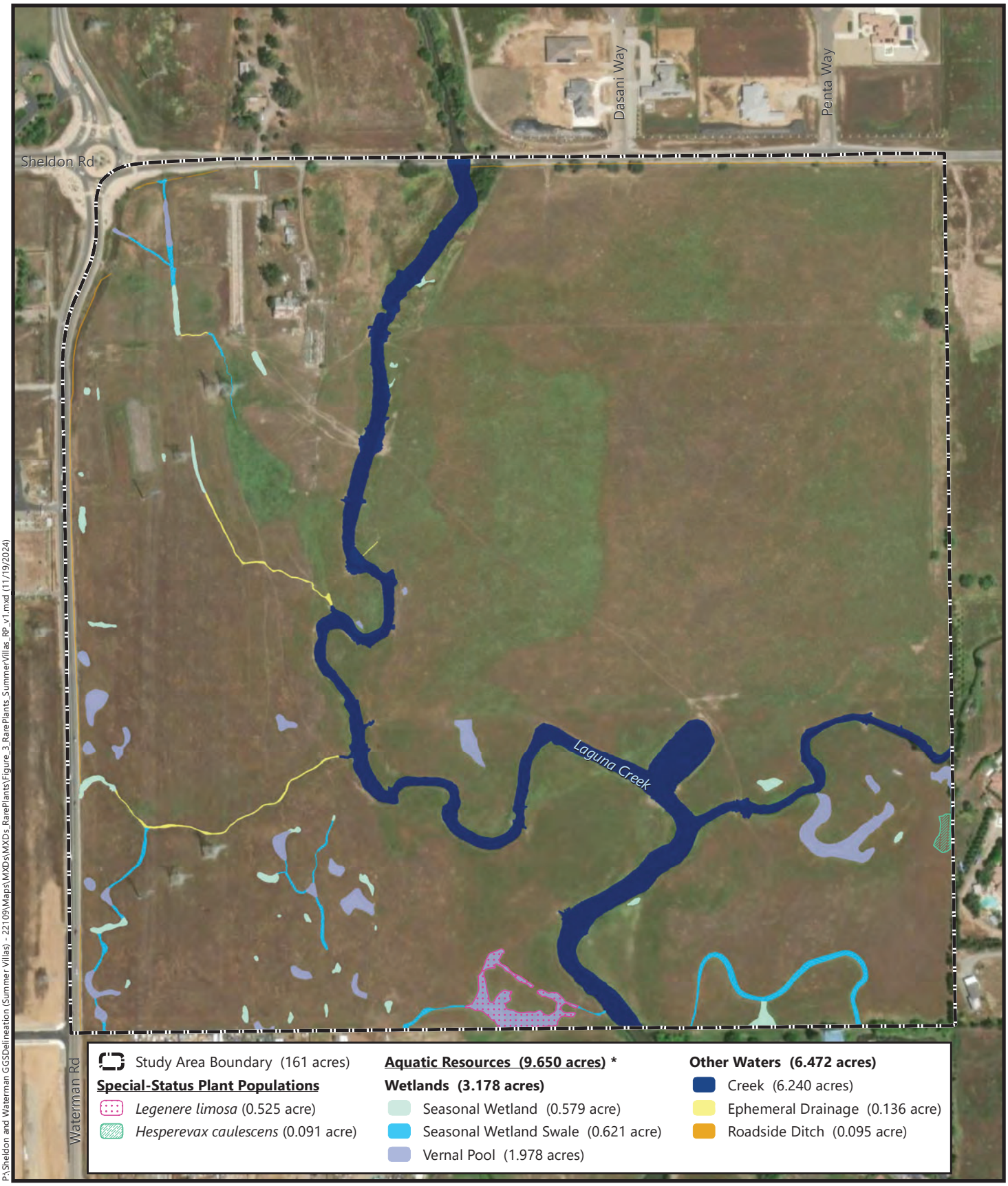
Figure 2
Terrestrial Vegetation and Aquatic Resources

Summer Villas
Sacramento County, California

MADRONE ECOLOGICAL CONSULTING

** Small summation errors may occur due to rounding*

Aerial Source: Maxar, 26 April 2022



P:\Sheldon and Waterman GGSDelineation (Summer Villas) - 22109\Maps\MXDs\MXDs_RarePlants\Figure_3_RarePlants_SummerVillas_RP_v1.mxd (11/19/2024)

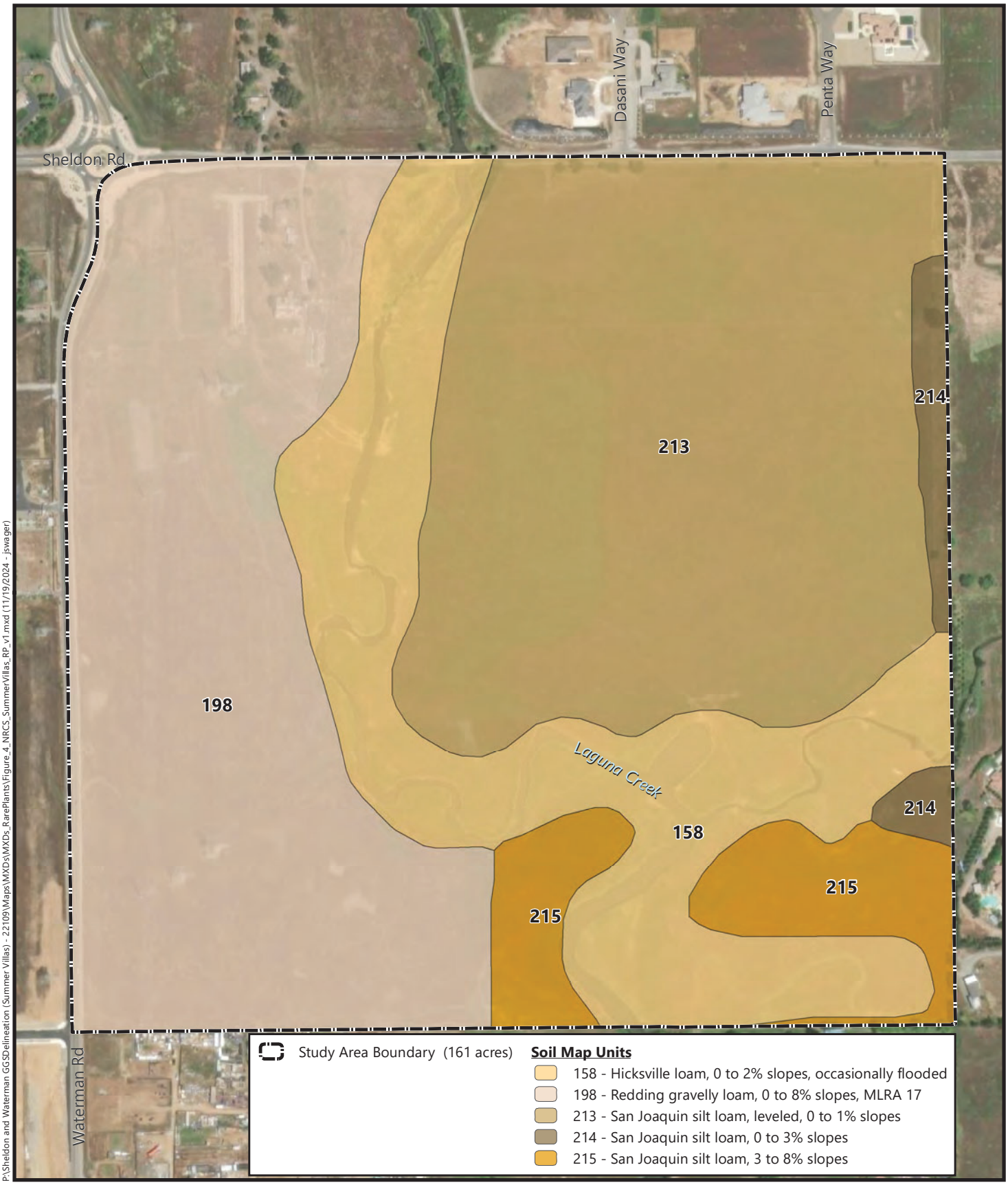
Figure 3
Special-Status Plant Locations

Summer Villas
Sacramento County, California

MADRONE ECOLOGICAL CONSULTING

** Small summation errors may occur due to rounding*

Aerial Source: Maxar, 26 April 2022



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N

Feet
0 200 400

Soil Survey Source: *USDA, Natural Resources Conservation Service Soil Survey Geographic (SSURGO) database for Sacramento County, California*
Aerial Source: Maxar, 26 April 2022

Figure 4
Natural Resources Conservation Service Soils

Summer Villas
Sacramento County, California

MADRONE ECOLOGICAL CONSULTING

Attachments

Attachment A: Botanist Qualifications

Attachment B: Target Plant Species Reference Population Information

Attachment C: Plant Species Observed within the Summer Villas Study Area

Attachment A

Botanist Qualifications

Special-Status Plant Survey Botanist Qualifications

Tara Collins

Ms. Collins has a B.S. in Botany from Humboldt State University and more than 24 years of experience conducting botanical inventories. As a senior biologist, she specializes in rare plant surveys, constructed/restored wetland floristic monitoring, and open space preserve management. In addition to rare plant surveys, her botanical experience includes general vegetation surveys, aerial and field vegetation mapping, CRAM assessments, measuring and monitoring special-status species plant populations, and invasive species identification and mapping. Ms. Collins' experience includes a wide variety of upland and wetland vegetation communities including annual grassland, vernal pool complex, ephemeral and emergent wetlands, preserved and created/restored vernal pools, seasonal marshes, floodplain wetlands, managed marshes, oak woodlands, riparian woodland/scrub, chaparral, coastal sage scrub, Mojave Desert scrub, desert riparian, iodine bush scrub, alkali sink habitat, and coniferous forests. Her geographic expertise covers much of California, from Shasta County in the north to the Mojave Desert and San Gabriel Mountains in the south, and from Contra Costa County in the west to the Sierra Nevada foothills in the east. Her primary focus is on the Sacramento Valley and San Joaquin Valley.

Attachment B

Target Plant Species Reference Population Information

Target Plant Species Reference Population Information
for the Summer Villas
Special-Status Plant Survey

Plant Species	Location of Reference Population	Date of Visit	Phenology of Reference Population/ Distinctive Characteristics
Balsamorhiza macrolepis Big-scale balsamroot	Herbarium specimen at UC Davis Center for Plant Diversity Online Jepson Manual and Calflora	23 April 2019 March through May 2024	Pressed specimen. Similar to *Wyethia*, but with grey, dissected leaves. Leaves are mostly basal (as opposed to *Wyethia*, which has basal and cauline leaves).
Downingia pusilla Dwarf downingia	Woodcreek Oaks Open Space Preserve (CNDDB #142)	10 April 2024	Plants are just coming into bloom below *Plagiobothrys stipitatus* and *Ranunculus bonariensis*. Should be in full bloom in about a week.
Gratiola heterosepala Boggs Lake hedge-hyssop	Churchill Downs Wetland Preserve (CNDDB Occurrence #35)	29 April 2024	Hundreds to thousands of *Gratiola heterosepala* plants were observed in this location this year. About half were in bud and half in full bloom. Pool was not inundated, but soil was still saturated. Individuals of this species were also observed in an adjacent pool. That feature was drier, and the plants were half in bloom and half in fruit.
Juncus leiospermus var. *ahartii* Ahart's dwarf rush	Mather Regional Park (CNDDB Occurrence #8)	12 April 2024	A few plants scattered within the area; seems like a decent year for this species, but all of the plants are quite small. The plants were all in fruit, but the long style was still readily apparent on the top of the fruits.
Legenere limosa Legenere	Sacramento County (CNDDB Occurrence #27)	17 April 2024 20 May 2024	Pool is still inundated, but millions of plants are present, above the water level. Plants were still green and identifiable, with most in fruit but some still in flower.

Plant Species	Location of Reference Population	Date of Visit	Phenology of Reference Population/ Distinctive Characteristics
Navarretia myersii ssp. *myersii* Pincushion navarretia	Herbarium specimen at UC Davis Center for Plant Diversity Online Jepson Manual and Calflora	23 April 2019 March through May 2024	Pressed specimen. Corollas for this species are quite long (12-21 mm vs 4-10 mm for the similar but more common *Navarretia leucocephala* ssp. *leucocephala*). In addition, the calyx lobes for this species are long-hairy as opposed to the generally glabrous calyx lobes for *N. leucocephala* ssp. *leucocephala*.
Orcuttia tenuis Slender Orcutt grass	Herbarium specimen at UC Davis Center for Plant Diversity Online Jepson Manual and Calflora	23 April 2019 March through May 2024	Pressed specimen. Leaves and leaf sheaths are continuous with no ligule, and lemmas are toothed. Inflorescences are tall and slender in comparison to *Orcuttia viscida*, the only other *Orcuttia* species known to occur in the area.
Orcuttia viscida Sacramento Orcutt grass	Population at Phoenix Park in Sacramento County (CNDDB Occurrence #15)	5 June 2024	Only four plants were observed in this pool, where thousands have been observed in past years. An exhaustive search was not conducted, but there are clearly fewer plants, and those that are present are small. They were still green and identifiable to species. Other botanists state that populations at other locations did not decline as substantially this year.
Sagittaria sanfordii Sanford's arrowhead	Population in Laguna Creek north of Elk Grove Blvd in Elk Grove (CNDDB Occurrence #43)	20 May 2024	Plants were in early bloom, with some plants still entirely aquatic. Those that had terrestrial leaves exhibited the typical triangular cross-section, and the blooms and fruit made blooming plants readily identifiable to species.

Attachment C

Plant Species Observed within the Summer Villas Study Area

Plant Species Observed within the Summer Villas Study Area
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
AGAVACEAE		
Chlorogalum pomeridianum	Wavyleaf soap plant	Native
ALISMATACEAE		
Damasonium californicum	California damasonium	Native
AMARANTHACEAE		
Amaranthus blitoides	Procumbent pigweed	Native
ANACARDIACEAE		
Pistacia chinensis	Chinese pistachio	Non-Native
APIACEAE		
Eryngium castrense	Great valley coyote-thistle	Native
Scandix pecten-veneris	Venus' needle	Non-Native
APOCYNACEAE		
Asclepias eriocarpa	Kotolo	Native
Asclepias fascicularis	Narrow-leaf milkweed	Native
ASTERACEAE		
Achyrachaena mollis	Blow wives	Native
Bidens frondosa	Sticktight	Native
Carduus pycnocephalus	Italian thistle	Non-Native
Centaurea solstitialis	Yellow star-thistle	Non-Native
Centromadia fitchii	Fitch’s spikeweed	Native
Cotula coronopifolia	Brass-buttons	Non-Native
Erigeron canadensis	Horseweed	Native
Euthamia occidentalis	Western goldenrod	Non-Native
Grindelia camporum	Great Valley gumweed	Native
Hesperevax caulescens	Hogwallow starfish	Native
Holocarpha virgata	Slender tarweed	Native
Hypochaeris glabra	Smooth cat's-ear	Non-Native
Lasthenia fremontii	Fremont's goldfields	Native
Lasthenia glabrata	Yellow rayed goldfields	Native
Leontodon saxatilis	Hairy hawkbit	Non-Native
Matricaria discoidea	Pineapple weed	Native
Microseris douglasii	Douglas' microseris	Native

Plant Species Observed within the Summer Villas Study Area
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
ASTERACEAE, cont.		
Pseudognaphalium luteoalbum	Jersey cudweed	Non-Native
Psilocarphus chilensis	Round woolly-marbles	Native
Senecio vulgaris	Common groundsel	Non-Native
Silybum marianum	Milk thistle	Non-Native
Soliva sessilis	South American soliva	Non-Native
Sonchus oleraceus	Common sow thistle	Non-Native
Symphyotrichum subulatum	Annual saltmarsh aster	Native
Xanthium spinosum	Spiny cocklebur	Non-Native
Xanthium strumarium	Cocklebur	Native
BIGNONIACEAE		
Catalpa bignonioides	Southern catalpa	Non-Native
BORAGINACEAE		
Amsinckia intermedia	Common fiddleneck	Native
Heliotropium curassavicum	Seaside heliotrope	Native
Plagiobothrys stipitatus	Great valley popcornflower	Native
BRASSICACEAE		
Brassica nigra	Black mustard	Non-Native
Capsella bursa-pastoris	Shepherd's purse	Non-Native
Lepidium nitidum	Shining peppergrass	Native
Raphanus sativus	Radish	Non-Native
Rorippa curvipes	Bluntleaf yellow cress	Native
CAMPANULACEAE		
Downingia bicornuta	Double-horned downingia	Native
Downingia ornatissima	Ornate downingia	Native
Legenere limosa	Legenere	Native
CARYOPHYLLACEAE		
Cerastium glomeratum	Sticky mouse-ear chickweed	Non-Native
Sagina apetala	Dwarf pearlwort	Non-Native
Silene gallica	Windmill pink	Non-Native
Spergularia rubra	Red sand-spurry	Non-Native

Plant Species Observed within the Summer Villas Study Area
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
CHENOPODIACEAE		
Chenopodium album	Lamb's quarters	Non-Native
CONVOLVULACEAE		
Convolvulus arvensis	Bindweed	Non-Native
CRASSULACEAE		
Crassula aquatica	Water pygmy weed	Native
Crassula tillaea	Moss pygmy weed	Non-Native
CYPERACEAE		
Carex barbarae	Santa Barbara sedge	Native
Carex praegracilis	Field sedge	Native
Cyperus eragrostis	Tall nutsedge	Native
Eleocharis acicularis	Needle spikerush	Native
Eleocharis macrostachya	Creeping spikerush	Native
Eleocharis parishii	Parish's spikerush	Native
EUPHORBIACEAE		
Croton setiger	Turkey-mullein	Native
Euphorbia maculata	Spotted spurge	Non-Native
Triadica sebifera	Chinese tallow tree	Non-Native
FABACEAE		
Acmispon americanus	Spanish lotus	Native
Lotus corniculatus	Bird's-foot trefoil	Non-Native
Lupinus bicolor	Miniature lupine	Native
Medicago polymorpha	Burclover	Non-Native
Sesbania punicea	Rattlebox	Non-Native
Trifolium cernuum	Nodding clover	Non-Native
Trifolium depauperatum	Dwarf sack clover	Native
Trifolium fragiferum	Strawberry clover	Non-Native
Trifolium glomeratum	Clustered clover	Non-Native
Trifolium hirtum	Rose clover	Non-Native
Trifolium microcephalum	Small-head clover	Native
Trifolium repens	White clover	Non-Native
Trifolium subterraneum	Subterranean clover	Non-Native
Trifolium tomentosum	Woolly clover	Non-Native

Plant Species Observed within the Summer Villas Study Area
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
FABACEAE, cont.		
Trifolium variegatum	White tip clover	Native
Vicia sativa	Spring vetch	Non-Native
Vicia villosa	Winter vetch	Non-Native
FAGACEAE		
Quercus agrifolia	Coast live oak	Native
Quercus lobata	Valley oak	Native
GENTIANACEAE		
Cicendia quadrangularis	Timwort	Native
Zeltnera sp.	Centaury	Native/Non-Native
GERANIACEAE		
Erodium botrys	Filaree	Non-Native
Erodium cicutarium	Cut leaf filaree	Non-Native
Geranium dissectum	Cut leaf geranium	Non-Native
Geranium molle	Soft geranium	Non-Native
IRIDACEAE		
Iris pseudacorus	Yellowflag iris	Non-Native
JUGLANDACEAE		
Juglans hindsii	Northern California black walnut	Native
JUNCACEAE		
Juncus bufonius	Toad rush	Native
Juncus capitatus	Dwarf rush	Non-Native
Juncus effusus	Common bog rush	Native
JUNCAGINACEAE		
Triglochin scilloides	Flowering quillwort	Native
LAMIACEAE		
Mentha pulegium	Pennyroyal	Non-Native
Pogogyne zizyphoroides	Sacramento mesa mint	Native

Plant Species Observed within the Summer Villas Study Area
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
LYTHRACEAE		
Lythrum hyssopifolia	Hyssop loosestrife	Non-Native
MALVACEAE		
Malva parviflora	Cheeseweed	Non-Native
MARSILEACEAE		
Marsilea vestita	Hairy water fern	Native
MONTIACEAE		
Montia fontana	Water chickweed	Native
MYRSINACEAE		
Lysimachia arvensis	Scarlet pimpernel	Non-Native
MYRTACEAE		
Eucalyptus sp.	Eucalyptus tree	Non-Native
OLEACEAE		
Fraxinus latifolia	Oregon ash	Native
ONAGRACEAE		
Epilobium campestre	Smooth Boisduvalia	Native
Epilobium ciliatum	Slender willow herb	Native
Epilobium torreyi	Torrey's willow herb	Native
Ludwigia peploides	Water primrose	Non-Native
OROBANCHACEAE		
Castilleja attenuata	Valley tassels	Native
Castilleja campestris	Yellow owl's clover	Native
PHRYMACEAE		
Mimulus guttatus	Seep-spring monkeyflower	Native
Mimulus tricolor	Tricolor monkeyflower	Native
PLANTAGINACEAE		
Callitriche marginata	Winged water starwort	Native
Gratiola ebracteata	Bractless hedge-hyssop	Native

Plant Species Observed within the Summer Villas Study Area
26 and 29 April, 9 May, and 21 June 2024

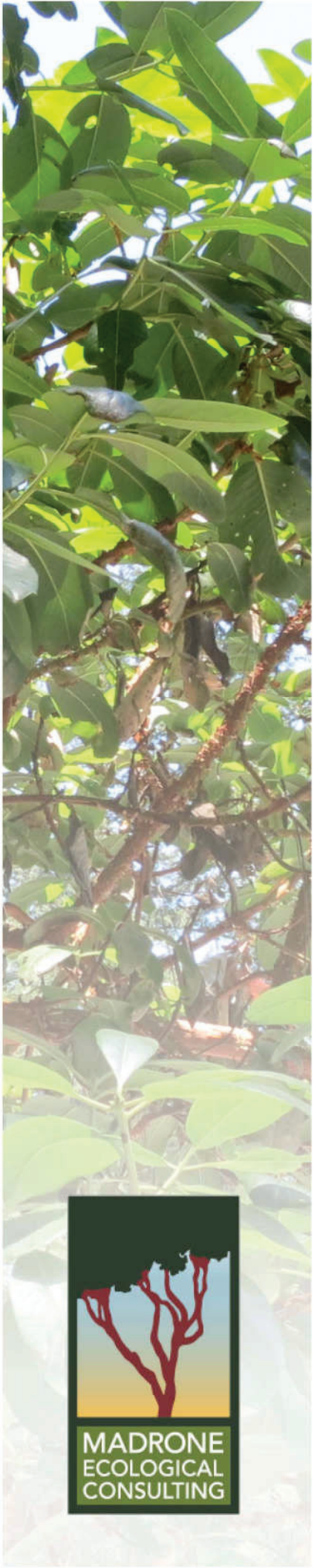
Family / Species Name	Common Name	Native / Non-Native
PLANTAGINACEAE, cont.		
Kickxia spuria	Fluellin	Non-Native
Plantago lanceolata	English plantain	Non-Native
Veronica peregrina	Purslane speedwell	Native
POACEAE		
Alopecurus saccatus	Pacific foxtail	Native
Avena barbata	Slender wild oat	Non-Native
Briza minor	Small quaking grass	Non-Native
Bromus diandrus	Ripgut grass	Non-Native
Bromus hordeaceus	Soft chess	Non-Native
Cynodon dactylon	Bermuda grass	Non-Native
Deschampsia danthonioides	Annual hair grass	Native
Elymus glaucus	Blue or western wild-rye	Native
Elymus triticoides	Beardless wild-rye	Native
Festuca bromoides	Brome fescue	Non-Native
Festuca myuros	Rattail fescue	Non-Native
Festuca perennis	Ryegrass	Non-Native
Glyceria declinata	Low manna grass	Non-Native
Hordeum brachyantherum	Meadow barley	Native
Hordeum marinum	Mediterranean barley	Non-Native
Hordeum murinum	Wall barley	Non-Native
Leersia oryzoides	Rice cutgrass	Native
Muhlenbergia rigens	Deer grass	Native
Paspalum dilatatum	Dallis grass	Non-Native
Poa annua	Annual blue grass	Non-Native
Polypogon monspeliensis	Annual beard grass	Non-Native
Setaria parviflora	Knotroot bristle grass	Native
POLYGONACEAE		
Persicaria hydropiperoides	Water pepper	Native
Polygonum aviculare	Prostrate knotweed	Non-Native
Rumex dentatus	Toothed dock	Non-Native
Rumex pulcher	Fiddle dock	Non-Native
PORTULACACEAE		
Portulaca oleracea	Purslane	Non-Native

Plant Species Observed within the Summer Villas Study Area
26 and 29 April, 9 May, and 21 June 2024

Family / Species Name	Common Name	Native / Non-Native
RANUNCULACEAE		
Ranunculus aquatilis	Water buttercup	Native
Ranunculus bonariensis	Vernal pool buttercup	Native
Ranunculus muricatus	Spiny fruit buttercup	Non-Native
ROSACEAE		
Heteromeles arbutifolia	Toyon	Native
Pyrus calleryana	Callery pear	Non-Native
Rosa sp.	Rose	Native/Non-Native
Rubus armeniacus	Himalayan blackberry	Non-Native
RUBIACEAE		
Cephalanthus occidentalis	California button willow	Native
Galium aparine	Goose grass	Native
Sherardia arvensis	Field madder	Non-Native
SALICACEAE		
Populus fremontii	Fremont's cottonwood	Native
Salix laevigata	Red willow	Native
SOLANACEAE		
Solanum americanum	White nightshade	Native
THEMIDACEAE		
Brodiaea appendiculata	Hoover's brodiaea	Native
Brodiaea nana	Dwarf brodiaea	Native
Triteleia hyacinthina	White brodiaea	Native
Triteleia laxa	Ithuriel's spear	Native
VERBENACEAE		
Phyla nodiflora	Frog fruit	Native

Attachment F

Giant Garter Snake
Habitat Assessment



Giant Garter Snake Habitat Assessment

Summer Villas at Sheldon Road

Elk Grove, California

16 January 2023

MADRONE ECOLOGICAL CONSULTING

Prepared for:
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Sheldon Business Park
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Attachments

Attachment A - Site Photographs
Attachment B - Habitat Evaluation and Scoring Form
Attachment C - Instructions for Completing the Habitat Evaluation and Scoring Form
Attachment D - CNDDB Occurrence Reports

1.0 Introduction

Madrone Ecological Consulting, LLC (Madrone) was retained by Sheldon Business Park to conduct a habitat assessment for giant garter snake (GGS; *Thamnophis gigas*) at the Summer Villas at Sheldon Road Project site (Project). GGS is listed as threatened under both the federal Endangered Species Act and the California Endangered Species Act. The approximately 161-acre Project is located in the City of Elk Grove, Sacramento County, California southeast of the intersection of Sheldon Road and Waterman Road. It is situated at an elevation of 50 to 70 feet above Mean Sea Level (MSL) in Sections 20, 29, and 30, Township 7 North, Range 6 East, MDB&M, and is portrayed on the "Elk Grove, California" USGS 7.5-Minute Topographic Quadrangle (**Figure 1**)(USGS 2022).

1.1 Existing Conditions

The Project consists mostly of non-native annual grassland with Laguna Creek (perennial stream) flowing from north to south through the central portion of the Project. This major aquatic feature dominates the topography of the Project and is fed by an unnamed intermittent drainage that converges with Laguna Creek in the southern portion of the Project. Historically, there was a dairy or feed lot located within the northwestern portion of the Project. Most of the structures associated with the dairy or feed lot including linear barns and other structures have been razed except for two houses and a garage that are currently under renovation and are uninhabited. The area around these structures was burned by a fire in the summer of 2022 that burned east to the bank of Laguna Creek. Land uses surrounding the Project include rural and large lot residential. There is a portion of open annual grassland to the west of the Project.

Aquatic resources within the Project include Laguna Creek (perennial stream), an unnamed tributary to Laguna Creek (intermittent drainage), and scattered seasonal wetlands, vernal pools, and wetland swales that are mostly located within the southern portion of the Property (**Figure 2**). The uplands within the Project consist of non-native annual grassland which is dominated by soft chess (*Bromus hordeacious*), brome fescue (*Festuca bromoides*), narrow tarplant (*Holocarpha virgata*), and Italian star thistle (*Centaurea solstitalis*) with some foxtail barley (*Hordeum murinum*) and ryegrass (*Festuca perennis*).

2.0 Species Background

Distribution

Historically, GGS ranged from Butte County southward to Kern County. Current known populations are scattered within the Central Valley from near Chico in Butte County, south to the Mendota Wildlife Area in Fresno County, with a gap within the central part of the valley from southern San Joaquin County to Merced County. Current locality records show that GGS are distributed in nine different isolated locations/populations associated with historic flood basins, marshes, wetlands, and streams. It is likely that GGS once occupied a much larger contiguous area within the Central Valley; however, intense agricultural practices have eliminated most of the suitable GGS habitat (Hansen 1980, Brode and Hansen 1992, U.S. Fish and Wildlife Service [USFWS] 1997, USFWS 1999, USFWS 2006, USFWS 2012).

Habitat Requirements

GGS inhabit a variety of permanent and seasonal wetlands including slow-moving creeks, sloughs, drainage and irrigation canals, freshwater marshes, and margins of rice fields from sea level to 400 feet above sea level.

GGS are mostly associated with freshwater aquatic features that have the following four characteristics:

- Sufficient water during the snake's active season (early spring through mid-fall) to supply escape cover and food (small fish and amphibians),
- Emergent, herbaceous wetland vegetation, such as cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* spp.), accompanied by vegetated banks to provide basking and foraging habitat and escape cover during the active season,
- Upland habitat (bankside burrows, holes, and crevices) that provides short-term refugia during the active season, and
- High ground or upland habitat above the annual high-water mark to provide cover and refuge from flood waters during the dormant winter period (Hansen and Brode 1980, Hansen 1988).

GGS seem to be absent from permanent wetlands with established populations of predatory game fish (centrarchids); streams with sand, gravel or rock substrates; and from riparian woodlands which lack suitable basking sites, prey, and cover vegetation (USFWS 1999). GGS are also absent from waterways that have routine mechanical or weed control or maintenance of bank soils (Hansen 1988, Hansen and Brode 1993).

Reproduction

Male GGS emerge from overwintering sites in spring and immediately start to search for females. Breeding takes place from March through early May with females giving birth to live young from late July through early September (Hansen and Hansen 1990).

Longevity

There have been no studies to date that have documented the survivorship or longevity of GGS. An individual survival rate study was conducted on valley garter snakes (*Thamnophis sirtalis fitchi*). This study found that 28.7 to 43.0 percent of all neonate (first year) snakes survive their first year, and 16.4 percent of all neonate snakes survive into their second year. Snakes that are two years and older have a survival rate of 32.7 percent (Jayne and Bennett 1990).

Sources of Mortality

GGS are subject to various sources of mortality such as road mortality, maintenance activities and modification of agricultural ditches and drains and flood control systems, flooding, and competition by the introduction of invasive watersnakes of the genus *Nerodia* (USFWS 1999, USFWS 2012, Stitt et al. 2005, Balfour and Stitt 2002, Brown 2000).

Behavior

GGS typically emerge from winter retreats from late March to early April after spending the cool winter months in dormancy or periods of reduced activity. They remain active through October, with the timing of

annual activity subject to varying seasonal weather conditions. Daily activity consists of: 1) emergence from burrows after sunrise, 2) basking to warm bodies to active temperatures, and 3) foraging or courting for the remainder of the day (Hansen and Brode 1993). Activity generally peaks during spring emergence and courtship from April into June, whereupon observations of GGS diminish significantly until a second peak is observed after females give birth during late July into August (Hansen and Brode 1993, USFWS 1999, Hansen 2004). GGS then remain active, foraging and occasionally courting, until the onset of cooler fall temperatures.

Movement

GGS are associated with aquatic habitats, typically over-wintering in burrows and crevices near to their active-season foraging habitat. Individuals have been noted using burrows as far as 164 feet (50 meters) from marsh edges during the active season, and retreating as far as 820 feet (250 meters) from the edge of wetland habitats while overwintering, presumably to reach hibernacula that are located above the annual high water mark (Hansen 1986a, USFWS 1999).

Changing agricultural regimes, development, and other shifts in land use create an ever-changing mosaic of available habitat. GGS move around in response to these changes in order to find suitable sources of prey and cover. Connectivity between regions is therefore extremely important for providing access to available habitat and for genetic interchange. In an agricultural setting, GGS rely largely upon the interconnected network of canals and ditches that provide irrigation and drainage.

Data based on radiotelemetry studies show that GGS home ranges varies by location, with median home range estimates varying between 23 acres (range 10.3 to 203 acres, n=8) in a semi-native perennial marsh system and 131 acres (range 3.2 to 2,792 acres, n=29) in a managed season marsh refuge (wildlife refuge) (USFWS 1999). Differential dispersal and home range patterns between males and females are not reported; however, females are generally larger than males and spend the majority of the active season gestating young. Lifetime dispersal patterns of both neonates and adults of this species are unknown.

Ecological Relationships

GGS feed on small fish, frogs, and tadpoles (Fitch 1940, Hansen 1980, USFWS 1999), specializing in ambushing prey underwater (Brode 1988). Historically, GGS probably preyed on native fish and frog species such as the thick-tailed chub (*Gila crassicauda*) and California red-legged frog (*Rana aurora draytonii*), which have been extirpated from the snake's current range, as well as the Sierran treefrog (*Pseudachris sierra*) and Sacramento blackfish (*Orthodox microlepidus*) (USFWS 1999). GGS now prey upon introduced species, including small bullfrogs (*Rana catesbeiana*) and their larvae (tadpoles), small carp (*Cyprinus carpio*), and mosquitofish (*Gambusia affinis*). While juveniles probably consume insects and other small invertebrates, GGS are not known to consume larger terrestrial prey such as small mammals or birds (Hansen 1986a).

Large mammals and birds that prey on GGS include raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), red foxes (*Vulpes vulpes*), gray foxes (*Urocyon cinereoagentius*), river otters (*Lutra canadensis*), opossums (*Didelphis virginiana*), northern harriers (*Circus cyaneus*), hawks (*Buteo* spp.), herons (*Ardea herodius, Nycticorax nycticorax*), egrets (*Ardea alba, Egretta thula*), and American bitterns (*Botaurus lentiginosus*) (USFWS 1999). In areas near urban development, GGS may also fall prey to domestic or feral house cats. In permanent waterways, introduced predatory game fishes such as black and striped bass (*Micropterus* spp.), sunfish (*Lepomis* spp.), and catfish (*Ictalurus* spp.) probably prey on GGS and compete with them for smaller prey (Hansen 1988, USFWS 1993).

GGS coexist with the valley garter snake and, in limited instances, both may be found together with the mountain garter snake (*Thamnophis elegans elegans*), a western terrestrial garter snake subspecies, where this species' range extends to the Central Valley floor. The extent of competition among these species is unknown, but it is likely that differences in habitat use and foraging behavior allow their coexistence (Brode 1988, USFWS 1999).

Population Threats

Potential population threats include urbanization, population fragmentation and isolation, flood control and canal maintenance, agricultural practices, wetland management for waterfowl, introduction and establishment of yellow water primrose (*Ludwigia hexapetala*) (Hansen 2010) and eradication and removal of non-native plants immediately adjacent to aquatic habitat (levee vegetation management), water transfers, invasive predatory species, introduced snake species, floods, drought and climate change, mosquito abatement, roads, netting/erosion control products, selenium contamination and decreased water quality, recreation, heavy grazing, and natural gas exploration (USFWS 2012).

Compatible Land Uses

In the Central Valley, rice fields have become important habitat for GGS. Irrigation water typically enters the rice lands during April along canals and ditches. GGS use these canals and their banks as permanent habitat for both spring and summer active behavior and winter hibernation. Where these canals are not regularly maintained, lush aquatic, emergent, and streamside vegetation develop prior to the spring emergence of GGS. This vegetation, in combination with cracks and holes in the soil, provides much needed sheltering cover during spring emergence and throughout the remainder of the summer active period.

Rice is planted during the spring after the winter fallow fields have been cultivated and flooded with several inches of standing water. In some cases, GGS move from the canals and ditches into these rice fields soon after the rice plants emerge above the water's surface, and continue to use the fields until the water is drained during late summer or fall (Hansen and Brode 1993). It appears that the majority of GGS move back into the canals and ditches as the rice fields are drained, although a few may overwinter in the fallow fields where they hibernate within burrows located in the small berms separating the rice checks (Hansen 1998).

The rice fields provide shallow warm water habitat where the snakes forage for small fish and the tadpoles of bullfrogs and treefrogs. For shelter and basking sites, GGS utilize the rice plants, the small vegetated berms dividing the rice checks, and the vegetated field margins. Gravid (pregnant) females may be observed within the rice fields during the summer, and at least some GGS are born there (Hansen and Brode 1993; Hansen 1988).

Water is drained from the fields during the late summer or fall by a network of drainage ditches. These ditches are sometimes routed alongside irrigation canals, and are often separated from the irrigation canals by narrow vegetated berms that may provide additional shelter. Remnants of old sloughs also may remain within rice-growing regions where they serve as drains or irrigation canals. GGS may use vegetated portions along any of these waterways as permanent aquatic and upland habitat.

Managed wetlands also provide suitable opportunities for GGS. Wetland conservation in the Central Valley mostly occurs through a combination of both public and privately managed refuges, mitigation banks, and duck clubs, creating a large network of wetland preserves throughout the historical range of the giant garter

snake. However, a large percentage of these wetland conservation efforts are focused on waterfowl management, which places greater emphasis on winter water, rather than the summer water on which GGS are dependent (USFWS 1999). With proper consideration given to design, location, and management, these conservation efforts might also significantly benefit the giant garter snake and other wetland dependent species (USFWS 1999).

Specific Habitat Requirements for the Southern Sacramento Valley

GGS in the southern Sacramento Valley, including the Laguna Creek watershed, have been shown to only occur in suitable aquatic habitats that support emergent and aquatic vegetation consisting of low growing thickets and mats of annual and perennial plants. GGS have also been documented to inhabit a band of suitable habitat encircling the Sacramento/San Joaquin Delta and floodplains between 10 and 40 feet in elevation. Larger bodies of open water, shallow water, or those with lightly or unvegetated banks are avoided by GGS. Historic aquatic GGS habitats have lost their ability to support GGS when exposed to heavy grazing and the loss of protective plant cover (including tules). Soil compaction from cattle trampling can result in the destruction of underground and aquatic retreats such as rodent and crayfish burrows and other cracks and holes. Remaining GGS have been exposed to predators and other stresses related to loss of shelter. Habitats suitable for GGS within the southern Sacramento County persist, albeit 10 miles downstream of the Project, although overgrazing and urbanization pose a real threat to GGS remaining or expanding in range. (Brode 1986b).

3.0 Methods

Prior to conducting the field visit, a review of data from the USFWS (2012) Giant Garter Snake 5-Year Review and the California Natural Diversity Data Base (CNDDB; California Department of Fish and Wildlife [CDFW] 2022) for all current known locations of GGS within the vicinity of the Project was conducted.

After reviewing background information, a field survey was conducted by Madrone biologist Dustin Brown on 16 and 17 November 2022. The field survey focused on evaluating the section of Laguna Creek within the Project for its potential to support GGS. Additionally, all areas within 200 feet of the Project were evaluated for the potential for GGS habitat. Photographs of the Project are included in **Attachment A**.

During the survey Mr. Brown walked meandering transects through the Project site. Vegetation communities and habitat types were noted and were based on dominant vegetation and hydrology (ponding or flowing water). Laguna Creek within the Project and associated upland habitats were evaluated with the use of a modified scoring method developed by Eric Hansen (2008).

According to Hansen's (2008) analysis, habitat evaluation criteria are based on recognized minimum ecological requirements for GGS. Each criterion is scored, with a final numerical total represented categorically. All results are then confirmed with a visual assessment of habitat. This evaluation provides a habitat value, supporting a detailed classification, by trait, of habitat variables within the Project sites and Survey Areas.

Hansen's (2008) scoring method was modified from the USFWS 1999 Draft Recovery Plan for the Giant Garter Snake (Appendix D: Page 157). The evaluation form was updated by Eric Hansen for a higher degree of rigor in assessing habitat value and incorporates a step-wise scale to reduce scoring ambiguity. The modified habitat evaluation and scoring form and instructions for completing this form are included as **Attachments B and C**.

The USFWS (1997) requires that a 200-foot buffer of upland on each bank side of a linear habitat be included as suitable habitat for GGS when assessing a project's disturbance area. The USFWS's measure of suitable habitat is part of the Programmatic Formal Consultation with the U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California (USFWS 1997). Further, the 200-foot upland buffer has become a standard requirement in subsequent Biological Opinions and impacts analyses; therefore, it was applied to this assessment.

All GGS habitat attributes were recorded in data sheets containing all scoring factors associated with suitable GGS habitat. Habitat attributes were tallied to provide a total habitat score for each feature identified as potential GGS habitat. The scores were then separated into three classes resulting in a suitability score of aquatic habitats with corresponding habitat values. Habitat suitability categories and score ranges are as follows:

- Unsuitable (0-6 points)
- Marginal (7-13 points)
- Suitable (14-19 points)

Habitat classification values (unsuitable, marginal, and suitable) are based upon recognized habitat characteristics and knowledge of GGS and their life history, distribution, and habitat requirements (Hansen and Brode 1980, Hansen 1988, USFWS 1999, Wylie and Martin 2000, Hansen 2003, Hansen 2004) and are defined below.

Unsuitable habitat is characterized by lack of the water, vegetation, and refugia necessary to support GGS for a biologically meaningful period. Such habitat is generally composed of large rivers, lakes, and concrete (gunite) drains or temporary swales that possess no water during the active spring and summer seasons. As such, unsuitable habitat corridors are no more likely to support GGS than any non-aquatic environment, and if they do so, they do so only by chance. Transient features, such as shallow trenches and furrows intended only to direct winter runoff, typically do not persist through the remainder of the season and do not provide the aquatic habitat necessary to support GGS for a meaningful time and should therefore be assigned to this category. However, because transient features still exhibit characteristics such as winter water, bank sun, and bank or upland vegetation, they can potentially accumulate the number of points necessary to qualify as marginal habitat in this evaluation scheme.

Marginal habitat is characterized by any combination of those suitable habitat features listed below such that it can support transient GGS on a temporary basis or act as a connective corridor between areas of more stable or desirable habitat. This habitat need only possess the water, vegetation, and refugia required to provide minimal coverage for dispersing snakes. Marginal habitat is incapable of supporting permanent populations of GGS and is typically ephemeral, providing no permanent source of prey.

Suitable habitat is characterized by containing all of the features necessary to support permanent populations of GGS, including: 1) sufficient water during the active summer season to supply cover and food such as small fish and amphibians; 2) emergent, herbaceous aquatic vegetation accompanied by vegetated banks to provide basking and foraging habitat; 3) bankside burrows, holes and crevices to provide short-term aestivation sites; and 4) high ground or upland habitat above the annual high-water mark to provide cover and refugia from floodwaters during the dormant winter season (Hansen 1988, Hansen and Brode 1980).

4.0 Results

CNDDB Results

The CNDDB search (CDFW 2022) revealed no documented occurrences of GGS within 1 mile of the Project and a total of four documented occurrences within 5-miles of the Project (**Figure 3**). See **Attachment D** for CNDDB Occurrence reports.

The nearest occurrence (Occurrence Number 169) is located along Waterman Road approximately 2.5 mile south of the Project. This occurrence was documented in 2002 and consists of an observation of a single snake along a roadside ditch on the east side of Waterman Road approximately 0.8 mile north of Grant Line Road. Madrone senior biologist Dustin Brown visited of the area where Occurrence 169 is located and determined that there is no suitable GGS habitat in the vicinity. The ditches along Waterman Road are highly ephemeral and do not support a prey base. Additionally, the high velocity vehicular traffic along Waterman Road would preclude a population of GGS from inhabiting the area. See page 3 of **Attachment A** for photographs of the Occurrence 169.

There is a documented occurrence of GGS (Occurrence Number 84) located approximately 4 miles downstream of the Project along Laguna Creek. GGS were observed in a marsh surrounded by irrigated pasture and grazed grassland in 1976 and 1982. None were observed during surveys conducted at this location in 1986-1987. This area was developed into housing and the marsh was converted to a constructed wetland since the observations. It is assumed by the CNDDB that this population of GGS is possibly extirpated (CNDDB 2022).

The next closest occurrence of GGS (Occurrence Number 13) is located approximately 3 miles southwest of the Project along Elk Grove Creek. GGS were identified at this location in 1929, 1976, and 1982. The marsh was filled in 1984 as part of a development and no GGS have been observed in the area since. It is assumed by the CNDDB that this population of GGS is extirpated (CNDDB 2022).

The nearest extant GGS occurrence is located approximately 9 miles west of the Project along Morrison Creek near the Sacramento Regional Wastewater Treatment Plant. Habitat at this location consists of the confluence of Morrison, Union House, and Laguna Creeks through a low wide marshy basin with tule and cattail (CNDDB 2022). This occurrence is located approximately 10-miles downstream of the Project in which Laguna Creek flows through almost continuous urban development with many stretches of poor-quality ephemeral habitat.

Laguna Creek

Madrone identified one aquatic feature within the Project and within 200 feet of the Project, Laguna Creek. Laguna Creek within the Project was ponded but not flowing at the time of the November 2022 habitat assessment. Wetted width ranged from 20 to 50 feet. Substrate along the bed and banks of Laguna Creek was soil/mud and water depth was generally shallow and averaged between 6 and 10 inches with deeper areas observed in the southern portion of the Project. The banks are cut vertical from cattle trampling, range from 2 to 6 feet in height and are sparsely vegetated by annual grasses and forbs with few small patches of Armenian blackberry (*Rubus armeniacus*). Laguna Creek with the Project contained no aquatic or emergent vegetation to provide cover or refugia to GGS. There is a run-of-river dam located along Laguna Creek

approximately 0.65 miles downstream. This dam has created an in-stream reservoir approximately 1.5-miles in length which includes the entire length of Laguna Creek in the Project. It is assumed, based upon the presence of an old water pump located within Laguna Creek within the Project, that water within this reservoir was historically pumped out of the creek to be used to irrigate the northeastern 60-acre portion of the Project as pasture for cattle. The uplands surrounding Laguna Creek consist of non-native grazed annual grassland.

The non-native mosquitofish (*Gambusia affinis*) and spotted bass (*Micropterus punctulatus*) were observed within Laguna Creek at the time of the survey.

Laguna Creek scored a "6" on the GGS habitat suitability scale (**Attachment B**) and is thus classified as unsuitable habitat for GGS.

5.0 Conclusion

Laguna Creek and the uplands within the Project do not represent suitable habitat for GGS. Factors include the lack aquatic and emergent vegetation, the lack of substantial bank vegetation, the lack of subterranean retreats in the bank and adjacent uplands, the presence of introduced game fish in Laguna Creek, and no connectivity to extant GGS populations. Also, it should be noted that the Project is outside of the known elevation range for the species within the southern Sacramento Valley (Brode 1986b). Based on the lack of suitable habitat located within the Project and within 200 feet of the Project, we believe GGS are not present within the Project area.

6.0 REFERENCES

Balfour, P.S. and E. W. Stitt. 2002. "*Nerodia fasciata fasciata*." *Herpetological Review* 33(2): 150.

Brode, J. 1988. Natural history of the giant garter snake (*Thamnophis couchii gigas*). Pages 25-28, *In* Proceedings of the conference on California herpetology, H.F. DeListe, P.R. Brown, B. Kaufman, and B.M. McGurty (eds). Southwestern Herpetologists Society, Special Publications No. 4.

Brode, J. and G. Hansen. 1992. *Status and future management of the giant garter snake (Thamnophis gigas) within the southern American Basin, Sacramento and Sutter counties, California*. California Department of Fish and Game, Inland Fisheries Division, January 1992.

Brown, D. 2000. "The *Nerodia rhombifera* problem." Unpublished report to California Department of Fish and Game. 35 pp.

California Department of Fish and Wildlife (CDFW). 2022. California Natural Diversity Database (CNDDB), Rarefind 5 Commercial Version. Accessed November 2022.

Fitch, H.S. 1940. "A biogeographical study of the *ordinoides* artenkreis of garter snakes (genus *Thamnophis*)." *Univ. Calif. Publ. Zool*. 44:1-150.

Hansen, R. W. 1980. "Western aquatic garter snakes in central California: an ecological and evolutionary perspective." Master of Arts thesis, California State University, Fresno, California. 78 pp.

Hansen, G.E. 1986a. Status of the giant garter snake *Thamnophis couchi gigas* (Fitch) in the Southern San Joaquin Valley During 1986. Final report for California Department of Fish and Game Agreement No. C-1433. Unpublished. 31 pp.

Hansen, G.E. 1986b. Status of the giant garter snake *Thamnophis couchi gigas* (Fitch) in the Southern Sacramento Valley During 1986. Final report for California Department of Fish and Game Agreement No. C-1433. Unpublished. 29 pp.

Hansen, R. W. 1988. "Review of the status of the giant garter snake (*Thamnophis couchi gigas*) and its supporting habitat during 1986-87." Final report to California Department of Fish and Game, Contract C-2060. 31 pp.

Hansen, R. W. and G. E. Hansen. 1990. "*Thanmophis gigas* (giant garter snake) reproduction." *Herpetological Review* 21(4): 93-94.

Hansen, G. E. and J. M. Brode. 1980. "Status of the giant garter snake *Thamnophis couchi gigas* (Fitch)." California Department of Fish and Game, Inland Fisheries Endangered Species Program Special Publication 80-5, 14 pp.

Hansen, E.C. 2004. "Year 2003 investigations of the giant garter snake (*Thamnophis gigas*) in the Middle American Basin: Sutter County, California." Annual report prepared for Sacramento Area Flood Control Agency. March 10, 2004. Contract No. 381. Unpublished. 40 pp.

Hansen, E.C. 2008. "Evaluations of Giant Garter Snake (*Thamnophis gigas*) habitat and consideration of potential species impacts for the Antioch Bridge Seismic Retrofit Project, Sacramento County and Contra Costa County, California." November 12, 2008. Unpublished. 25 pp.

Hansen, E.C., H. McQuillen, S. Sweet, S. Gala, and J. Marty. Response of the Giant Garter Snake (*Thamnophis gigas*) to Water Primrose (*Ludwigia hexapetala*) Removal at the Cosumnes River Preserve. Final Report Submitted to the Central Valley Project Conservation Program – Habitat Restoration Program. December 29, 2010. 43 pp.

Hansen, G.E. and J.M. Brode. 1993. "Results of relocating canal habitat of the giant garter snake (*Thamnophis gigas*) during widening of State Route 99/70 in Sacramento and Sutter counties, California." Final report for Caltrans Interagency Agreement 03E325 (FG7550) (FY 87/88-91-92). Unpublished. 36 pp.

Jayne, B.C. and A.F. Bennett. 1990. "Selection on Locomotor Performance Capacity in a Natural Population of Garter Snakes." *Evolution* Volume 44, Issue 5 (Aug., 1990), 1204-1229.

Miles, Scott and Charles Goudey. 1997. *Ecological Subregions of California*. United States Department of Agriculture, Forest Service. Pacific Southwest Division. R5-EM-TP-005. San Francisco.

Stitt, E., P. Balfour, T. Luckau, and T.E. Edwards. 2005. "The Southern Watersnake (*Nerodia fasciata*) in Folsom, California: History, Population Attributes, and Relation to Other Introduced Watersnakes in North America." Final Report to U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Sacramento, California under Cooperative Agreement #11420-1933-CM02 by ECORP Consulting, Inc. April 11, 2005. 72 pp. and appendices.

U.S. Fish and Wildlife Service (USFWS). 1993. Endangered and threatened wildlife and plants; determination of threatened status for the giant garter snake. Federal Register 58:54053-54066.

U.S. Fish and Wildlife Service (USFWS). 1997. *Programmatic Formal Consultation for the U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter, and Yolo Counties, California*. November 13, 1997. 20 pp. and appendices.

U.S. Fish and Wildlife Service (USFWS). 1999. *Draft Recovery Plan for the Giant Garter Snake (Thamnophis gigas)*. Portland, Oregon. 192 pp.

U.S. Fish and Wildlife Service (USFWS). 2006. *Giant Garter Snake (Thamnophis gigas) 5-Year Review: Summary and Evaluation*. September 2006. 46 pp.

U.S. Fish and Wildlife Service (USFWS). 2012. *Giant Garter Snake (Thamnophis gigas) 5-Year Review: Summary and Evaluation*. June 2012. 62 pp.

U.S. Fish and Wildlife Service (USFWS). 2015. *Revised Recovery Plan for the Giant Garter Snake (Thamnophis gigas)*.

U.S. Geological Survey. 2022. "Elk Grove, California" 7.5 minute Quadrangle Map.

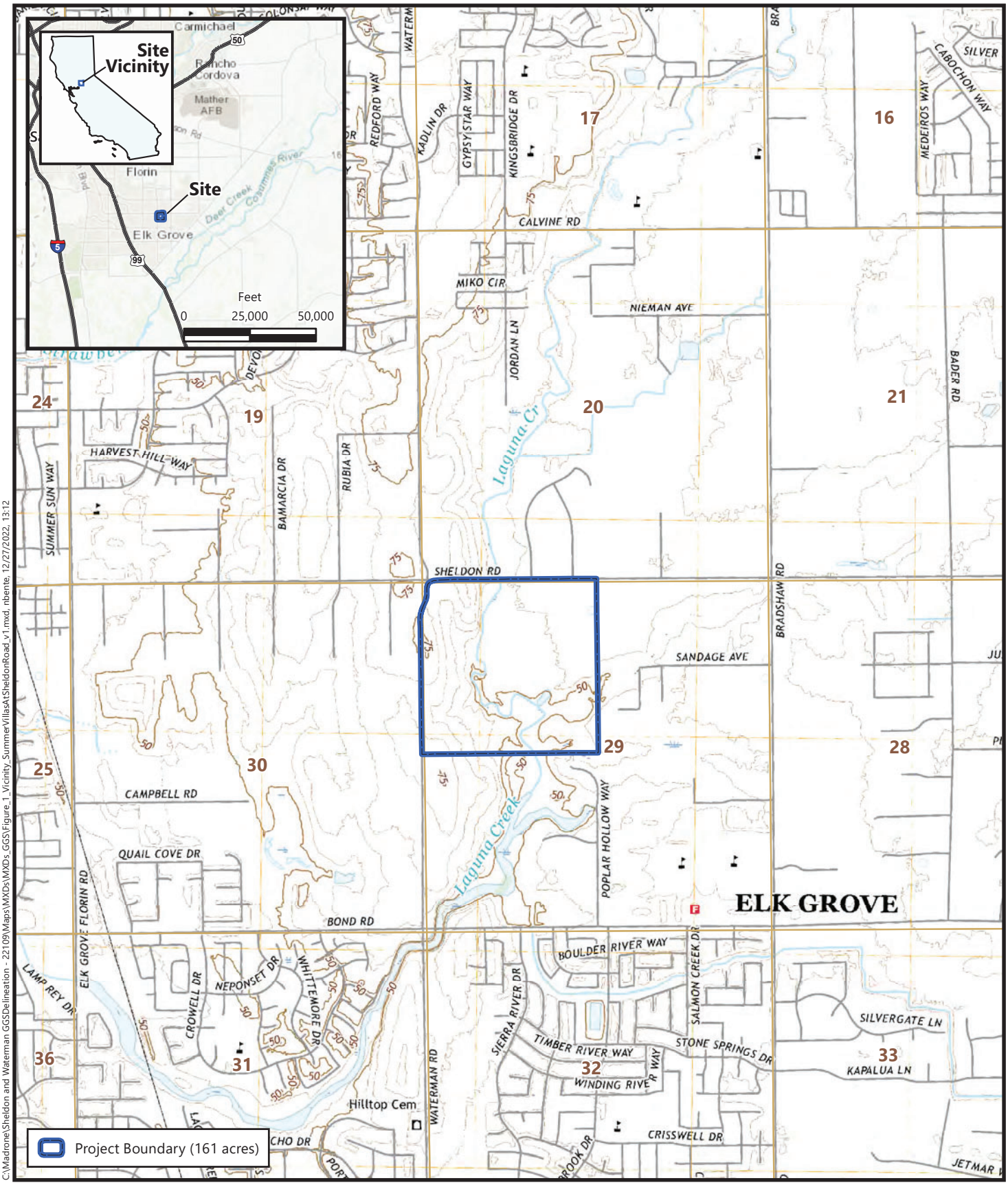
Wylie, G. D and L.L. Martin. 2004. "Survey for the Giant Garter Snakes in Solano County: 2004 Report." Prepared for US Fish and Wildlife Service. U. S. Geological Survey, Western Ecological Research Center, Dixon Field Station, Dixon, California. 20 pp.

Figures

Figure 1. Site Vicinity

Figure 2. Potential Giant Garter Snake Habitat

Figure 3. California Natural Diversity Database Occurrences of Giant Garter Snake

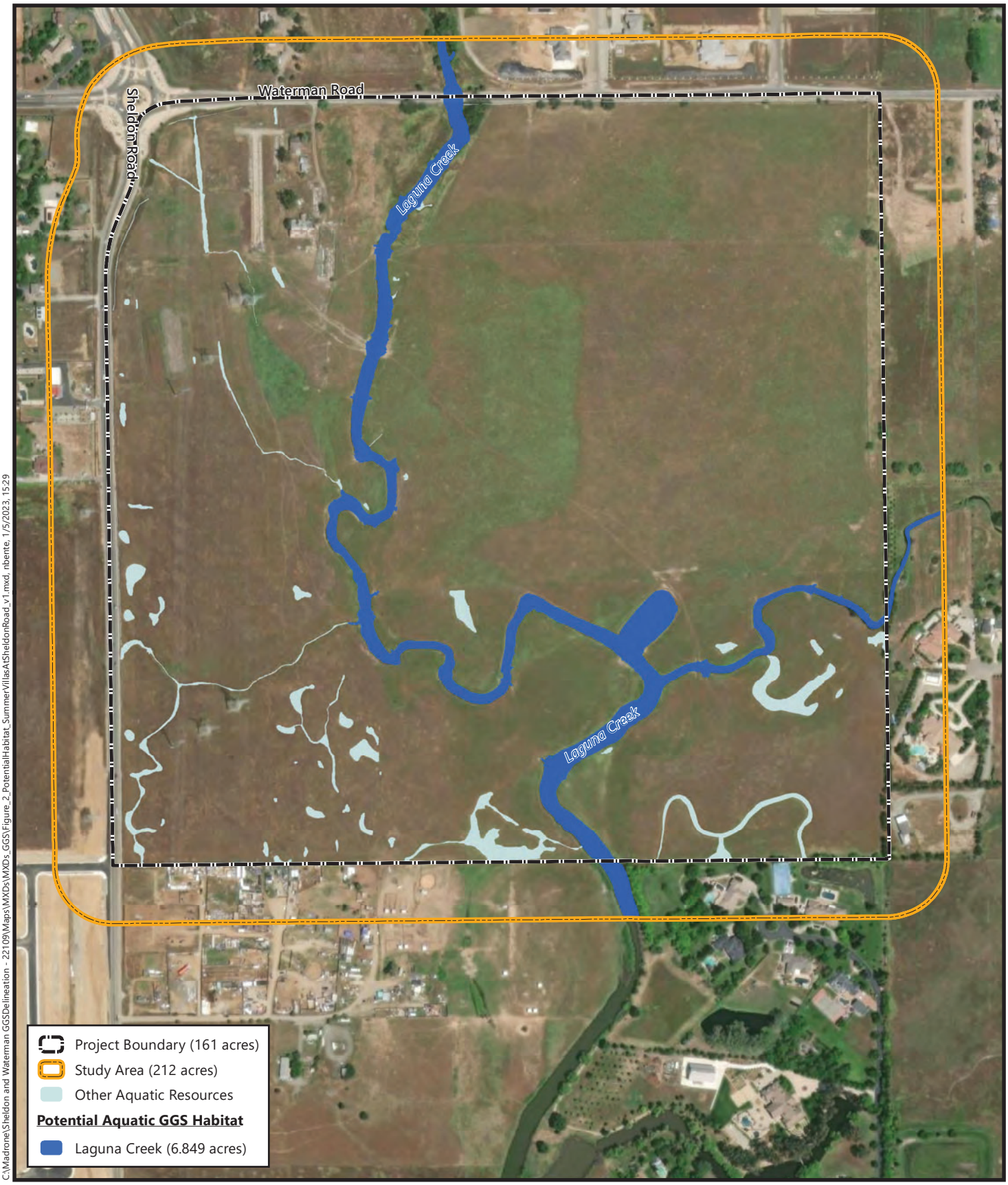


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Figure 1
Site and Vicinity

Summer Villas at Sheldon Road
Sacramento County, California

Source: United States Geologic Survey, 2022.
"Elk Grove, California" 7.5-Minute Topographic Quadrangle
Sections 20, 29-30, Township 7 North, Range 6 East, MDB&M
Longitude -121.34857, Latitude 38.434485



C:\Madrone\Sheldon and Waterman GGSDelineation - 22109\Maps\MXDs\MXDs_GGS\Figure_2_PotentialHabitat_SummerVillasAtSheldonRoad_v1.mxd, nbente, 1/5/2023, 15:29

Aerial Source: Maxar, 26 April 2022

Figure 2
Potential Giant Garter Snake Habitat

Summer Villas at Sheldon Road
Sacramento County, California

MADRONE ECOLOGICAL CONSULTING

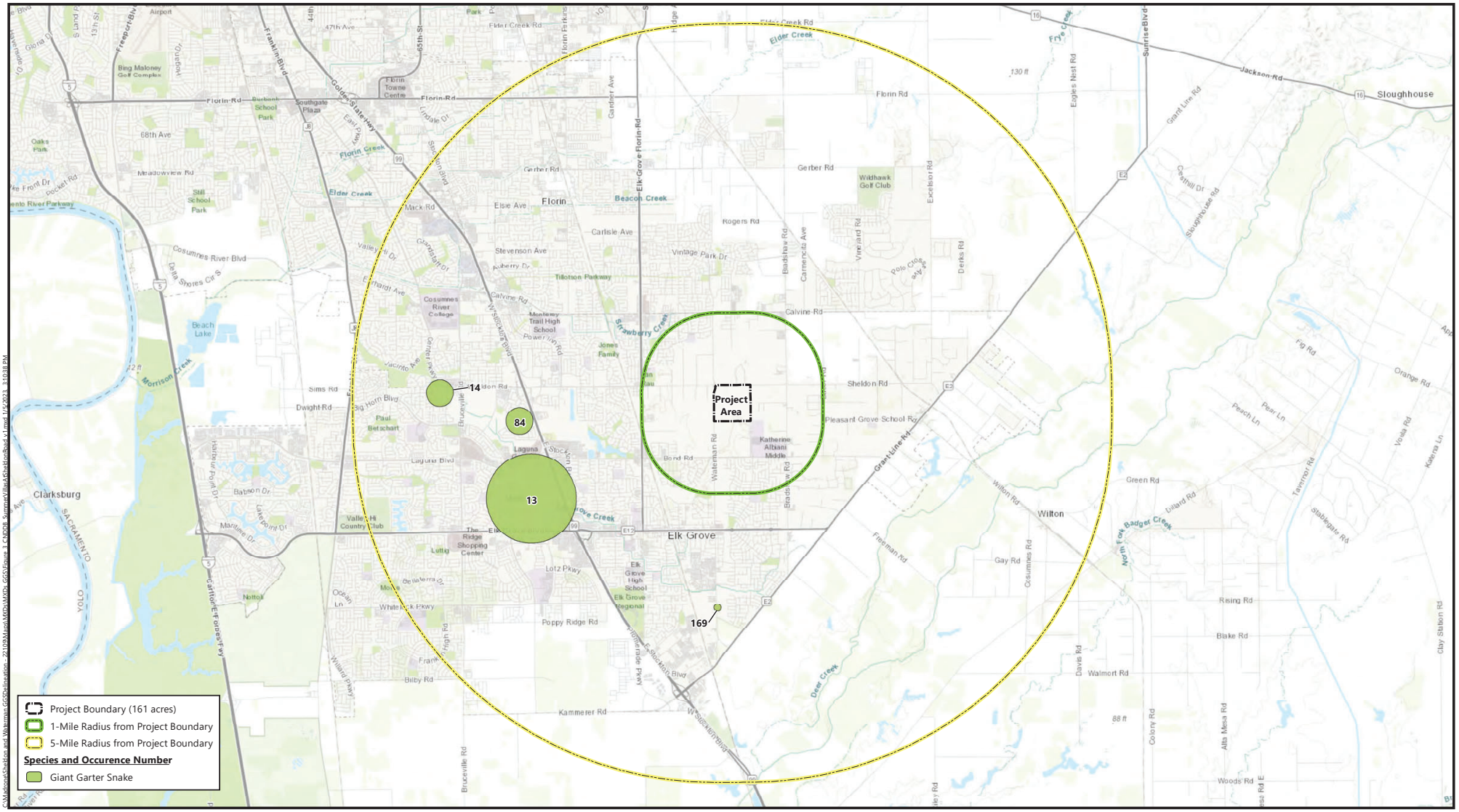


Figure 3
California Natural Diversity Database
Occurrences of Giant Garter Snake

Summer Villas at Sheldon Road
Sacramento County, California

Source: *California Department of Fish and Wildlife*, November 2022.
Basemap Source: *National Geographic* and *ESRI*

Attachments

Attachment A: Site Photographs

Attachment B: Habitat Evaluation and Scoring Form

Attachment C: Instructions for Completing the Habitat Evaluation and Scoring Form

Attachment D: CNDDB Occurrence Reports

Attachment A

Site Photographs



Photograph 1. Laguna Creek – Facing north (upstream) from the center of the Project.



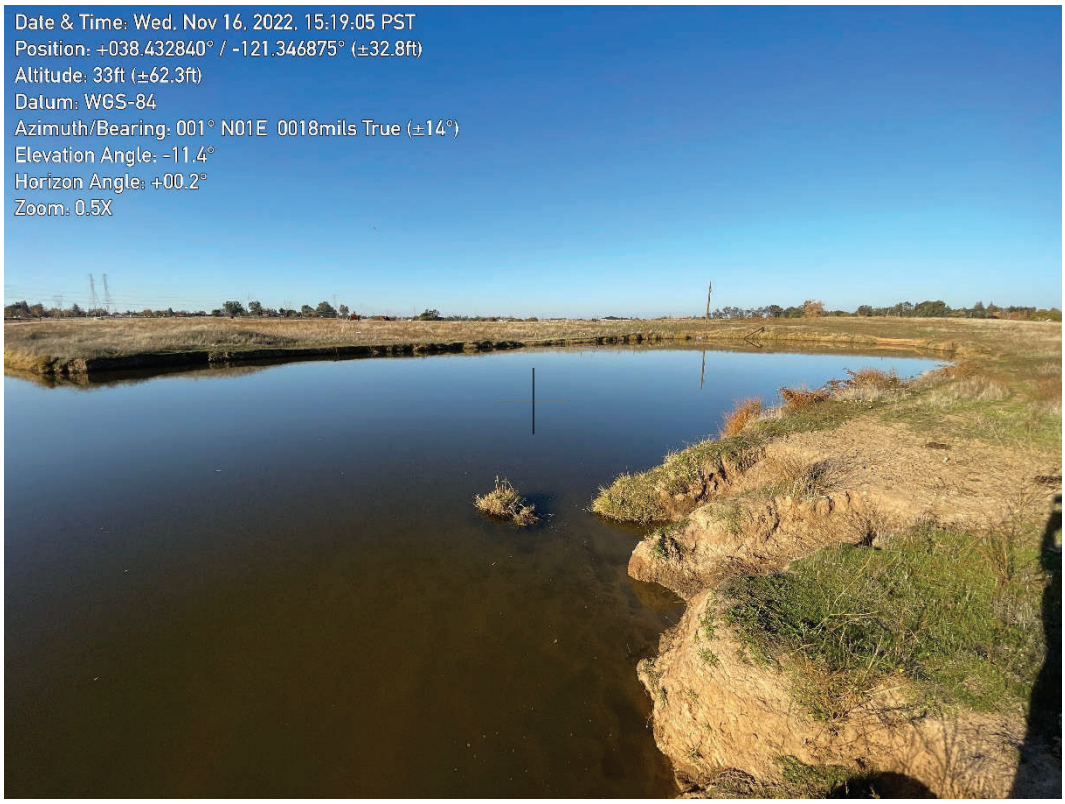
Photograph 2. Laguna Creek – Facing northwest (upstream) toward the onsite structures.



Photograph 3. Tributary to Laguna Creek – Facing west (downstream) in the eastern portion of the Project.



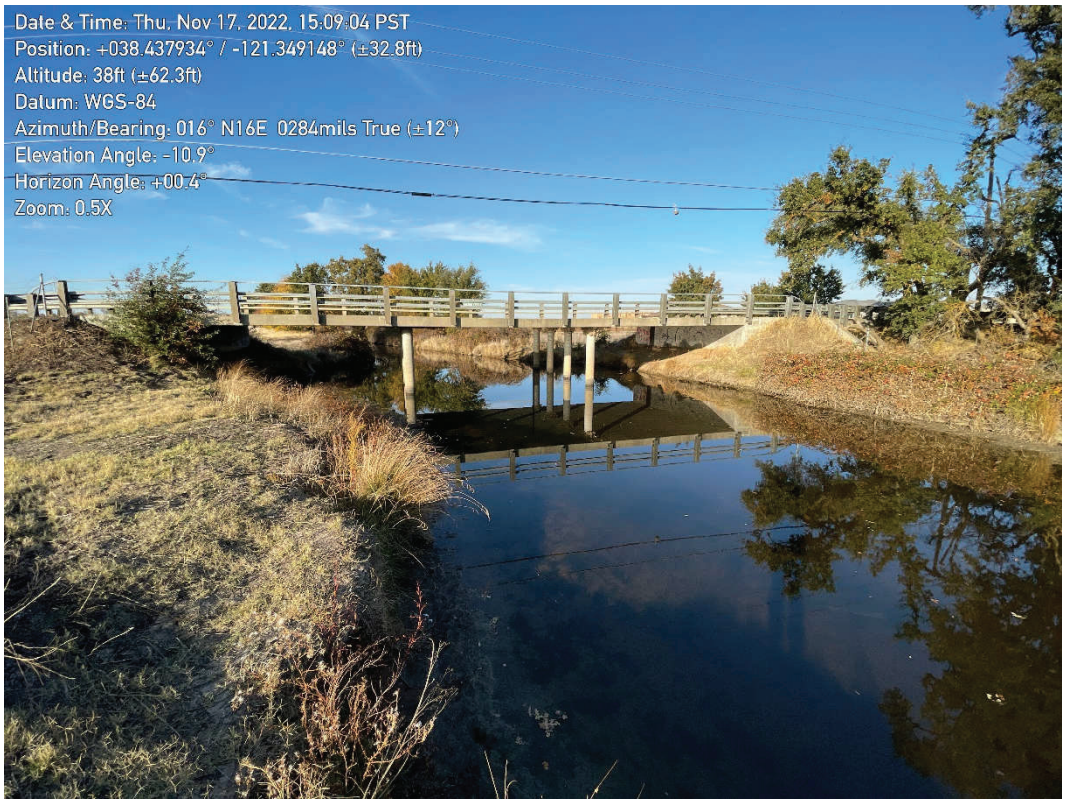
Photograph 4. Tributary to Laguna Creek – Facing east (upstream) in the eastern portion of the Project.



Photograph 5. Facing north at the outpouching of Laguna Creek. There is a defunct pump and intake pipe that used to be used to irrigate pastureland to the north.



Photograph 6. Facing north at Laguna Creek within the southern portion of the Project.



Photograph 7. Facing north (upstream) at the Sheldon Road bridge over Laguna Creek



Photograph 8. Facing south at the portion of the Project that was historically irrigated pasture that is now annual grassland with yellow star thistle.



Photograph 9. Facing south at a large seasonal wetland within the center portion of the Project.



Photograph 10. Location of CNDDB Occurrence Number 169 located along Waterman Road 2.6 miles to the south. Facing south.



Photograph 11. Location of CNDDB Occurrence Number 169 located along Waterman Road 2.6 miles to the south. Facing north.

Attachment B

Habitat Evaluation and Scoring Form

HABITAT EVALUATION AND SCORING FORM

Giant Garter Snake (*Thamnophis gigas*)

Project Name: Summer Villas at Sheldon Road

Water Body Name: Laguna Creek

General Characteristic: Perennial Stream **Permanent/Seasonal**[1]

USGS 7.5' Topo Quad: Elk Grove, CA **Township** 7N **Range** 6E

Surveyor/Affiliation: Dustin Brown, Madrone Ecological Consulting **Date:** 11/16/2022 11/17/2022

Scores: 0=absent/none 1=present/low (0-25%) 2=moderate (25-75%) 3=high (75-100%)

Factor	Score
1. Still or slow-flowing water over silt substrate	+ (✓)[2]
2. Flowing water over sand, gravel, rock or cement substrate	-- ( )[2]
3. Water available[3]	
a) Winter only (runoff) or sporadic availability	+ ( )[2]
b) April through October only (e.g. irrigation)	+ ( )[2]
c) All year (e.g. perennial marsh or channel)	+ (✓)[2]
4. Banks are sunny	+ (2)
5. Banks shaded by overstory vegetation	-- (1)
6. Aquatic or emergent vegetation present	+ (0)
7. Terrestrial vegetation present	
a) On banks	+ (1)
b) In adjacent uplands	+ (2)
8. Subterranean retreats present[3]	
a) In banks	+ (1)[2]
b) In adjacent uplands	+ ( )[2]
9. Prey fish present	+ (✓)[2]
10. Introduced gamefish present	-- (✓)[2]
11. Prey amphibians present	+ ( )[2]
12. Site subject to severe seasonal or tidal flooding	-- (✓)[2]
13. Adjacent land use[3]	
a) Rice, marsh, or wetland	+ ( )[2]
b) Upland	+ (✓)[2]
c) Row Crop or horticultural	-- ( )[2]
d) Urban or developed public area	-- ( )[2]
14. Disturbance due to human recreational or maintenance activities/Cattle Trampling	-- (✓)[2]
15. Connectivity to known populations of GGS	+ ( )[2] no

Clear, not murky water (low quality)

- Dam on creek 0.65 mi. D/s has created an in-stream reservoir for irrigation purposes.

- Banks of Laguna creek are earthen and are cut by cattle trampling.

Over 10 miles from extant GGS population

[1] *seasonal habitat designation results in a total adjusted score of 0 points*
[2] *indicates presence/absence only*
[3] *factors within these fields are scored cumulatively*

Total: 6

Adjusted Total[1]: 6

- Site is moderately grazed by cattle.
- Grassland contains moderate ammounts of yellow star thistle due to past disturbance or irrigation.
- Laguna Creek was innundated (ponded) at the time of the survey but not flowing. Substrate is earthen/mud.
- Creek is generally shallow and the bed is fairly level. Depth averaged 6" with several deeper areas in attached irrigation pump intake area.
- Mosquitofish are present and pie-billed grebe was foraging in deeper areas.
- No aquatic or emergent vegetation is present in creek channel. Bank are moderately vegetated by grass and contain small patches of Armenian Blackberry.

Attachment C

Instructions for Completing the Habitat Evaluation and Scoring Form

INSTRUCTIONS FOR COMPLETING THE HABITAT EVALUATION AND SCORING FORM
(Hansen 2008)

Giant Garter Snake
(Thamnophis gigas)

1. Still or slow-flowing water over silt substrate

This category is checked if bank habitat adjacent to water is composed of soil, silt, or mud in flows no greater than 3 mph. Water in this category will often be dark or murky rather than clear, of the type observed in marshes, sloughs, or irrigation canals. This category is determined by presence or absence only and receives a positive score.

2. Flowing water over sand, gravel, rock or cement substrate

This category is checked if channel or bank habitat is composed of an impermeable substrate of the type listed above defining this category, and includes the presence of bank side cinders or fine concrete riprap placed for erosion control. Water in this category will often be clear, associated with flows exceeding 3 mph, of the type typically observed in flowing streams or rivers where silt or sediment will not persist. This category is determined by presence or absence only and receives a negative score.

3. Water available:

a) Winter only (runoff) or sporadic availability
b) April through October only (e.g. irrigation)
c) All year (e.g. perennial marsh or channel)

Factors in this category are based upon the persistence of all water within 200 feet of observed habitat. Factors in this category are cumulative, are determined by presence or absence only, and receive positive scores.

4. Banks are sunny

This category is checked if bank habitat adjacent to water receives direct sunlight. Availability of sunlight is determined by the ability of GGS to access sun for basking, and does not include areas where vegetation or topography prevents such access. This category receives positive scores determined by percentage of sunlight present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

5. Banks shaded by overstory vegetation

This category is checked if bank habitat adjacent to water receives shade obstructing direct sunlight. This category is designed to complement and weight category 4, and receives negative scores determined by percentage of shade present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

6. Aquatic or emergent vegetation present

This category is checked if bank side aquatic habitat is characterized by aquatic vegetation which persists above the water level (*e.g.* cattails, bulrushes, primrose or hyacinth). This category receives positive scores determined by the percentage of aquatic vegetation present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

7. Terrestrial vegetation present

a) On banks
b) In adjacent uplands

This category is checked if bank habitat or adjacent uplands within 200 feet of aquatic habitat are characterized by vegetation (*e.g.* grasses, brush, low shrubs or Himalayan blackberry). This category receives positive scores determined by the percentage of terrestrial vegetation present. Percentage classes and corresponding point values are included on the Habitat Evaluation and Scoring Form.

8. Subterranean retreats present

a) In banks
b) In adjacent uplands

This category is checked if bank habitat or adjacent uplands within 200 feet of aquatic habitat are characterized by burrows, holes, or cracks either in the soil or under debris. Factors within this category are cumulative, are determined by presence or absence only, and receive positive scores.

9. Prey fish present

This category is checked if small aquatic prey fish (*e.g.* carp, mosquitofish, or blackfish) are present within aquatic habitat. This category is determined by presence or absence only and receives a positive score.

10. Introduced gamefish present

This category is checked if large, predatory gamefish (*e.g*. black bass, striped bass, channel catfish) are present within aquatic habitat. This category is determined by presence or absence only and receives a negative score.

11. Prey amphibians present

This category is checked if amphibians (e.g. bullfrog, treefrog, red-legged frog) are present within or near aquatic habitat. Note that toads do not constitute preferred prey for the giant garter snake and are not included when scoring this category. This category is determined by presence or absence only and receives a positive score.

12. Site subject to severe seasonal or tidal flooding

This category is checked if habitat is subject to prolonged inundation of upland terrestrial habitat by seasonal floodwaters or persistent tidal flows. This category is determined by presence or absence only and receives a negative score.

13. Adjacent land use

a) Rice, marsh, or wetland
b) Upland
c) Row Crop or horticultural
d) Urban or developed public area

Factors in this category are based upon dominant land use within 200 feet of observed habitat. Factors in this category are cumulative, are determined by presence or absence only and receive positive or negative scores indicated on the Habitat Evaluation and Scoring Form.

Attachment D

CNDDB Occurrence Reports

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 11466
Key Quad: Florin (3812144)
Occurrence Number: 13
EO Index: 13783
Element Code: ARADB36150
Occurrence Last Updated: 2014-12-01

Scientific Name: *Thamnophis gigas*
Common Name: giant gartersnake

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2
State: S2

General Habitat:

PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS AND IRRIGATION DITCHES.

Micro Habitat:

THIS IS THE MOST AQUATIC OF THE GARTERSNAKES IN CALIFORNIA.

Last Date Observed: 1982-07-26
Last Survey Date: 1987-XX-XX
Owner/Manager: PVT
Presence: Extirpated
Occurrence Type: Natural/Native occurrence
Occurrence Rank: None
Trend: Unknown

Location:

VICINITY OF ELK GROVE CREEK, JUST NW OF ELK GROVE AND HWY 99 INTERSECTION, ABOUT 1.2 MILES WNW OF ELK GROVE POST OFFICE.

Detailed Location:

MAPPED GENERALLY TO PROVIDED LOCATION DESCRIPTIONS; 1929: TEN MILES SOUTH OF SACRAMENTO. 1976: 0.1 MI N ELK GROVE BLVD, W OF HWY 99. 1982: ELK GROVE CR, 0.4 MI W US 99, 0.5 MI N ELK GROVE BLVD.

Ecological:

THE MARSH AT THIS LOCATION WAS FILLED AND LEVELED FOR INDUSTRIAL PARK DEVELOPMENT AS OF MAY 1984.

Threats:

DEVELOPMENT.

General:

1 COLLECTED IN MAY 1929 BY W. WILSON (CAS# 178600). AT LEAST 1 DETECTED ON 1 JUL 1976; G. HANSEN FIELD NOTES #268. 2 JUVENILES OBSERVED BASKING ON 26 JUL 1982. NO SNAKES OBSERVED DURING 1986-87 STUDY BY G. HANSEN; LEVEL OF EFFORT UNKNOWN.

PLSS: T07N, R05E, Sec. 35 (M)
Accuracy: 3/5 mile
Area (acres): 0
UTM: Zone-10 N4253140 E639692
Latitude/Longitude: 38.41559 / -121.39989
Elevation (feet): 45

County Summary:

Sacramento

Quad Summary:

Florin (3812144)

Sources:

BRO80U0001	BRODE, J. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE) - GEOGRAPHIC REFERENCE CARD CATALOG OF SPECIMENS AND FIELD NOTE RECORDS COMPILED BY JOHN BRODE (DFG) 1980-XX-XX
CAS40S0001	CALIFORNIA ACADEMY OF SCIENCES - 1900-1940 CAS HERPETOLOGY HOLDINGS (INCLUDES STANFORD UNIVERSITY COLLECTIONS) FOR THAMNOPHIS GIGAS 1940-XX-XX
HAN82R0001	HANSEN, G.E. - "STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS), ALONG PORTIONS OF LAGUNA AND ELK GROVE CREEKS, SACRAMENTO COUNTY, CA." 1982-XX-XX
HAN88R0001	HANSEN, G. - DRAFT FOR REVIEW OF THE STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS) AND ITS SUPPORTING HABITAT DURING 1986-1987. 1988-XX-XX
HOL85U0003	HOLLAND, R.F. - PERSONAL COMMUNICATION REGARDING THAMNOPHIS (COUCHII) GIGAS. 1985-08-23

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 11413
EO Index: 27599
Key Quad: Florin (3812144)
Element Code: ARADB36150
Occurrence Number: 14
Occurrence Last Updated: 2014-12-04

Scientific Name: *Thamnophis gigas*
Common Name: giant gartersnake

Listing Status: **Federal:** Threatened
State: Threatened
Rare Plant Rank:
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2
State: S2

General Habitat:

PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS AND IRRIGATION DITCHES.

Micro Habitat:

THIS IS THE MOST AQUATIC OF THE GARTERSNAKES IN CALIFORNIA.

Last Date Observed: 1976-08-03
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1987-XX-XX
Occurrence Rank: None
Owner/Manager: PVT
Trend: Unknown
Presence: Possibly Extirpated

Location:

LAGUNA CREEK, JUST SOUTH OF SHELDON RD, ABOUT 0.3 MI W OF BRUCEVILLE RD, ELK GROVE.

Detailed Location:

MAPPED ACCORDING TO PROVIDED LOCATION DESCRIPTION OF "SHELDON RD AT CREEK CROSSING, 0.3 MI W OF BRUCEVILLE RD" AND "200 FT S SHELDON RD AT LAGUNA CREEK." 1999-2014 AERIAL PHOTOS SHOW HEAVY DEVELOPMENT SURROUNDING LAGUNA CREEK.

Ecological:

1982 DESCRIPTION: MARSH AREA SURROUNDED BY CULTIVATED FIELDS & HEAVILY GRAZED GRASSLANDS. GRAZED AREAS CHARACTERIZED BY COMPACTED SOIL, FEW RODENT BURROWS, & SPARSE VEGETATION, THEREBY PROVIDING LITTLE COVER FOR SNAKES DURING FLOODS.

Threats:

AGRICULTURE & GRAZING, AREA BECAME HEAVILY RESIDENTIAL BY 2002 (AERIALS).

General:

AT LEAST 1 SNAKE DETECTED ON 3 AUG 1976 BY G. HANSEN (FIELD NOTES #301). NO SNAKES DETECTED DURING JUL-AUG 1982 & 1986-87 STUDY BY G. HANSEN; LEVEL OF EFFORT UNKNOWN.

PLSS: T07N, R05E, Sec. 27, NW (M)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-10 N4255470 E637628
Latitude/Longitude: 38.43691 / -121.42307
Elevation (feet): 25

County Summary:	Quad Summary:
Sacramento	Florin (3812144)

Sources:

BRO80U0001	BRODE, J. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE) - GEOGRAPHIC REFERENCE CARD CATALOG OF SPECIMENS AND FIELD NOTE RECORDS COMPILED BY JOHN BRODE (DFG) 1980-XX-XX
HAN80R0002	HANSEN, G. & J. BRODE - STATUS OF THE GIANT GARTER SNAKE THAMNOPHIS COUCHI GIGAS (FITCH). DEPARTMENT OF FISH AND GAME INLAND FISHERIES ENDANGERED SPECIES PROGRAM SPECIAL PUBLICATION 80-5. 1980-09-XX
HAN82R0001	HANSEN, G.E. - "STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS), ALONG PORTIONS OF LAGUNA AND ELK GROVE CREEKS, SACRAMENTO COUNTY, CA." 1982-XX-XX
HAN88R0001	HANSEN, G. - DRAFT FOR REVIEW OF THE STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS) AND ITS SUPPORTING HABITAT DURING 1986-1987. 1988-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	11449	**EO Index:**	27544
Key Quad:	Florin (3812144)	**Element Code:**	ARADB36150
Occurrence Number:	84	**Occurrence Last Updated:**	2014-12-24

Scientific Name: *Thamnophis gigas* **Common Name:** giant gartersnake

Listing Status: **Federal:** Threatened **Rare Plant Rank:**

State: Threatened **Other Lists:** IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2

State: S2

General Habitat:

PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS AND IRRIGATION DITCHES.

Micro Habitat:

THIS IS THE MOST AQUATIC OF THE GARTERSNAKES IN CALIFORNIA.

Last Date Observed:	1982-08-03	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	1987-XX-XX	**Occurrence Rank:**	None
Owner/Manager:	PVT	**Trend:**	Unknown
Presence:	Possibly Extirpated		

Location:

LAGUNA CREEK, JUST W OF HWY 99 OVERPASS, ABOUT 0.8 MI SE OF JCT OF BRUCEVILLE RD & SHELDON RD, ELK GROVE.

Detailed Location:

MAPPED TO PROVIDED LOCATION OF "0.2 MILES W US 99, 0.5 MILES S SHELDON RD" (1982). 1976 DETECTION LOCATION GIVEN AS "LAGUNA CRK, W OF HWY 99 AT ARNO RD OVERCROSSING." ARNO RD RUNS ABOUT 8 MI TO THE SE; ATTRIBUTED TO LAGUNA CK W OF HWY 99.

Ecological:

1982: SNAKE FOUND SWIMMING AMONG CATTAILS & TULES; AREA ALSO KNOWN AS "CONFLUENCE MARSH" (JCT OF LAGUNA CR & ELK GROVE CR). POTENTIAL PREY SPECIES INCLUDE CARP, BULLHEAD, MOSQUITOFISH, & BULLFROG.

Threats:

1982: MARSH SURROUNDED BY IRRIGATED PASTURE & GRAZED GRASSLAND. 2009: CONSTRUCTED WETLAND IN HEAVILY DEVELOPED AREA.

General:

UNKNOWN NUMBER OF SNAKES DETECTED ON 1 JUL 1976 BY G. HANSEN (FIELD #270). 1 ADULT OBSERVED SWIMMING ON 3 AUG 1982. NONE OBSERVED DURING 1986-87 STUDY BY G. HANSEN DUE TO HEAVY FLOOD EVENT.

PLSS:	T07N, R05E, Sec. 26, NW (M)	**Accuracy:**	1/5 mile	**Area (acres):**	0
UTM:	Zone-10 N4254866 E639409	**Latitude/Longitude:**	38.43119 / -121.40279	**Elevation (feet):**	20

County Summary:	**Quad Summary:**
Sacramento	Florin (3812144)

Sources:

BRO80U0001	BRODE, J. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE) - GEOGRAPHIC REFERENCE CARD CATALOG OF SPECIMENS AND FIELD NOTE RECORDS COMPILED BY JOHN BRODE (DFG) 1980-XX-XX
HAN82R0001	HANSEN, G.E. - "STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS), ALONG PORTIONS OF LAGUNA AND ELK GROVE CREEKS, SACRAMENTO COUNTY, CA." 1982-XX-XX
HAN88R0001	HANSEN, G. - DRAFT FOR REVIEW OF THE STATUS OF THE GIANT GARTER SNAKE (THAMNOPHIS COUCHII GIGAS) AND ITS SUPPORTING HABITAT DURING 1986-1987. 1988-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 47639
EO Index: 47639
Key Quad: Elk Grove (3812143)
Element Code: ARADB36150
Occurrence Number: 169
Occurrence Last Updated: 2002-04-11

Scientific Name: *Thamnophis gigas*
Common Name: giant gartersnake

Listing Status: **Federal:** Threatened
Rare Plant Rank:
State: Threatened
Other Lists: IUCN_VU-Vulnerable

CNDDB Element Ranks: **Global:** G2
State: S2

General Habitat:

PREFERS FRESHWATER MARSH AND LOW GRADIENT STREAMS. HAS ADAPTED TO DRAINAGE CANALS AND IRRIGATION DITCHES.

Micro Habitat:

THIS IS THE MOST AQUATIC OF THE GARTERSNAKES IN CALIFORNIA.

Last Date Observed: 2002-03-27
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2002-03-27
Occurrence Rank: Fair
Owner/Manager: PVT
Trend: Unknown
Presence: Presumed Extant

Location:

EAST SIDE OF WATERMAN ROAD, 0.8 MILE NORTH OF GRANT LINE ROAD, SE OF ELK GROVE.

Detailed Location:

SNAKE OBSERVED AT THE CONFLUENCE OF A WETLAND SWALE AND THE DITCH.

Ecological:

HABITAT CONSISTS OF A ROADSIDE DITCH ALONG WATERMAN ROAD; VEGETATION CONSISTS OF PASPALUM DILATATUM, TYPHA LATIFOLIA, AND CYPERUS ERAGRASTIS.

Threats:

THREATENED BY TRAFFIC AND DITCH MAINTENANCE.

General:

1 ADULT OBSERVED ON 27 MAR 2002.

PLSS: T06N, R06E, Sec. 08, NW (M)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-10 N4250752 E643861
Latitude/Longitude: 38.39342 / -121.35265
Elevation (feet): 50

County Summary:	Quad Summary:
Sacramento	Elk Grove (3812143)

Sources:

HEN02F0002 HENKE, J. (MOORE BIOLOGICAL CONSULTANTS) - FIELD SURVEY FORM FOR THAMNOPHIS GIGAS 2002-03-27