
APPENDIX H

Willowgrove Project

Biological Resources Assessment

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ACRONYMS AND ABBREVIATIONS

AMM	Avoidance and Minimization Measures
BRA	Biological Resources Assessment
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CSA	California Special Animals
CWA	Clean Water Act
DBH	diameter at breast height
FESA	Federal Endangered Species Act
GPS	Global Positioning System
HCP	Habitat Conservation Plan
HDR	Residential High Density
HELIX	HELIX Environmental Planning, Inc.
I-80	Interstate 80
IPaC	Information for Planning and Consultation
LDR	Residential Low Density
MBTA	Migratory Bird Treaty Act
MDR	Residential Medium Density
MSL	mean sea level
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NPPA	Native Plant Protection Act
NRCS	Natural Resource Conservation Service
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
Study Area	Willowgrove Project
SSC	Species of Special Concern
SWRCB	State Water Resources Control Board

ACRONYMS AND ABBREVIATIONS (cont.)

USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WQC	Water Quality Certification

EXECUTIVE SUMMARY

HELIX Environmental Planning, Inc. (HELIX) conducted a Biological Resources Assessment (BRA) for the ±237.56-acre Willowgrove Project (formerly Shriners Residential Development project) (Study Area) on October 5, 2023. A total of 4.23 acres of off-site areas were assessed for biological resources on January 28, 2025. The Study Area is located on East Covell Road just west of Mace Boulevard, north of Interstate 80 (I-80), near the City of Davis, Yolo County, California. The Study Area is situated in Sections 1 and 2 of Township 8 North and Range 2 East, as depicted on the U.S. Geological Survey (USGS) *Davis, CA* 7.5-minute quadrangle map. The approximate center of the Study Area is at latitude 38.5695584 and longitude -121.7081286, NAD 83, and is located at an elevation of approximately 33 feet above mean sea level (MSL). The Study Area is in Yolo County, within the Yolo County Habitat Conservation Plan/Natural Communities Conservation Plan area and is adjacent to the City of Davis on the southern and western boundaries of the Study Area.

The purpose of this BRA is to describe baseline conditions within the Study Area, summarize the general biological resources occurring or potentially occurring in the Study Area, assess the suitability of the Study Area to support special-status species and sensitive vegetation communities or habitats, and provide recommendations for regulatory permitting or further analysis that may be required before development activities occurring on the site.

The ±237.56-acre Study Area is located in an agricultural setting and is currently used to cultivate various row crops. The Study Area is comprised of irrigated hayfields (230.60 acres), urban areas (4.51 acres), and riverine habitat (2.45 acres). A total of 4.23 acres of off-site areas are comprised of annual grassland (1.15 acres), perennial grassland (0.15 acre), deciduous orchard (0.17 acre), irrigated hayfield (0.24 acre), riverine (0.12 acre), ruderal (0.52 acre), urban (1.69 acres), and valley foothill riparian (0.02 acre). Surrounding land uses include agricultural land, commercial areas, residential housing, and I-80.

Known or potential biological constraints in the Study Area include:

- Potential habitat for state candidate endangered species Crotch's bumble bee (*Bombus crotchii*);
- Potential summer breeding habitat for federally proposed threatened species Monarch butterfly (*Danaus plexippus*);
- Potential habitat for the federally and state listed threatened species giant garter snake (*Thamnophis gigas*);
- Potential habitat for the federally proposed threatened species northwestern pond turtle (*Actinemys marmorata*);
- Potential nesting and/or foraging habitat for special-status and migratory birds, including tricolored blackbird (*Agelaius tricolor*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), and Modesto song sparrow (*Melospiza melodia* pop. 1);
- Aquatic resources that may be considered waters of the U.S. and/or State; and

- Trees that may be regulated by the City of Davis.

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1.0 INTRODUCTION

This report summarizes the findings of a Biological Resources Assessment (BRA) completed by HELIX Environmental Planning, Inc. (HELIX) for the 237.56-acre Willowgrove Project (Study Area). Six additional offsite areas that total 4.23 acres were also surveyed. This document addresses the physical features, plant communities present, and the common plant and wildlife species occurring or potentially occurring in the Study Area and off-site areas. In addition, the suitability of habitats to support special-status species and sensitive habitats are analyzed, as well as any potential impacts to biological resources that could occur as a result of the development of the proposed project. Where applicable, mitigation measures are provided to avoid and/or reduce any such impacts to less than significant.

1.1 PROJECT LOCATION

The ±237.56-acre Study Area and six off-site areas that total 4.23 acres are located on East Covell Road just west of Mace Boulevard, north of Interstate 80 (I-80), in the City of Davis, Yolo County, California (Appendix A, Figure 1, *Site and Vicinity Map*). The site is situated in Sections 1 and 2 of Township 8 North and Range 2 East and is depicted on the USGS *Davis, CA* 7.5-minute quadrangle map. The Study Area is in Yolo County, within the Yolo County Habitat Conservation Plan/Natural Communities Conservation Plan (Yolo HCP/NCCP) area and is adjacent to the City of Davis on the southern and western boundaries of the Study Area.

1.2 EXISTING CONDITIONS

The Study Area is in an agricultural setting and is currently used to cultivate various crops, such as hay. Aerial imagery of the Study Area indicates hayfields have been cultivated on the site for at least the past thirty-five years. Dirt access roads and ditches occur throughout the Study Area along the perimeters of the fields, and aerial imagery also indicates the ditches are created, moved, and filled as crops are rotated and cultivated (Google Earth 2025). An unnamed drainage that supports wetland vegetation and flows intermittently, passes from the west to the northeast and is a tributary to Willow Pass Slough and ultimately, the Sacramento River. A topographic map of the Study Area is included in Appendix A, Figure 2, *USGS Topographic Map*, and an aerial image of the Study Area is included in Appendix A, Figure 3, *Aerial Map*.

1.3 PROJECT DESCRIPTION

The project proposes residential uses in a wide variety of products and densities, from high-density attached products to traditional single-family homes. Additionally, the project includes a community park, mini-park, dog park, transit stops, small neighborhood retail, neighborhood greenbelts, community garden, and urban agricultural transition areas. The project proposes Low, Medium, and High-Density Residential land uses totaling 1,250 dwelling units, with an overall net residential density of 11.9 dwelling units per acre. Off-site improvements include the widening of East Covell Boulevard, a sanitary sewer connection, proposed paved trail landscaping along the existing paved trail within the Wildhorse greenbelt, and a potential access road east of the project boundary. East Covell Boulevard is within the Study Area but the sanitary sewer connections, Wildhorse greenbelt, and potential access road are outside of the Study Area. These areas are included in the 4.23 acres of off-site areas that were studied.

The Residential Low Density (LDR) land use designation supports a range of single-family detached homes; 197 dwelling units (16 percent of the total) are designated for LDR product types. The project includes four LDR sites.

The Residential Medium Density (MDR) land use designation accommodates single-family detached as well as attached residential units; 515 dwelling units (41 percent of the total) are designated for MDR product types. The project includes eight MDR sites.

The Residential High Density (HDR) land use designation primarily accommodates attached residential units; 538 dwelling units (43 percent of the total) are designated for HDR product types. Affordable HDR units will be rental units, while market rate HDR units may be for sale or rental units. The project includes four HDR sites.

The project has partnered with Mutual Housing of Sacramento for the development of 250 “Capital A” affordable units for low, very-low, and extremely low-income households. This constitutes 20 percent of the project’s total units.

Over 70 acres (or 30 percent of the overall project area) are devoted to green infrastructure. This includes 19.5 acres of Parks, 7.3 acres of Neighborhood Greenbelt, and 43.9 acres of Urban Agricultural Transition Area with a community garden and trails along the northern and eastern project perimeter.

2.0 REGULATORY FRAMEWORK

Federal, State, and local environmental laws, regulations, and policies relevant to the California Environmental Quality Act (CEQA) review process are summarized below. Applicable CEQA significance criteria are also addressed in this section.

2.1 FEDERAL REGULATIONS

2.1.1 Federal Endangered Species Act

The U.S. Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

FESA prohibits the “take” of endangered or threatened wildlife species. “Take” is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3) (19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 Code of Federal Regulations [CFR] §17.3). Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR §17.3). Actions that result in take can result in civil or criminal penalties.

In the context of the proposed Project, FESA consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service would be initiated if Project activities resulted in the potential for take of a threatened or endangered species or if issuance of a Section 404 permit or other

federal agency action could result in take of an endangered species or adversely modify critical habitat of such a species.

2.1.2 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA; 16 United States Code [USC], Sec. 703, Supp. I, 1989) regulates and prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 CFR §10.13. The MBTA protects whole birds, parts of birds, and bird eggs and nests and prohibits the possession of all nests of protected bird species whether they are active or inactive. An active nest is defined as having eggs or young, as described by the Department of the Interior (April 16, 2003, Migratory Bird Permit Memorandum). Nest starts (nests that are under construction and do not yet contain eggs) are not protected from destruction. This international treaty for the conservation and management of bird species that migrate through more than one country is enforced in the United States by the USFWS. Additionally, as discussed below, § 3513 of the California Fish and Game Code states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. This provides the California Department of Fish and Wildlife (CDFW) with enforcement authority for Project-related impacts that would result in the “take” of bird species protected under the MBTA. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50 CFR 20. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors).

2.1.3 The Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (Eagle Act) prohibits the taking or possession of and commerce in bald and golden eagles with limited exceptions. Under the Eagle Act, it is a violation to *“take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof.”* Take is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, and disturb. Disturb is further defined in 50 CFR Part 22.3 as *“to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”*

2.2 STATE JURISDICTION

2.2.1 California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050 to 2097) is similar to the FESA. The California Fish and Wildlife Commission is responsible for maintaining lists of threatened and endangered species under CESA. CESA prohibits the take of listed and candidate (petitioned to be listed) species. “Take” under California law means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch capture, or kill (California Fish and Game Code, Section 86). The CDFW can authorize take of a state-listed species under Section 2081 of the California Fish and Game Code if the take is incidental to an otherwise lawful activity, the impacts are minimized and fully mitigated, funding is ensured to implement and monitor mitigation measures, and CDFW determines that issuance would not jeopardize the continued existence of the species. A CESA permit must be obtained if a project will result in the “take” of listed species, either during construction or over the life of the project. For species listed under both FESA and CESA requiring a Biological Opinion under Section

7 of the FESA, CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

2.2.2 California Department of Fish and Game Codes

A number of species have been designated as “fully protected” species under Sections 5515, 5050, 3511, and 4700 of the Fish and Game Code, but are not listed as endangered (Section 2062) or threatened (Section 2067) species under CESA. Except for take related to scientific research, all take of fully protected species is prohibited. The California Fish and Game Code defines take as “*hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.*” Additionally, Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit the killing of birds or the destruction of bird nests.

2.2.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA), enacted in 1977, allows the Fish and Game Commission to designate plants as rare or endangered. The NPPA prohibits take of endangered or rare native plants, with some exceptions for agricultural and nursery operations and emergencies. Vegetation removal from canals, roads, and other sites, changes in land use, and certain other situations require proper advance notification to CDFW.

2.3 JURISDICTIONAL WATERS

2.3.1 Federal Jurisdiction

On May 25, 2023, the United States Supreme Court issued a decision in the case of *Sackett v. Environmental Protection Agency* (Supreme Court of the United States, 2023), which will ultimately influence how federal waters are defined. The May 25, 2023, Supreme Court decision in *Sackett v. Environmental Protection Agency* determined that “the Clean Water Act (CWA) extends to only those ‘wetlands with a continuous surface connection to bodies that are “waters of the United States” in their own right,’ so that they are ‘indistinguishable’ from those waters.” The U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE) after review issued a final rule to replace the 2023 rule that amends the Revised Definition of “Waters of the U.S.” to conform key aspects of the regulatory text to the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency*.

Unless considered an exempt activity under Section 404(f) of the Federal Clean Water Act, any person, firm, or agency planning to alter or work in “waters of the U.S.,” including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403). Activities exempted under Section 404(f) are not exempted within navigable waters under Section 10.

The Clean Water Act (33 USC 1251-1376) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation’s waters.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. obtain state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found in 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there were no practicable alternative that would have less adverse impacts.

2.3.2 State Jurisdiction

2.3.2.1 Regional Water Quality Control Board

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by Section 401 of the Federal Clean Water Act. Although the Clean Water Act is a Federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code). The WQC Program currently issues the WQC for discharges requiring USACE permits for fill and dredge discharges within Waters of the United States, and now also implements the State's wetland protection and hydromodification regulation program under the Porter-Cologne Water Quality Control Act.

On May 28, 2020, the SWRCB implemented the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California (SWRCB 2019). The Procedures consist of four major elements:

- I. A wetland definition;
- II. A framework for determining if a feature that meets the wetland definition is a water of the state;
- III. Wetland delineation procedures; and
- IV. Procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

Under the Procedures and the State Water Code (Water Code §13050I), "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." "Waters of the State" includes all "Waters of the U.S."

More specifically, a wetland is defined as: *“An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes or the area lacks vegetation.”* The wetland definition encompasses the full range of wetland types commonly recognized in California, including some features not protected under federal law, and reflects current scientific understanding of the formation and functioning of wetlands (SWRCB 2019).

Unless excluded by the Procedures, any activity that could result in the discharge of dredged or fill material to Waters of the State, which includes Waters of the U.S. and non-federal Waters of the State, requires the filing of an application under the Procedures.

2.3.2.2 California Department of Fish and Wildlife

The CDFW is a trustee agency that has jurisdiction under Section 1600 et seq. of the California Fish and Game Code. Under Sections 1602 and 1603, a private party must notify CDFW if a proposed project will “substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds... except when the department has been notified pursuant to Section 1601.” Additionally, CDFW asserts jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over four inches in diameter at breast height (DBH). If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow the protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures. Generally, CDFW recommends submitting an application for a Streambed Alteration Agreement (SAA) for any work done within the lateral limit of water flow or the edge of riparian vegetation, whichever is greater.

2.4 CEQA SIGNIFICANCE

Section 15064.7 of the State CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study Checklist, included in Appendix G of the State CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish or result in the loss of an important biological resource, or those that would conflict with local, State, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant, according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of, an important resource on a population-wide or region-wide basis.

2.4.1 California Native Plant Society

The California Native Plant Society (CNPS) maintains a rank of plant species native to California that have low population numbers, limited distribution or are otherwise threatened with extinction. This information is published in the *Inventory of Rare and Endangered Vascular Plants of California*. Potential impacts to populations of CNPS-ranked plants receive consideration under CEQA review. The following identifies the definitions of the CNPS Rare Plant Ranking System:

Rank 1A: Plants presumed Extinct in California and either rare or extinct elsewhere

Rank 1B: Plants Rare, Threatened, or Endangered in California and elsewhere

Rank 2A: Plants presumed extirpated in California but common elsewhere

Rank 2B: Plants Rare, Threatened, or Endangered in California but more common elsewhere

Rank 3: Plants about which we need more information – A Review List

Rank 4: Plants of limited distribution – A Watch List

All plants appearing on CNPS Rank 1 or 2 are considered to meet CEQA Guidelines Section 15380 criteria. Furthermore, the CNPS Rare Plant Rankings include levels of threat for each species. These threat ranks include the following:

- 0.1 Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat);
- 0.2 Moderately threatened in California (20-80 percent occurrences threatened/moderate degree and immediacy of threat); and
- 0.3 Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known).

Threat ranks do not designate a change of environmental protections, so that each species (i.e., CRPR 1B.1, CRPR 1B.2, CRPR 1B.3, etc.), be fully considered during the preparation of environmental documents under CEQA.

2.4.2 California Department of Fish and Wildlife Species of Concern

Additional fish, amphibian, reptile, bird, and mammal species may receive consideration by CDFW and lead agencies during the CEQA process, in addition to species that are formally listed under FESA and CESA or listed as fully protected. These species are included on the *Special Animals List*, which is maintained by CDFW. This list tracks species in California whose numbers, reproductive success, or habitat may be in decline. In addition to “Species of Special Concern” (SSC), the *Special Animals List* includes species that are tracked in the California Natural Diversity Database (CNDDDB) but warrant no legal protection. These species are identified as “California Special Animals” (CSA).

2.5 LOCAL JURISDICTION

2.5.1 Yolo County Habitat Conservation Plan/Natural Communities Conservation Plan

The Yolo HCP/NCCP is a comprehensive, countywide plan for the conservation of 12 sensitive species and the natural communities and agricultural land on which they depend, as well as a streamlined permitting process to address the effects of a range of future anticipated activities on these 12 species. The Yolo Habitat Conservancy (Conservancy), which consists of Yolo County and the incorporated cities of Davis, West Sacramento, Winters, and Woodland, developed the Yolo HCP/NCCP. The Yolo HCP/NCCP provides the basis for the issuance of long-term permits under the federal ESA and California Natural Community Conservation Planning Act (NCCPA) that cover an array of public and private activities. Specifically, the Yolo HCP/NCCP will provide the Permittees (i.e., Yolo County, the four incorporated cities, and the Conservancy) with incidental take permits from both the USFWS and the CDFW for the 12 covered species. This action is pursuant to Section 10(a)(1)(B) of the federal ESA and Section 2835 of the NCCPA chapter of the California Fish and Game Code. Permittees must comply with the Avoidance and Minimization Measures (AMMs) set forth in the Yolo HCP/NCCP, and Yolo HCP/NCCP fees must be paid to the Conservancy or in-lieu mitigation provided, subject to Conservancy approval. The Conservancy will consider requests for an HCP/NCCP fee reduction or waiver in exchange for land dedication (title transfer or conservation easement) on a case-by-case basis. The Yolo HCP/NCCP ensures compliance with the federal ESA, NCCPA, and the California ESA for covered activities that may affect the covered species (Yolo Habitat Conservancy 2018).

2.5.2 Yolo County 2030 Countywide General Plan – Conservation and Open Space Element

The Yolo County General Plan (General Plan) is a statement of the community’s land use values that guides land use decisions in the County: zoning, specific plans, area plans, subdivisions, capital improvements, development agreements, and many other land use actions that must be consistent with the adopted General Plan. The General Plan Conservation and Open Space Element provides direction regarding the preservation of open space and the conservation, continued enjoyment, and enhancement of natural resources in Yolo County. This element anticipates full integration of the Yolo HCP/NCCP as a tool for multispecies protection (Yolo County 2009).

2.5.3 Yolo County Oak Woodland Conservation and Enhancement Plan

The Parks and Natural Resources Management Division published the Yolo County Oak Woodland Conservation and Enhancement Plan in January 2007. Because 87 percent of the County's oak woodlands are privately owned, the purpose of this plan is to help coordinate voluntary oak woodland conservation and enhancement efforts and guide oak woodland mitigation. This plan establishes a program to identify areas in Yolo County with the highest value habitat. Conservation and enhancement of these high-value areas is addressed by encouraging landowners to preserve these areas from urban and rural development. With this plan, the County can apply for state money and other funding sources (Yolo County 2007).

2.5.4 City of Davis Trees

The City of Davis (City) includes measures and protections for trees within the City limits including trees along roadways and easements owned and maintained by the City (City of Davis 2024) and private/protected trees. The planting, pruning, removal, or any modification of the surrounding areas around these trees, may require a permit or City review, depending on the nature of the proposed work. No one may cut, prune, spray, brace, plant, move, remove, replace, or damage any street tree or city tree unless authorized by the City. This includes the following restrictions:

- No one may prune a street tree or a City tree even to make room for a private tree or to clear branches overhanging private property
- No one may knowingly place electrical wires on street tree or City trees
- No one may place or attach wire, rope, sign, nails paint or other substance or structure to any street tree or City tree or to any guard or stake intended to protect the tree
- No one may place any stone, pavement or substance that substantially impedes the free access of water or air to the roots of any street tree
- No one may place cut so many or so large a root(s) as to cause the street tree or City tree's health to decline or cause a safety hazard
- No one may place fencing around a street tree
- No one may grade the soil around the trunk or within the tree protection zone (the outermost edge of a tree's canopy or drip line) of a street tree or City tree
- No one may alter the landscaping or grade of the property (including trenching) in a manner that could damage, or potentially and adversely affect the well-being of a street tree or City tree.

2.5.5 City of Davis General Plan

The City of Davis General Plan provides overall guidance for the City's long-term development. The General Plan contains goals, policies, standards, and actions to guide City development over the life of the plan. The following are applicable sections from the City of Davis General Plan pertaining to habitat and natural areas (City of Davis, 2007). Under each of the goals and policies provided below are

standards and actions that the City follows to meet the goals and policies. Consult the General Plan for a more detailed explanation of applicable standards and actions.

GOAL HAB 1. Identify, protect, restore, enhance, and create natural habitats. Protect and improve biodiversity consistent with the natural biodiversity of the region.

Policy HAB 1.1 Protect existing natural habitat areas, including designated Natural Habitat Areas.

Policy HAB 1.2 Enhance and restore natural areas and create new wildlife habitat areas.

Policy HAB 1.3 Commit adequate City resources and staff time so as to protect habitat and other natural resources.

Policy HAB 1.4 Preserve and protect scenic resources.

GOAL HAB 2. Increase public awareness of habitat, wildlife, and sensitive species.

Policy HAB 2.1 Develop environmental educational programs and public access areas and programs to allow viewing of wildlife and habitat through controlled interactions of people with natural areas.

3.0 METHODS

3.1 BIOLOGICAL RESOURCES ASSESSMENT

Available information pertaining to the natural resources of the region was reviewed before conducting the field survey. The following published information was reviewed for this BRA:

- California Department of Fish and Wildlife (CDFW). 2024. *California Natural Diversity Database* (CNDDDB); For: *Dixon, Merritt, Davis, Sacramento West, Woodland, Grays Bend, Taylor Monument, Clarksburg, and Saxon* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed October 26, 2023, and updated on April 10, 2024, and December 9, 2024;
- California Native Plant Society (CNPS). 2024. *Inventory of Rare and Endangered Plants* (online edition, v8-03 0.45) For: *Dixon, Merritt, Davis, Sacramento West, Woodland, Grays Bend, Taylor Monument, Clarksburg, and Saxon* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed October 5, 2023, and updated on April 10, 2024, and December 9, 2024;
- USDA, Natural Resource Conservation Service (NRCS). 2025. *Web Soil Survey*. Available at: <http://websoilsurvey.sc.egov.usda.gov>. Accessed October 5, 2023, and updated on April 10, 2024, and April 2, 2025;
- U.S. Fish and Wildlife Service (USFWS). 2024. *Information for Planning and Consultation* (IPaC) *Shriner Property Project*. Accessed October 5, 2023, and updated on April 10, 2024, and December 9, 2024;
- Yolo HCP/NCCP Appendix A: Covered Species Accounts modeled habitat maps for all covered species within the Yolo HCP/NCCP Plan Area (Conservancy 2018); and

- USGS. 2021. *Davis, California*. 7.5-minute series topographic quadrangle. United States Department of Interior.

Before conducting biological field surveys, existing information concerning known habitats and special-status species that may occur in the Study Area was reviewed. The results of the database query and a five-mile radius CNDDDB query for the Study Area are included in Appendix B, *CNDDDB, CNPS, and USFWS Lists of Regionally Occurring Special-Status Species*. Biological field surveys were conducted on October 5, 2023, by HELIX senior biologists Patrick Martin and Christine Gonzalez (Heckler), and C. Gonzalez and Mike Scaffidi on April 16, 2024, all approved biologists under the Yolo HCP/NCCP. Biological field surveys were conducted on January 28, 2025, for off-site areas by HELIX biologists P. Martin and Brandt Muller. The weather during the field surveys was mostly sunny, with an average temperature of 70°F, with slightly cooler temperatures during the January 2025 site visit. The Study Area was systematically surveyed on foot to ensure total search coverage, with special attention given to portions of the Study Area with the potential to support special-status species and sensitive habitats. Surveys were timed to coincide with the appropriate timing when special-status plants would be identifiable. Binoculars were used to further extend site coverage and identify species observed. All plant and animal species observed were recorded, and all biological communities occurring on-site were characterized. Transects were walked through the entire Study Area to gain 100 percent visual site coverage and then surveys were focused in areas that provided potential habitat for special-status plants and wildlife. Plant and wildlife species observed in the on-site and off-site Study Area were identified to the taxonomic level necessary to determine if they were a special-status species. All resources of interest were mapped with Global Positioning System (GPS)-capable tablets equipped with GPS receivers running ESRI Field Maps for ArcGIS with sub-meter accuracy.

As part of this BRA, an assessment of suitable nesting habitat for Swainson's hawk was conducted within one-half mile of the Study Area. This assessment followed the methods outlined in the (2000) *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* by the Swainson's Hawk Technical Advisory Committee. Suitable breeding habitat for California tiger salamander and western spadefoot within one mile of the property (where accessible) was also assessed. Aerial photos were utilized as well in assessing the potential for these species to occur within the normal dispersal distance of the species. In addition, protocol-level surveys for burrowing owl were conducted in accordance with the 2012 *Staff Report on Burrowing Owl Mitigation* by the California Department of Fish and Game (Wildlife). These surveys were conducted on March 27, 2024, April 19, 2024, May 10, 2024, June 21, 2024, September 23, 2024, October 9, 2024, November 21, 2024, and November 27, 2024. The results of these surveys are summarized in Section 4.5.2.1 below. The methodology and results of protocol-level burrowing owl surveys are provided under a separate cover (HELIX 2025a).

Following the initial field survey for this BRA, the potential for each species identified in the database query to occur within the Study Area was determined based on the site survey, soils, habitats present within the Study Area, and species-specific information, as shown in Appendix C, *Special-Status Species to Occur in the Study Area*. Species observed within the Study Area during the survey are included in Appendix D, *Plant and Wildlife Species Observed in the Study Area*, and photographs taken during the survey are included in Appendix E, *Representative Site Photographs*.

3.2 AQUATIC RESOURCES DELINEATION

HELIX wetland scientists conducted an Aquatic Resources Delineation (ARD) of the Study Area on October 5, 2023, April 16, 2024, and January 28, 2025. HELIX biologists Patrick Martin, Christine Gonzalez, Brandt Muller, and Mike Scaffidi conducted the fieldwork for the jurisdictional delineation. Mapping of aquatic resources followed the mapping guidelines stipulated by the USACE (February 10, 2016) *USACE Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* and was consistent with the State Water Resources Control Board (April 6, 2021) *Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Section III, *Wetland Delineation*). HELIX followed the USACE Wetlands Delineation Manual (USACE 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0; USACE 2008), and the *National Ordinary High Water Mark (OHWM) Field Delineation Manual for Rivers and Streams* (Version: Final). As applicable, the ARD incorporated the final rule amending the definition of CWA “waters of the U.S.,” as issued by the Environmental Protection Agency (EPA) and USACE on August 29, 2023, in response to the May 25, 2023, U.S. Supreme Court Decision in *Sackett v. EPA*. Results of the ARD are summarized below in Section 4.6.1 and provided under a separate cover (HELIX 2025b).

3.3 ARBORIST SURVEY

International Society of Arboriculture Certified Arborist, Dena Elimelech (WE-15122A), surveyed the Study Area and off-site areas on February 3, 10, and 12, 2025. The following data were collected for all trees within the surveyed area: species; trunk diameter at four feet, six inches above the ground; dripline radius; estimated height; and overall health and structure of the tree. Overall health and structure were rated on a five-point scale from Poor to Excellent, with ratings at Poor, Fair-Poor, Fair, Excellent-Fair, and Excellent. Details pertaining to health and structure were noted such as the number of trunks, irregularities, scars, or other growth characteristics or vigor indicators for each tree. The location of each tree was recorded using an EOS Systems Arrow 100 Global Navigation Satellite System receiver with sub-meter accuracy. Trees with at least one stem of DBH five inches and greater were tagged with pre-printed numbered tags and documented in the arborist report. Trees that were too small to be tagged or within Wildhorse Agricultural Buffer, a fenced-in area just west of the Study Area boundary, were not tagged and instead were assigned numbers for recording tree data. The results of the arborist inventory are provided under a separate cover (HELIX 2025c).

4.0 RESULTS

4.1 SITE LOCATION AND DESCRIPTION

The ±237.56-acre Study Area is located on East Covell Road just west of Mace Boulevard, north of I-80, in the City of Davis, Yolo County, California. The site is situated in Sections 1 and 2 of Township 8 North and Range 2 East, and is depicted on the USGS *Davis, CA* 7.5-minute quadrangle map. The Study Area is in Yolo County and abuts the boundary of the City of Davis on the western and southern sides of the Study Area.

The Study Area is in an agricultural setting and is currently used to cultivate various crops, such as hay. Aerial imagery of the Study Area indicates hayfields have been cultivated in the Study Area for at least the past 68 years (NETR 2025). Dirt access roads and ditches occur throughout the Study Area along the perimeters of the fields, and aerial imagery also indicates the ditches are created, moved, and filled as

crops are rotated and cultivated (Google Earth 2025; NETR 2025). An unnamed drainage that supports wetlands and flows seasonally passes from the west to the northeast and is a tributary to Willow Pass Slough and ultimately, the Sacramento River. A topographic map of the Study Area is included in Appendix A, Figure 2, and an aerial image of the Study Area is included in Appendix A, Figure 3. A preliminary site plan is included as Figure 4, *Conceptual Lotting Plan*.

4.2 PHYSICAL FEATURES

4.2.1 Topography and Drainage

Terrain in the Study Area is generally flat and fields have been leveled for crop cultivation. As such, elevations in the Study Area are more or less flat at approximately 35 feet above MSL.

The Study Area is in the Lower Sacramento watershed (USGS Hydrologic Unit Code [HUC8] 18020163). The Study Area drains to an unnamed drainage that supports wetlands and flows seasonally and passes from the west to the northeast in the Study Area. This drainage is a tributary to Willow Pass Slough and ultimately, the Sacramento River. Sources for irrigation in the Study Area include water pumped from groundwater sources, which flood irrigate the Study Area via transient ditches and drain to the unnamed drainage on the northern portion of the Study Area. This drainage is a natural drainage that has been leveed or manipulated. No other aquatic resources were observed within the Study Area and the site has no apparent natural source of water other than direct precipitation.

4.3 SOILS

Eight soil map units are mapped within the Study Area: Marvin silty clay loam, Merritt complex, saline-alkali, Reiff gravelly loam, Sycamore silt loam, drained, 0 percent slopes MLRA 17, Sycamore silty clay loam, drained, 0 percent slopes, MLRA 17, Sycamore complex, drained, Tyndall very fine sandy loam, drained, and Yolo silt loam, 0 to 2 percent slopes, MLRA 17 (Appendix A, Figure 5, *Soils Map*). The general characteristics and properties associated with these soils are described below (NRCS 2025).

- Marvin silty clay loam: These soils are derived from mixed silty and clayey alluvium. A typical soil profile consists of silty clay loam and silty clay. They are somewhat poorly drained, have a high runoff class, and no frequency of flooding or ponding. The minor components of this soil type are rated hydric.
- Merritt complex, saline-alkali: These soils are derived from mixed alluvium from sedimentary rock. A typical soil profile is silty clay loam, silt loam, very fine sandy loam, and stratified loamy fine sand to silt loam. They are poorly drained, have a medium runoff class, rare frequency of flooding, and no ponding. This soil type and minor components are rated as hydric soil.
- Reiff gravelly loam: These soils are formed in mixed coarse-loamy alluvium. A typical soil profile is gravelly loam and gravelly sandy loam. They are well drained, and have a very low runoff class, no frequency of flooding, and no frequency of ponding. This soil type is not rated as hydric.
- Sycamore silt loam, drained, 0 percent slopes, MLRA 17: These soils are derived from silty alluvium derived from igneous, metamorphic, and sedimentary rock. A typical soil profile is silty loam. They are somewhat poorly drained, and have a low runoff class, rare frequency of flooding, and no frequency of ponding. The minor components of this soil type are rated hydric.

- Sycamore silty clay loam, drained, 0 percent slopes, MLRA 17: These soils are derived from silty alluvium derived from igneous, metamorphic, and sedimentary rock. A typical soil profile is silty clay loam. They are somewhat poorly drained, and have a medium runoff class, rare frequency of flooding, and no frequency of ponding. The minor components of this soil type are rated hydric.
- Sycamore complex, drained: These soils are derived from mixed alluvium derived from sedimentary rock. A typical soil profile is silty clay loam and silty clay. They are somewhat poorly drained, have a medium runoff class, and no frequency of flooding or ponding. This soil type and minor components are rated as hydric soil.
- Tyndall very fine sandy loam, drained: These soils are derived from mixed alluvium derived from sedimentary rock. A typical soil profile is very fine sandy loam. They are somewhat poorly drained, have a very low runoff class, and no frequency of flooding or ponding. The minor components of this soil type are rated hydric.
- Yolo silt loam, 0 to 2 percent slopes, MLRA 17: These soils are derived from alluvium derived from igneous, metamorphic, and sedimentary rock. A typical soil profile is silty loam. They are well-drained, have a low runoff class, and no frequency of flooding or ponding. The minor components of this soil type are rated hydric.

4.4 BIOLOGICAL COMMUNITIES

Three biological communities occur within the Study Area: irrigated hayfield, urban, and riverine. A total of seven upland biological communities occur in off-site areas, which include annual grassland, perennial grassland, deciduous orchard, irrigated hayfield, ruderal, valley foothill riparian, and urban. A discussion of these habitats is included below, and a comprehensive list of all plant and wildlife species observed within the Study Area is provided in Appendix C. All habitat types in the Study Area were reviewed and compared to habitats mapped in the Yolo HCP/NCCP and updated per actual field conditions (Conservancy 2018). Yolo HCP/NCCP habitat mapping is included as Appendix F, *Yolo HCP/NCCP Map*. Representative site photographs are included in Appendix D.

4.4.1 Irrigated Hayfield

Irrigated hayfield makes up the majority of the Study Area and is common in the surrounding lands. Vegetation in this habitat type is varied and does not conform to normal habitat stages. Vegetation can either be annual or perennial, vary according to location in the state, and germinate at various times of the year. Crop rotation is typically used to conserve soil nutrients and maintain productivity. These crops are often established on fertile soils, which historically may have supported an abundance of wildlife. Many species of wildlife have adapted to croplands but are often controlled by fencing, trapping, and poisoning to prevent excessive crop losses. The availability of irrigation water during dryer months benefits many wildlife species as a source of water (Mayer and Laudenslayer 1988). Approximately 230.60 acres of irrigated hayfield occur in the Study Area and 0.042 acre occurs in the off-site areas (Appendix A, Figure 6, *Biological Communities*).

Few plant species were observed within the hayfield during the field survey, and the majority of the fields were bare. Plant species observed along the perimeters of the fields are ruderal and invasive, and

include species such as black mustard (*Brassica nigra*) and slim oats (*Avena barbata*). The irrigated hayfield is also rotated with truck crops, which consist of tomatoes, sunflowers, and alfalfa.

Two earthen-lined agricultural ditches occur within the irrigated hayfield. The ditches are constructed features used to deliver water from a water delivery system. One ditch is located entirely within the hayfield, while the other drains the hayfield. Both features are transient and are observed in different locations depending on the agricultural needs of the crop. Aerial imagery indicates the ditches are managed, moved, and filled as crops are rotated and cultivated (Google Earth 2025; NETR 2025). These ditches are overgrown with dense, ruderal vegetation such as Johnsongrass (*Sorghum halepense*), broad-leaf pepperweed (*Lepidium latifolium*), wild carrot (*Daucus carota*), and black mustard. Several groundwater pumps were observed within portions of the ditches and hayfield that were tied into the ditches.

4.4.2 Urban

Urban habitat is often comprised of built structures, landscaped areas, and/or maintained surfaces, such as roads, bike paths, or parking lots. Vegetation that does occur within this habitat type is often ornamental rather than invasive or noxious weeds, such as in ruderal habitat types. Urban habitats typically retain a soil substrate, but the vegetation communities are either lacking or are comprised of mostly ruderal plant species if not landscaped. Approximately 4.51 acres of urban habitat occurs within the Study Area and 1.69 acres occur in the off-site area and is made up of paved roads, walking paths, and landscaped areas (Figure 6).

4.4.3 Valley Foothill Riparian

A total of 0.02 acre of valley foothill riparian habitat was mapped in an off-site area which is generally situated along the bank of an intermittent drainage. Vegetation in the valley foothill riparian habitat generally consisted of polished willow (*Salix laevigata*), with no understory vegetation. Valley foothill riparian is in a topographically low area within the Study Area and is situated between ruderal areas and the intermittent drainage, which supports seasonal marsh vegetation.

4.4.4 Annual Grassland

A total of 1.15 acres of annual grassland was mapped in off-site areas. This annual grassland community occurs in an area associated with walking path and revegetation areas in the Wildhorse buffer. Annual grassland in the Study Area is dominated by invasive species which include foxtail barley (*Hordeum murinum*), yellow star-thistle (*Centaurea solstitialis*), ripgut brome (*Bromus diandrus*), and rattail sixweeks grass (*Festuca myuros*). The annual grassland supports a population of fossorial mammal species as evidenced by California ground squirrel (*Otospermophilus beecheyi*) observed during the survey. Burrowing mammals were detected in the annual grassland and adjacent perennial grassland areas and consisted of large burrow complexes.

4.4.5 Perennial Grassland

A total of 0.15 acre of perennial grassland was mapped in off-site areas. This perennial grassland community occurs in an area associated with walking path and revegetation areas in the Wildhorse buffer. Perennial grassland in the off-site area is dominated by a mix of invasive species consistent with annual grassland described above in Section 4.4.4 but is dominated by perennial grass species that

include California fescue (*Festuca californica*), deer grass (*Muhlenbergia rigens*), and beardless wild rye (*Elymus triticoides*). Perennial grassland appears to be part of a restoration project along the walking path. The perennial grassland supports a population of fossorial mammal species which consisted of large burrow complexes from California ground squirrels.

4.4.6 Deciduous Orchard

A total of 0.17 acre of deciduous orchard is present in an off-site area on the northeastern portion of the Study Area. This acreage comprises a small portion of the Study Area that produces a nut crop. Deciduous orchards are a single-species tree dominated habitat. Depending on the tree type and pruning methods, trees are usually low and bushy with an open understory to facilitate harvest. Crowns usually touch and are usually in a linear pattern. Spacing between trees is uniform depending on the desired spread of mature trees. Characteristic species in the Study Area include walnuts (*Juglans regia*).

4.4.7 Ruderal

A total of 0.52 acre of ruderal habitat is present in off-site areas. Ruderal habitat is land that retains a soil substrate but is subject to a recent or ongoing disturbance that prevents the formation of natural vegetation communities. Vegetation in disturbed areas is dominated by naturalized and/or invasive non-native species and ruderal native annual species. The species composition is determined by local colonization potential or past introductions. Ruderal habitat in the Study Area is dominated by a variety of non-native grasses, including oats, Italian ryegrass, and soft brome and other non-native annual grasses and forbs. However, these areas appear to be frequently disturbed and represent an upland habitat located primarily along a walking path in the Wildhorse buffer.

4.4.8 Riverine

A total of approximately 2.45 acres and 2,455 linear feet of intermittent drainage (riverine) was mapped within the Study Area. A total of approximately 0.12 acre and 195 linear feet of intermittent drainage occurs in an off-site area west of the Study Area but represents the same intermittent drainage. This feature passes through the Study Area from the west to the northeast and drains to Willow Pass Slough (Figure 6). This riverine habitat is seasonally inundated based on aerial imagery (Google Earth 2025) and was dry on October 5, 2023, and January 28, 2025. The intermittent drainage was partially inundated during the site visit on April 16, 2024. The riverine habitat drains surrounding agricultural lands and remains inundated for long enough duration to support a dominance of hydrophytes. Intermittent drainages are typically fed by waters from a seasonally perched groundwater table and are supplemented by precipitation and storm water runoff. This intermittent drainage system will also receive hydrological inputs from surrounding land uses that include irrigation of adjacent orchards, row crops and the golf course. After the initial onset of rains, these features have persistent flows throughout and past the end of the rainy season. Typically, these features exhibit a defined bed and bank and show signs of scouring because of rapid flow events. The bed of the intermittent drainage in the Study Area consists of clay and loam substrates with steeply incised banks and no floodplain. Hydrophytic vegetation observed in this feature consisted of tall flatsedge (*Cyperus eragrostis*), Mexican rush (*Juncus mexicanus*), Fremont cottonwood (*Populus fremontii*), polished willow (*Salix laevigata*), boxelder (*Acer negundo*), and California bulrush (*Schoenoplectus californicus*). The riverine habitat is a tributary to Willow Pass Slough, which is ultimately a tributary to Prospect Slough and the Sacramento River.

4.5 SPECIAL-STATUS SPECIES

Special-status species are plant and wildlife species that have been afforded special recognition by federal, State, or local resource agencies or organizations. They are generally of relatively limited distribution and may require specialized habitat conditions. Special-status species for this Biological Resources Assessment are defined as meeting one or more of the following criteria:

- Listed or proposed for listing under CESA or FESA;
- Protected under other regulations (e.g., the PCCP, MBTA);
- Included on the CDFW Special Animals List or Watch List;
- Identified as Rare Plant Rank 1 to 3 by CNPS; or
- Receive consideration during an environmental review under CEQA.

Special-status species considered for this analysis are based on queries of the CNDDDB, the USFWS, and CNPS ranked species (online versions) for the *Dixon, CA* USGS quadrangle and eight surrounding quadrangles (Appendix A). Appendix B includes the common name and scientific name for each species, regulatory status (federal, State, local, CNPS), habitat descriptions, and potential for occurrence within the Study Area. The following set of criteria has been used to determine each species' potential for occurrence within the Study Area:

Will Not Occur: Species is either sessile (i.e., plants) or so limited to a particular habitat that it cannot disperse on its own and/or habitat suitable for its establishment and survival does not occur on the Study Area;

Not Expected: Species move freely and might disperse through or across the Study Area, but suitable habitat for residence or breeding does not occur in the Study Area, the potential for an individual of the species to disperse through or forage in the site cannot be excluded with 100 percent certainty;

Presumed Absent: Habitat suitable for residence and breeding occurs in the Study Area; however, species-specific surveys conducted for the current project and applicable species were negative;

May Occur: Species was not observed on the site, and breeding habitat is not present, but the species has the potential to utilize the site for dispersal;

High: Habitat suitable for residence and breeding occurs in the Study Area, and the species has been recorded recently in or near the Study Area but was not observed during surveys for the current project; and

Present: The species was observed during biological surveys for the current project and is assumed to occupy the Study Area or utilize the Study Area during some portion of its life cycle.

Only those species that are known to be present, have a high potential to occur, or may occur are discussed further in the following sections. Species that are not expected to occur or will not occur are included in Appendix C.

4.5.1 Listed and Special-Status Plants

According to the database query, 22 listed and/or special-status plants have the potential to occur on-site or in the vicinity of the Study Area (USFWS 2024a; CDFW 2024a; CNPS 2024; Conservancy 2018). Based on field observations, published information, and literature review, no special-status plants have the potential to occur within the Study Area. All the regional special-status plants identified in the query occur on adobe, alkaline, or serpentine soils, within vernal pools or other aquatic habitats, within natural habitat types that do not occur in the Study Area, or at elevational ranges outside of the Study Area. In addition, the Study Area has been subject to regular disturbance in association with agricultural activities, and herbicide is also known to be used on-site which likely further limits the potential for special-status plants to occur. Herbicide was observed being applied by tractors during the site assessment for this BRA. Portions of the Study Area not directly associated with agriculture, such as the riverine habitat and urban areas, do not support habitat for special-status plants due to a lack of suitable habitat or soil types, the presence of existing development/disturbance, a dominance of invasive/non-native plant species, and fluctuating water levels. For species with limited potential to occur in the on-site and off-site Study Area, site visits were conducted in October 5, 2023, April 16, 2024, and January 28, 2025, during a period when bristly sedge (*Carex comosa*) and San Joaquin spearscale (*Extriplex joaquinana*) would have been identifiable and are presumed to be absent from the on-site and off-site Study Area. Historic and ongoing alteration of habitat has led to a dominance of non-native and invasive plant species, and these species will likely continue to flourish even if agricultural activities cease on-site. With no documented occurrences of special-status plants on-site or within seed dispersal distance, the likelihood of special-status plants establishing on-site or in the project off-site areas in the future is extremely unlikely.

4.5.2 Listed and Special-Status Wildlife

According to the database query, 45 listed and/or special-status wildlife species have the potential to occur on-site or in the vicinity of the Study Area (USFWS 2024a; CDFW 2024a; Conservancy 2018). Based on field observations, published information, and literature review, nine special-status wildlife species have the potential to occur within the Study Area. These include Monarch butterfly (*Danaus plexippus* pop 1.), Crotch's bumble bee (*Bombus crotchii*), northwestern pond turtle (*Actinemys marmorata*), giant garter snake (*Thamnophis gigas*), tricolored blackbird (*Agelaius tricolor*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), and Modesto song sparrow (*Melospiza melodia* pop. 1). These species are discussed in more detail below. In addition to these special-status wildlife species, other birds and raptors protected under federal, State, and local laws/policies also have the potential to occur within the Study Area. It was determined that the California tiger salamander and western spadefoot habitat is not present in the Study Area, and the Yolo HCP/NCCP excludes the Study Area from mapped habitat for California tiger salamander. These species are evaluated in Appendix C.

4.5.2.1 Special-Status Wildlife with Potential for Occurrence

Crotch's Bumble Bee

Crotch's bumble bee is a CESA candidate species that occurs in grassland and scrub habitats. New colonies are initiated by solitary queens, generally in the early spring, which typically occupy abandoned rodent burrows (CDFW 2019). This species is a generalist forager and has been reported to visit a wide variety of flowering plants. Food plants include *Asclepias* spp., *Antirrhinum* spp., *Clarkia* spp.,

Eschscholzia spp., *Eriogonum* spp., *Chaenactis* spp., *Lupinus* spp., *Medicago* spp., *Phacelia* spp., and *Salvia* spp. (Koch *et al.* 2012). The flight period for queens in California is from February to October. New queens hibernate over the winter and initiate a new colony the following spring (CDFW 2019). This species is rare throughout its range and in decline in the Central Valley and Southern California (CDFW 2019). The current known range of this species follows a small strip from western Trinity County south to Tehama County and along the entire Central Valley and Coastal California south of Monterey to the southernmost portions of the State. The range is generally bound on the east by the high Sierra Nevada range and areas east of Bishop, Ridgecrest, and the Salton Sea (CDFW 2023).

The annual grassland, perennial grassland in off-site areas, and riverine habitats in on-site areas of the Study Area provide potential habitat for Crotch's bumble bee where small mammal burrows are present. The interior of the Study Area is agricultural land, and the western off-site Study Areas consist of urban and grassland areas that are subjected to routine management activities associated with landscape maintenance. Potential habitat for Crotch's bumble bee in the on-site and off-site Study Areas has been subjected to the use of herbicides and likely pesticides which are one of the leading causes for decline in bumble bees (CDFW 2023). Additionally, constant disturbance of potential habitat from agricultural uses or landscape management is not suitable for underground colonies and overwintering queens, which are routinely disturbed and do not provide habitat for this species. Ground squirrel (*Otospermophilus beecheyi*) burrows were observed within the Study Area that provide potential nesting/refuge habitat within the Study Area. There is one documented occurrence of this species within five miles of the on-site and off-site Study Areas. This record documents a nonspecific location in the City of Davis at the UC Davis Arboretum from 1949, 1954, 1957, 1959, 1968, and 1998 (CDFW 2024a). Crotch's bumble bee could pass through the Study Area while foraging, overwinter in burrows, and utilize burrows to support annual colonies. There is potential for direct and indirect effects on Crotch's bumble bee if this species were to utilize the annual grassland, perennial grassland in off-site areas, and riverine habitats in on-site areas of the Study Area for nesting, overwintering, or foraging during the implementation of this project. However, with the implementation of proposed avoidance and minimization measures included in Section 5, potential project-related impacts to Crotch's bumble bee are expected to be minimal, if any.

Monarch Butterfly

The federal determination on December 17, 2020, determined that the Monarch butterfly warranted listing as an endangered or threatened species under the Federal Endangered Species Act of 1973, and on December 12, 2024, was proposed for listing as threatened with proposed critical habitat (USFWS 2024b). Monarch butterflies roost in wind-protected tree groves, especially with *Eucalyptus* spp., and species of pine or cypress with nectar and water sources nearby. Winter roost sites extend along the coast from Mendocino County to Baja California. As caterpillars, monarchs feed exclusively on the leaves of milkweed (*Asclepias* sp.) (Nial *et al.* 2019; USFWS 2020). Monarch butterfly migration routes pass east over the Sierra Nevada in the fall and back to the California coast in the spring. The overwintering population is located along the California coast, while summer breeding areas occur in interior California and North America, with spring breeding areas located further east (USFWS 2020).

There are no CNNDDB records for this species within a five-mile radius of the Study Area, and most records are located along the California coast (CDFW 2024a). Overwintering habitat is not present in the Study Area and the Study Area is not within proposed critical habitat, which is limited to coastal areas (USFWS 2024b). However, narrow-leaf milkweed (*Asclepias fascicularis*), a larval host plant, is abundant along portions of the riverine habitat in the Study Area and could provide larval habitat for the Monarch

butterfly during summer migration. The Study Area is in the summer breeding range of the Monarch butterfly and not in the coastal overwintering range (USFWS 2020).

This species could pass through the Study Area during summer migration and utilize narrow-leaf milkweed plants along the riverine corridor as larval habitat. The majority of the riverine habitat is proposed for avoidance, but one clear span bridge crossing is proposed along the drainage which could impact larval habitat for this species. However, with the implementation of proposed avoidance and minimization measures included in Section 5, potential project-related impacts to Monarch butterfly are expected to be minimal, if any.

Northwestern Pond Turtle

The northwestern pond turtle is federally proposed as threatened, is designated as a Species of Special Concern by CDFW and is also a Covered Species under the Yolo HCP/NCCP. Northwestern pond turtles are most found in permanent or nearly permanent wetlands, ponds, slow-moving streams, and irrigation ditches (Zeiner *et al.* 1990). Adjacent upland areas are also used for basking and egg-laying. This species is active from February to November, and breeding occurs from April to May. Females typically nest in compact and dry soils from 3 to 400 meters from water, with a preference for south-facing slopes between 0 and 60 degrees with little vegetation cover, however pond turtles occurring in forested areas will select nest sites under forest canopy that is more open (USFWS 2023). Special habitat features that improve turtle abundance, survival and reproductive success are rocks, logs, open mud banks, emergent aquatic vegetation, and streamside vegetation. These features provide the turtles with basking sites and cover from predators (Stebbins 1972). Overwintering occurs in upland terrestrial habitats close to water sources in open areas (up to 500 meters from water). Typically, they will bury themselves under loose soil where leaf litter is present (USFWS 2023). Although pond turtles feed primarily on aquatic invertebrates (Jennings and Hayes 1994), they also feed on plants, small fish, and carrion.

The Study Area is in modeled habitat for this species under the Yolo HCP/NCCP that includes aquatic, nesting, and overwintering habitat (Conservancy 2018). There is one CNDDDB reported occurrence of this species within a five-mile radius of the Study Area; this occurrence is located 2.2 miles southwest of the Study Area and is from 2001 at UC Davis. The record documents 76 individuals captured during a study, consisting of mostly adults and a few juveniles (CDFW 2024a).

Suitable habitat is marginal for this species in the Study Area and is limited to the riverine habitat. Agricultural ditches within the Study Area appear to be regularly altered in association with crop rotation and water regime, and do not consistently hold water. These features also lack essential habitat components for this species. The riverine habitat contains sufficient emergent vegetation and basking areas but does not appear to regularly hold water of sufficient depth during the active season of this species and in most years appears to be completely dry (Google Earth 2025). This species could occasionally occur in the riverine habitat when sufficiently inundated or in the surrounding uplands but would generally be expected to occur off-site in more suitable habitat. The majority of the riverine habitat is proposed for avoidance, but one clear span bridge crossing is proposed along the drainage which could impact potentially suitable habitat for this species. However, with the implementation of proposed avoidance and minimization measures included in Section 5, potential project-related impacts to northwestern pond turtle are expected to be minimal, if any.

Giant Garter Snake

The giant garter snake is listed as threatened under the FESA and CESA and is also a Covered Species under the Yolo HCP/NCCP. This species is endemic to the San Joaquin and Sacramento valley floors. This species inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low-gradient streams, and adjacent uplands. Giant garter snake requires adequate water during its active season (May through October) to provide food and cover, emergent, herbaceous wetland vegetation for foraging and cover, grassy banks, and openings in waterside vegetation for basking, and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter). This species inhabits small mammal burrows and other soil crevices with sunny exposure along south and west-facing slopes, above prevailing flood elevations when dormant. Giant garter snake is primarily found in marshes and sloughs as well as slow-moving creeks but is absent from large rivers and waterways (USFWS 2017).

The Study Area is in modeled habitat for this species under the Yolo HCP/NCCP that includes overwintering habitat and active season upland movement habitat (Conservancy 2018). There are 22 documented occurrences of this species within five miles of the Study Area. The nearest occurrence is located one mile north of the Study Area and is from 1987 and occurs along Willow Slough Bypass, which is hydrologically connected to the Study Area. This record documents two adult snakes (CDFW 2024a).

This species is known to occur in agricultural settings, but the ditches and drainage within the Study Area lack vital habitat components for this species. The agricultural ditches appear to be regularly altered in association with crop rotation and water regime, and do not consistently hold water. The riverine habitat contains sufficient emergent vegetation but does not appear to regularly hold water and, in most years, appears to be completely dry during this species active season (Google Earth 2025). This species is generally found in areas with permanent or semi-permanent water and it requires water during its active season. This species could occasionally occur in the riverine habitat when sufficiently inundated but would generally be expected to occur off-site in more suitable habitat. The majority of the riverine habitat is proposed for avoidance, but one clear span bridge crossing is proposed along the drainage which could impact potentially suitable habitat for this species. However, with the implementation of proposed avoidance and minimization measures included in Section 5, potential project-related impacts to giant garter snake are expected to be minimal, if any.

Tricolored Blackbird

This species is listed as threatened under the CESA, is designated as a Species of Special Concern by CDFW and is a Covered Species under the Yolo HCP/NCCP. Tricolored blackbirds nest and seek cover in emergent wetland vegetation and thorny vegetation such as Himalayan blackberry (*Rubus armeniacus*), cattail (*Typha* spp.), willow (*Salix* spp.), and tules (*Scirpus* spp.). The nesting area must be large enough to support a minimum colony of 50 pairs as they are a highly colonial species. As many as 30,000 nests have been recorded in cattail marshes of four hectares or less (Shuford and Gardali 2008). This species forages on the ground in croplands, grasslands, flooded land, and edges of ponds for insects. The basic requirements for selecting breeding sites are open accessible water, a protected nesting substrate, including either flooded or thorny or spiny vegetation, and a suitable foraging space providing adequate insect prey within a few miles of the nesting colony (Beedy and Hamilton 1999).

The Study Area is modeled habitat for this species under the Yolo HCP/NCCP that includes foraging habitat for this species (Conservancy 2018). There is one CNDDDB reported occurrence of this species within a five-mile radius of the Study Area; this record is from 2011 and documents a suspected nesting colony located 1.9 miles north of the Study Area (CDFW 2024a).

This species may pass through or forage within the Study Area but suitable nesting habitat for this species is marginal within the Study Area. The only potentially suitable nesting habitat is located along the riverine corridor, and it does not appear to be flooded during the nesting season which may be unsuitable for this species (Google Earth 2025). The entire Study Area provides suitable foraging habitat for this species and the majority of foraging habitat would be eliminated with project development. The majority of the riverine habitat is proposed for avoidance but one clear span bridge crossing is proposed along the drainage which could impact potentially suitable nesting habitat for this species. However, with the implementation of proposed avoidance and minimization measures included in Section 5, potential project-related impacts to tricolored blackbird are expected to be minimal, if any.

Burrowing Owl

The burrowing owl is a candidate endangered species under the CESA, is designated as a Species of Special Concern by CDFW and is a Covered Species under the Yolo HCP/NCCP. Burrowing owls are often found in open, dry grasslands, agricultural and range lands, and desert habitats. They can also inhabit grass, forb, and shrub stages of pinyon and ponderosa pine habitats. Burrowing owls occur at elevations ranging from 200 feet below MSL to over 9,000 feet above MSL. In California, the highest elevation where burrowing owls are known to occur is 5,300 feet elevation in Lassen County. In addition to natural habitats, burrowing owls can be found in urban habitats such as at the margins of airports and golf courses and in vacant urban lots. Burrowing owls forage in adjacent grasslands and other suitable habitats primarily for insects and small mammals, and less often for reptiles, amphibians, and other small birds.

The Study Area is modeled habitat for this species under the Yolo HCP/NCCP and is mapped as “Other,” which includes mixed pasture, alfalfa, and other grassy habitat (Conservancy 2018). In 2004, 2006, and 2009, this species was documented nesting in restored habitat on Wildhorse Golf Course immediately west of the Study Area (CDFW 2024a).

The Study Area provides suitable habitat for this species along the margins of the Study Area where small mammal burrows are present. The interior of the Study Area is agricultural land, which is routinely disturbed and does not provide habitat for this species. Ground squirrel burrows were observed within the Study Area that provide suitable nesting/refuge habitat, and rubble piles, culverts, and other artificial structures that could be suitable for this species are also within the Study Area. No whitewash, feathers, pellets, or other burrowing owl sign was observed in the Study Area during the initial survey. Following the initial survey, protocol-level surveys were conducted within the Study Area and a 500-foot buffer to determine the presence or absence of this species. Surveys have been conducted on March 27, 2024, April 19, 2024, May 10, 2024, June 21, 2024, September 23, 2024, October 9, 2024, November 21, 2024, and November 27, 2024. No burrowing owls or evidence of occupancy have been observed during the protocol surveys to date. Protocol surveys were completed in January 2025, with no burrowing owls observed during protocol burrowing owl surveys. However, on January 28, 2025, one burrowing owl was observed southeast of the Study Area in the adjacent agricultural field at a water pump system. This species, or sign of its occupancy, has not been observed in the Study Area to date but it was determined to be present during the wintering season adjacent to the Study Area. However, until suitable habitat is

removed from the Study Area this species still has potential to occur. With the implementation of proposed avoidance and minimization measures included in Section 5, potential project-related impacts to burrowing owl are expected to be minimal, if any. The Yolo HCP/NCCP includes species-specific mitigation and is described in AMM 18 for burrowing owl; this measure is included in Section 5 below.

Swainson's Hawk

The Swainson's hawk is listed as threatened under the CESA and is a Covered Species under the Yolo HCP/NCCP. This species is a long-distance migrant with nesting grounds in western North America, and wintering grounds in Mexico and South America. Swainson's hawks typically arrive in the California Central Valley between March and early April to establish breeding territories. Breeding occurs from late March to August, peaking in late May through July (Zeiner *et al.* 1990). In the Central Valley, Swainson's hawks generally nest in isolated trees, small groves of trees in agricultural land, or large woodlands next to open grasslands or agricultural fields. This species typically nests near riparian areas; however, it has been known to nest in urban areas as well. In the Central Valley, the most commonly used trees include Fremont's cottonwood (*Populus fremontii*), sycamores (*Platanus* spp.), valley oaks (*Quercus lobata*), walnut (*Juglans* spp.), and occasionally gum trees (*Eucalyptus* spp.), redwood (*Sequoia* spp.) and pine (*Pinus* spp.) (Woodbridge 1998). Nest locations are usually near suitable foraging habitats, which include fallow fields, all types of grasslands, irrigated pastures, alfalfa and other hay crops, and low-growing row crops, especially post-harvest when the height of the vegetation is short and easy to observe prey (Bechard *et al.* 2010; SAIC 2012). Swainson's hawks leave their breeding grounds to return to their wintering grounds in late August or early September (Bloom and Van De Water 1994).

The Study Area is modeled habitat for this species under the Yolo HCP/NCCP that includes agricultural foraging habitat (Conservancy 2018). This species was observed in the Study Area during the site visit conducted on October 5, 2023, which is after the nesting season for this species, and was observed nesting adjacent to the Study Area on April 16, 2024. There are over 100 documented occurrences of this species within a five-mile radius of the Study Area (CDFW 2024a).

The entire Study Area provides suitable foraging habitat for this species and suitable nest trees occur along the riverine habitat, along the boundary of the Study Area, and are also present in the surrounding vicinity. This species was observed soaring over the site in 2023 and was observed nesting adjacent to the Study Area in 2024 and has a high likelihood of occurring in the future. Project development would eliminate approximately 227.8 acres of suitable foraging habitat for this species and has the potential to impact nesting Swainson's hawks. Although trees within the riverine habitat are proposed for avoidance, adjacent construction could impact nesting hawks if conducted during the nesting season. With the implementation of proposed avoidance and minimization measures included in Section 5, potential project-related impacts to Swainson's hawk are expected to be minimal, if any.

Northern Harrier

The northern harrier is designated as a Species of Special Concern by CDFW. This species is widespread throughout North America, from southern Canada to northern Mexico, and is a year-round resident in California. Population sizes increase during the non-breeding season due to over-wintering migrants. Northern harrier is also considered to be somewhat nomadic and will range widely even during the nesting season. Northern harriers breed in a variety of open habitats, including marshes, wet meadows, weedy shorelines, grasslands, weed fields, pastures, sagebrush flats, desert sinks, and croplands. Northern harriers nest on the ground in patches of dense, tall vegetation in undisturbed areas. Breeding

occurs from March to August. Northern harriers feed on a wide variety of vertebrate prey, including rodents, songbirds, waterfowl, and lizards (Shuford and Gardali 2008).

There are no documented occurrences of this species within five miles of the Study Area (CDFW 2024a); however, this species is not regularly reported to the CNDDDB.

Suitable nesting and foraging habitat for this species are present in the Study Area. This species could nest in the riverine habitat or in suitable areas adjacent to the Study Area. The interior of the Study Area is not suitable nesting habitat for this species due to its disturbed nature. Suitable foraging habitat is present throughout the Study Area but would be limited depending on the current crop rotation. This species generally forages in undisturbed grassland or marsh habitats but could utilize the Study Area for foraging during periods of low-growth where prey species would be visible. The majority of the riverine habitat is proposed for avoidance, but one clear span bridge crossing is proposed along the drainage which could impact potentially suitable nesting habitat for this species. Hawks nesting within the riverine habitat or adjacent to the site could be impacted by adjacent construction if present during the nesting season. However, with the implementation of proposed avoidance and minimization measures included in Section 5, potential project-related impacts to northern harrier are expected to be minimal, if any.

White-Tailed Kite

The white-tailed kite is designated as a Fully Protected species by CDFW and is a Covered Species under the Yolo HCP/NCCP. This species is a year-round resident in California in coastal areas and lowlands in the Central Valley. Population sizes increase during the non-breeding season due to over-wintering migrants. White-tailed kites prefer open stages of habitats dominated by herbaceous species and will nest in tall trees adjacent to foraging habitat (Zeiner *et al.* 1990). White-tailed kites feed mainly on small mammals such as voles but will take other small vertebrate and invertebrate prey. Foraging occurs within un-grazed or lightly-grazed fields, agricultural areas, and open grasslands.

The Study Area is in modeled habitat for this species under the Yolo HCP/NCCP that includes primary and secondary foraging habitat (Conservancy 2018). There are no documented occurrences of this species within five miles of the Study Area (CDFW 2024a); however, this species is not regularly reported to the CNDDDB.

The entire Study Area provides suitable foraging habitat for this species and suitable nest trees occur along the edge of the riverine habitat, along the border of the Study Area, and are also present adjacent to the Study Area. Project development would eliminate approximately 227.8 acres of suitable foraging habitat for this species and has the potential to impact nesting white-tailed kites. Although trees within the riverine habitat are proposed for avoidance, adjacent construction could impact nesting hawks if conducted during the nesting season. With the implementation of proposed avoidance and minimization measures included in Section 5, potential project-related impacts to white-tailed kite are expected to be minimal, if any.

Modesto Song Sparrow

The Modesto song sparrow is designated as a Species of Special Concern by CDFW. Song sparrows are common throughout California except for high mountains and the southern deserts. The “Modesto” population of song sparrow, formerly considered a separate subspecies, is restricted to the north-central portion of the Central Valley from the Butte Sink to the Sacramento-San Joaquin Delta. This

population is strongly associated with emergent freshwater marshes, early successional riparian willow thickets, and riparian stands of valley oak with a dense understory of Himalayan blackberry. Habitat requirements are dense vegetation within 1 meter of the ground for nesting, standing or flowing water, and patches of open ground for foraging (Shuford and Gardali 2008).

There are no documented occurrences of this species within five miles of the Study Area (CDFWa).

Suitable nesting and foraging habitat for this species are present in the Study Area along the margins of the riverine habitat in trees and shrubs. Suitable emergent wetland vegetation is present along the riverine habitat that could support nesting for this species. The majority of the riverine habitat is proposed for avoidance, but one clear span bridge crossing is proposed along the drainage which could impact potentially suitable nesting habitat for this species. However, with the implementation of proposed avoidance and minimization measures included in Section 5, potential project-related impacts to Modesto song sparrow are expected to be minimal, if any.

Nesting Migratory Birds and Raptors

Migratory birds are protected under the MBTA of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10; this also includes feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Additionally, Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., hawks, owls, eagles, and falcons), including their nests or eggs; Section 3513 specifically states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

A number of migratory birds and raptors, in addition to the species listed in Section 4.6.2, have the potential to nest in or adjacent to the Study Area. Suitable nest locations within and adjacent to the Study Area include trees, grass, artificial structures, and bare ground.

4.5.2.2 Expanded Habitat Assessments

Swainson's Hawk

The presence of suitable nesting habitat for Swainson's hawk was assessed within 0.5 mile of the Study Area, where accessible. Aerial imagery, as well as windshield surveys, found an abundance of suitable nest trees for Swainson's hawk within 0.5 mile of the Study Area. Suitable nest trees are present in residential neighborhoods to the west and south of the Study Area, along the unnamed drainage and Wildhorse Golf Course to the west of the Study Area, and along agricultural roads to the north of the Study Area. No suitable nest trees are present to the east of the Study Area. Although most of the trees are located within residential areas or along roadways, Swainson's hawk has been known to nest in trees in residential and suburban areas, as well as along roadways (Natomas Basin Conservancy 2024, CDFW 2024b, and Estep 1989). There are no documented nests within 0.5 mile of the Study Area in the CNDDB, but suitable nesting habitat is abundant within this buffer.

California Tiger Salamander and Western Spadefoot

The presence of suitable habitat for California tiger salamander and western spadefoot was assessed within one mile of the Study Area, where accessible. Aerial imagery, as well as windshield surveys, determined no suitable aquatic habitat within one mile of the Study Area. Aquatic habitats within this buffer consist of agricultural drainage ditches, seasonal stream channels, or constructed features surrounded by development or actively used for agriculture or water treatment. No vernal pools, seasonal wetlands, or other potentially suitable aquatic habitats were observed within one mile of the Study Area. Suitable upland habitat is also lacking within this buffer, and many busy roads and impassible barriers are present surrounding the Study Area. There are no documented occurrences of either California tiger salamander or western spadefoot within one mile of the Study Area in the CNDDB (CDFW 2024a).

4.6 SENSITIVE HABITATS

Sensitive habitats include those that are of special concern to resource agencies or those that are protected under CEQA; Section 1600 of the California Fish and Game Code, which includes riparian areas; and/or Sections 401 and 404 of the Clean Water Act, which include wetlands and other waters of the U.S. Sensitive habitats or resource types within the Study Area are discussed below.

4.6.1 Aquatic Resources

A total of 2.57 acres and 2,650 linear feet of aquatic resources has been delineated in the Study Area with a total of 2.45 acres and 2,455 linear feet of aquatic resources on-site with an additional 0.12 acre and 195 linear feet of aquatic resources in an off-site area, which consists entirely of a riverine feature that is best described as an intermittent drainage. The riverine feature is likely considered a water of the U.S. and water of the State subject to USACE and RWQCB jurisdiction under Sections 404 and 401 of the CWA. The riverine feature also falls under the jurisdiction of Section 1600 of the California Fish and Game Code, which includes riparian areas. A formal aquatic resource delineation was conducted in conjunction with this BRA. The aquatic resource acreage has not been verified by the USACE as of the date of this report.

4.6.2 Arborist Inventory

There are a total of 277 trees that were assessed within the on-site and off-site Study Areas consisting of 118 on-site trees and 159 off-site trees. All on-site and off-site trees would be regulated under the City of Davis Tree Ordinance, and removal or impact to any of these trees will require submittal of a permit to the department director or designee that administers the Urban Forestry Program and will likely require mitigation for removal. Full results are documented under a separate cover in the *Arborist Survey for the Willowgrove Project* (HELIX 2025c).

4.6.3 Wildlife Migration Corridors

Wildlife corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. This fragmentation of habitat can also occur when a portion of one or more habitats is converted into another habitat; for instance, when woodland or scrub habitat is altered or converted into grasslands after a disturbance such as fire, mudslide, or construction activities. Wildlife corridors mitigate the effects of this fragmentation by (1) allowing animals to move

between remaining habitats thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk of catastrophic events (such as fire or disease) on population or local species extinction; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs.

The Study Area is located within an agricultural area that is surrounded by agricultural fields, commercial and residential areas, and streets/I-80. Although wildlife may disperse through the Study Area on a local level, the Study Area is not considered a wildlife migration or movement corridor. The Study Area is surrounded by urban development and agricultural lands with busy roadways and generally may provide limited connectivity to adjacent habitat for wildlife in urban areas upstream of the riverine habitat and downstream to Willow Pass Slough and the Sacramento River. The riverine habitat in the on-site and off-site Study Area was observed to be dry most of the year based on observations during site visits and aerial imagery (Google Earth 2025) and is likely not a significant dispersal corridor for wildlife species. Implementation of the Project would not permanently affect any wildlife migration corridors and is not expected to restrict the movement of wildlife along the riverine habitat.

4.6.4 Yolo Habitat Conservation Plan/Natural Communities Conservation Plan

The Study Area is located in the Yolo HCP/NCCP. Recommendations herein regarding covered species, sensitive natural communities, and aquatic resources were formulated in accordance with the Yolo HCP/NCCP conditions on covered activities. Therefore, the Project would not conflict with a local, regional, or state conservation plan. Additionally, the recommendations provided in Chapter 5 of the Yolo HCP/NCCP Implementation Handbook Permitting Guide (Conservancy 2018) and referenced in Section 5.1 will avoid the potential for conflict with an adopted HCP.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The 237.56-acre Study Area contains 230.60 acres of irrigated hayfield habitat, 2.45 acres of riverine habitat, and 4.51 acres of urban habitat on-site. A total of 4.23 acres of off-site areas consist of 1.15 acres of annual grassland, 0.15 acre of perennial grassland, 0.17 acre of deciduous orchard, 0.24 acre of irrigated hayfield, 0.12 acre of riverine, 0.52 acre of ruderal, 1.69 acres of urban and 0.02 acre of valley foothill riparian. Based on the current site plan, the proposed Project is expected to result in permanent impacts to approximately 216.54 acres of land onsite and 0.60 acres of offsite land and avoid a total of 24.72 acres of land along the riverine habitat and northern portion of the Study Area (Figure 4). Please note, the 237.56-acre Study Area used for this BRA includes a small buffer surrounding the project area that is not included in the impact calculations as part of the current site plan because no improvements are planned in that buffer area.

Swainson's hawk was observed soaring over the Study Area during the field survey on October 5, 2023, and was also observed nesting adjacent to the Study Area during the Aquatic Resources Delineation fieldwork on April 16, 2024. Burrowing owl was observed off-site to the southeast of the on-site project area near a water pump on January 28, 2025. Suitable habitat is present for several other special-status wildlife species, and there is potential that these species may occur within the Study Area. The Study Area may provide limited habitat for some special-status plant species analyzed in Appendix C. For special-status plant species with limited potential to occur in the on-site and off-site Study Area, site

visits were conducted in October 5, 2023, April 16, 2024, and January 28, 2025, during a period when bristly sedge and San Joaquin spearscale would have been identifiable and are presumed to be absent from the on-site and off-site Study Area. Recommendations, including avoidance and minimization measures to limit or avoid impacts to special-status species covered under the Yolo HCP/NCCP, are included in Section 5.1. Avoidance and minimization measures have been provided for Monarch butterfly; a species not covered under the Yolo HCP/NCCP, in addition to nesting migratory birds in Section 5.2. The Study Area occurs within the Yolo HCP/NCCP area and is adjacent to the City of Davis on the southern and western boundaries of the Study Area. For the covered species in the Yolo HCP/NCCP that could occur in the Study Area, mitigation measures from the Yolo HCP/NCCP have been provided to comply with the Yolo HCP/NCCP.

Known or potential biological constraints in the Study Area include:

- Potential summer breeding habitat for federally proposed threatened species Monarch butterfly;
- Potential habitat for the federally and state-listed threatened species giant garter snake;
- Potential habitat for the federally proposed threatened species western pond turtle;
- Potential nesting and/or foraging habitat for special-status and migratory birds, including tricolored blackbird, burrowing owl, Swainson's hawk, northern harrier, white-tailed kite, and Modest song sparrow;
- Aquatic resources that may be considered waters of the U.S. and/or State; and
- Trees that may be regulated by the City of Davis.

5.1 YOLO HCP/NCCP RECOMMENDED MINIMIZATION MEASURES

Based on the observed conditions in the Study Area, the following AMMs from the Yolo HCP/NCCP are recommended:

- General Project Design
 - AMM1, *Establish Resource Protection Buffers*
- General Construction and Operations and Maintenance
 - AMM3, *Confine and Delineate Work Area*
 - AMM6, *Conduct Worker Training*
 - AMM7, *Control Nighttime Lighting of Project Construction Sites*
 - AMM8, *Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Areas*
- Sensitive Natural Communities
 - AMM9, *Establish Buffers around Sensitive Natural Communities*

- Wetlands and Waters
 - AMM10, *Avoid and Minimize Effects on Wetlands and Waters*
- Covered Species
 - AMM14, *Minimize Take and Adverse Effects on Habitat of Western Pond Turtle*
 - AMM15, *Minimize Take and Adverse Effects on Habitat of Giant Garter Snake*
 - AMM16, *Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite*
 - AMM18, *Minimize Take and Adverse Effects on Western Burrowing Owl*- As part of AMM18, since it was determined there is suitable habitat on-site for western burrowing owl, the project applicant conducted both breeding season and non-breeding season focused surveys for the species consistent with the 2012 CDFW survey guidelines and requirements of the Yolo HCP/NCCP.
 - AMM21, *Minimize Take and Adverse Effects on Habitat of Tricolored Blackbird*

The applicable AMMs can be referred to in Chapter 5 of the Yolo HCP/NCCP Implementation Handbook Permitting Guide (Conservancy 2018).

5.2 RECOMMENDATIONS

5.2.1 Crotch's Bumble Bee

The project riverine habitat, which supports perennial herbs and other floral resources which could provide foraging habitat for Crotch's bumble bee and potential nesting and overwintering sites in mammal burrows. Habitat is also present in off-site areas of the Study Area in perennial grassland and annual grassland habitats with small mammal burrows. To avoid impacts to Crotch's bumble bee, the following measures derived from the *CDFW Survey Considerations for California Endangered Species Act Candidate Bumble Bee Species* (CDFW 2023) are recommended:

- Initial ground-disturbing work (e.g., grading, vegetation removal, staging) within potential habitat in annual grassland, perennial grassland in off-site areas and riverine habitats in on-site areas of the Study Area shall take place between 1 September and 31 March (i.e., outside the colony active period), if feasible, to avoid impacts on special-status bumble bees.
- If completing all initial ground-disturbing work within potential habitat in annual grassland, perennial grassland in off-site areas and riverine habitats in on-site areas of the Study Area between 1 September and 31 March is not feasible, then a biologist with experience conducting biological resource surveys within California shall conduct a pre-construction survey for Crotch's bumble bee in the areas proposed for impact no more than 14 days before 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° F, 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. A meandering pedestrian survey shall be conducted throughout the area proposed for impact 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 special-status bumble bees are observed, watch any special-status bumble bees present 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.
 - If bumble bees are observed, attempt to photograph the individual and identify it to species.
- 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 of Davis before 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 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 identified as common (i.e., not special status) by a qualified biologist, 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 (see below).

- If, after coordination with CDFW, impacts to special-status bumble bees cannot be avoided, the applicant shall obtain an ITP from CDFW, and the applicant shall implement all conditions identified in the ITP. Mitigation required by the ITP may include but will not be limited to, the applicant 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 Study Area that will remain appropriate habitat, worker awareness training, and/or other measures specified by CDFW.

5.2.2 Monarch Butterfly

The project design incorporates an open space passive nature area/agricultural buffer around the riverine habitat and north of the riverine habitat, which will include milkweed habitat in the Study Area as these perennial herbs could provide larval habitat for Monarch butterfly during the summer breeding season (March 16 through October 31 [USFWS 2021]). As feasible, any construction activities associated with or within 25 feet of milkweed should occur outside of the summer breeding season (from approximately November 1 through March 15 [USFWS 2021]). This would reduce impacts on larval butterflies. If construction activities will occur during the breeding season and directly or indirectly impact milkweed during the summer breeding for Monarch butterflies (approximately March 16 through October 31), pre-construction surveys shall be conducted by a qualified biologist within one week before the onset of construction. If no Monarch butterfly life stage is identified in or immediately adjacent to the Study Area (within 25 feet), no further surveys or actions would be required. If Monarch butterfly eggs, larvae, or chrysalis are identified in the Study Area or within 25 feet, then a 25-foot setback must be implemented and the area shall be avoided until the Monarch has fully developed and left the site or is no longer active. Orange construction fencing, flagging, or a similar visible barrier must be used if construction is occurring on-site to demarcate the avoidance area. A biologist shall conduct periodic inspections of the occupied Monarch habitat to determine its life-stage. Monarch butterflies typically take around 30 days to complete their lifecycle from egg to newly hatched adult.

5.2.3 Northern Harrier, Modesto Song Sparrow, and Other Nesting Migratory Birds and Raptors

Special-status birds and migratory birds and raptors protected under federal, State, and/or local laws and policies have potential to nest and forage within the Study Area. Northern harrier was observed foraging in the Study Area during the field survey, and tricolored blackbird may also forage within the Study Area. These species are not anticipated to nest within the Study Area, but other species, including white-tailed kite, have a high potential to nest and forage within the Study Area. Although no active nests were observed during the field survey, the Study Area and adjacent land contain suitable habitat to support a variety of nesting birds within trees, shrubs, structures, and on bare ground.

Active nests and nesting birds are protected by the California Fish and Game Code Sections 3503 and 3503.5, 3513, and the MBTA. Ground-disturbing and other development activities, including grading, vegetation clearing, tree removal/trim, and construction, could impact nesting birds if these activities occur during the nesting season (generally February 1 to August 31). To avoid impacts to nesting birds, the following measures are recommended:

- If construction activities occur during the nesting season (February 1 to August 31), a qualified biologist shall conduct a nesting bird survey to determine the presence of any active nests within the Study Area. Additionally, the surrounding 500 feet of the Study Area must be

surveyed for active raptor nests, where accessible. The nesting bird survey must be conducted within 14 days before commencement of ground-disturbing or other development activities. If the nesting bird survey shows that there is no evidence of active nests, then a letter report must be prepared to document the survey and be provided to the project proponent, and no additional measures are recommended. If development does not commence within 14 days of the nesting bird survey, or halts for more than 14 days, then an additional survey is required before starting or resuming work within the nesting season. A qualified biologist should conduct an environmental awareness training to all project-related personnel before the initiation of work. The training should follow the same guidelines as the special-status amphibians training described above.

- If active nests are found, then the qualified biologist must establish a species-specific buffer to prohibit development activities near the nest and minimize nest disturbance until the young have successfully fledged or the biologist determines that the nest is no longer active. Buffer distances may range from 30 feet for some songbirds and 0.5 mile for some raptors and a qualified biologist shall determine the appropriate buffer to avoid impacts to the particular species. The qualified biologist shall also perform periodic nest monitoring during certain phases of construction to ensure nesting birds are not adversely impacted. Nest monitoring will be determined by the qualified biologist and will be based upon the species nesting, its proximity to the construction area, anticipated construction disturbance level, and existing levels of disturbance. If active nests are found within any trees slated for removal, then an appropriate buffer must be established around the tree and all trees within the buffer may not be removed until a qualified biologist determines that the nestlings have successfully fledged and/or the nest is no longer active.
- A qualified biologist shall conduct environmental awareness training that is given to all on-site personnel before the initiation of work.
- If construction occurs outside of the nesting bird season (September 1 to January 31) a nesting bird survey and environmental training for nesting birds would not be required.

5.2.4 Aquatic Resources

The riverine feature (2.45 acres on-site and 0.12 acre off-site) within the Study Area is likely to be considered a water of the U.S. and State subject to USACE and RWQCB jurisdiction under Sections 404 and 401 of the CWA as well as CDFW jurisdiction under Section 1600 of the Fish and Game Code. The aquatic features mapped on-site and off-site are all physically connected and appear to flow off-site into drainages that are ultimately tributary to the Sacramento River, a traditionally navigable water.

Therefore, the aquatic features on-site and off-site are most likely waters of the U.S. However, the final determination will be decided by the U.S. Army Corps of Engineers. Before the initiation of any construction activities that could result in impacts to potentially regulated aquatic features, the extent of the features within the Study Area should be verified by the USACE, and/or applicable permits will be prepared and submitted to the appropriate regulatory agencies for any project-related impacts to these features. Any conditions included in the final permits, including prescribed mitigation measures, would be required to be implemented before filling or impacting these features. As currently designed, ± 0.08 acre of impacts are proposed to the riverine feature through the construction of one pedestrian bridge and two storm drain outfalls. These impacts will result in fill as currently designed and will likely require

environmental permitting and mitigation. Mitigation will require a minimum of 1:1 acreage replacement ratio either through payment to an agency-approved mitigation bank, on or off-site permittee responsible mitigation, or payment into an agency-approved in-lieu fee program and will be determined in the final permits by the applicable agencies.

If aquatic habitats are anticipated to be avoided during the implementation of project activities, then boundaries of these habitats must be clearly marked and avoided during construction. The majority of the riverine feature is proposed for avoidance. Highly visible material, such as orange construction fencing, must be constructed, on average, at least 50 feet from the boundary of avoided habitat to establish an appropriate no-disturbance buffer. Erosion control measures should also be implemented around this habitat, and all other measures outlined in the Project's Storm Water Pollution Prevention Plan and other general construction permits must be followed.

5.2.5 YOLO HCP/NCCP

The Study Area is within an agricultural area of the Yolo HCP/NCCP that abuts residential areas in the City of Davis. Once the project approval process confirms that the project is a covered activity under the Yolo HCP/NCCP, application fees, and other Yolo HCP/NCCP mitigation fees for landcover, project design changes, and avoidance and minimization measures to avoid adverse effects to covered species will be incorporated into the project to receive coverage under the Yolo HCP/NCCP. The Yolo HCP/NCCP provides incidental take authorization from the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife for covered activities.

6.0 REFERENCES

- Bechard, Marc J., C. Stuart Houston, Jose H. Saransola, and A. Sidney England. 2010. Swainson's Hawk (*Buteo swainsoni*). The Birds of North America (P.G. Rodewald, editor). Cornell Lab of Ornithology. Ithaca, New York. Available at: <https://birdsna.org/Species-Account/bna/species/swahaw/introduction>.
- Beedy, E. C., and Hamilton, W. J., III. 1999. Tricolored Blackbird (*Agelaius tricolor*), in The Birds of North America (A. Poole and F. Gill, eds.), no. 423. Birds N. Am., Philadelphia.
- Bloom, P., and D. Van De Water. 1994. Swainson's Hawk in Life on the Edge: A Guide to California's Endangered Natural Resources: Wildlife. BioSystems Books, Santa Cruz, California.
- California Department of Fish and Wildlife (CDFW). 2024a. California Natural Diversity Database (CNDDDB); For: *Dixon, Merritt, Davis, Sacramento West, Woodland, Grays Bend, Taylor Monument, Clarksburg, and Saxon* USGS 7.5-minute series quadrangles, Sacramento, CA.
- 2024b. Swainson's Hawks in California. Available at: <https://wildlife.ca.gov/Conservation/Birds/Swainsons-Hawk>.
2023. Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species. California Department of Fish and Wildlife. Sacramento, CA.
2019. Report to the Fish and Game Commission: Evaluation of the Petition from the Xerces Society, Defenders of Wildlife and the Center for Food Safety to List Four Species of Bumble Bees as Endangered Under the California Endangered Species Act. April 2019. Special California Department of Fish and Wildlife, Sacramento, California, USA.
- California Native Plant Society (CNPS). 2024. Inventory of Rare and Endangered Plants (online edition, v8-03 0.45) For: *Dixon, Merritt, Davis, Sacramento West, Woodland, Grays Bend, Taylor Monument, Clarksburg, and Saxon* USGS 7.5-minute series quadrangles, Sacramento, CA.
- City of Davis. 2007. *Davis General Plan*. Adopted May 2001. Amended through January 2007.
2024. Urban Forestry, City Tree Removal and Modification Requests. Available at: <https://www.cityofdavis.org/city-hall/urban-forestry/tree-removal-and-modification-requests>
- Conservancy. 2018. The Yolo Habitat Conservation Plan/Natural Communities Conservation Plan. Yolo Habitat Conservancy. Dated April 2018.
- Estep, James, A. 1989. Biology, Movements, and Habitat Relationships of the Swainson's Hawk in the Central Valley of California. Prepared for the California Department of Fish and Game. Available as online download.
- Google Earth. 2025. <https://earth.google.com/web/>.
- HELIX Environmental Planning, Inc. (HELIX). 2025a. Burrowing Owl Survey Results for the Willowgrove (formerly Shriners Property) Project Located in the City of Davis, Yolo County, California.

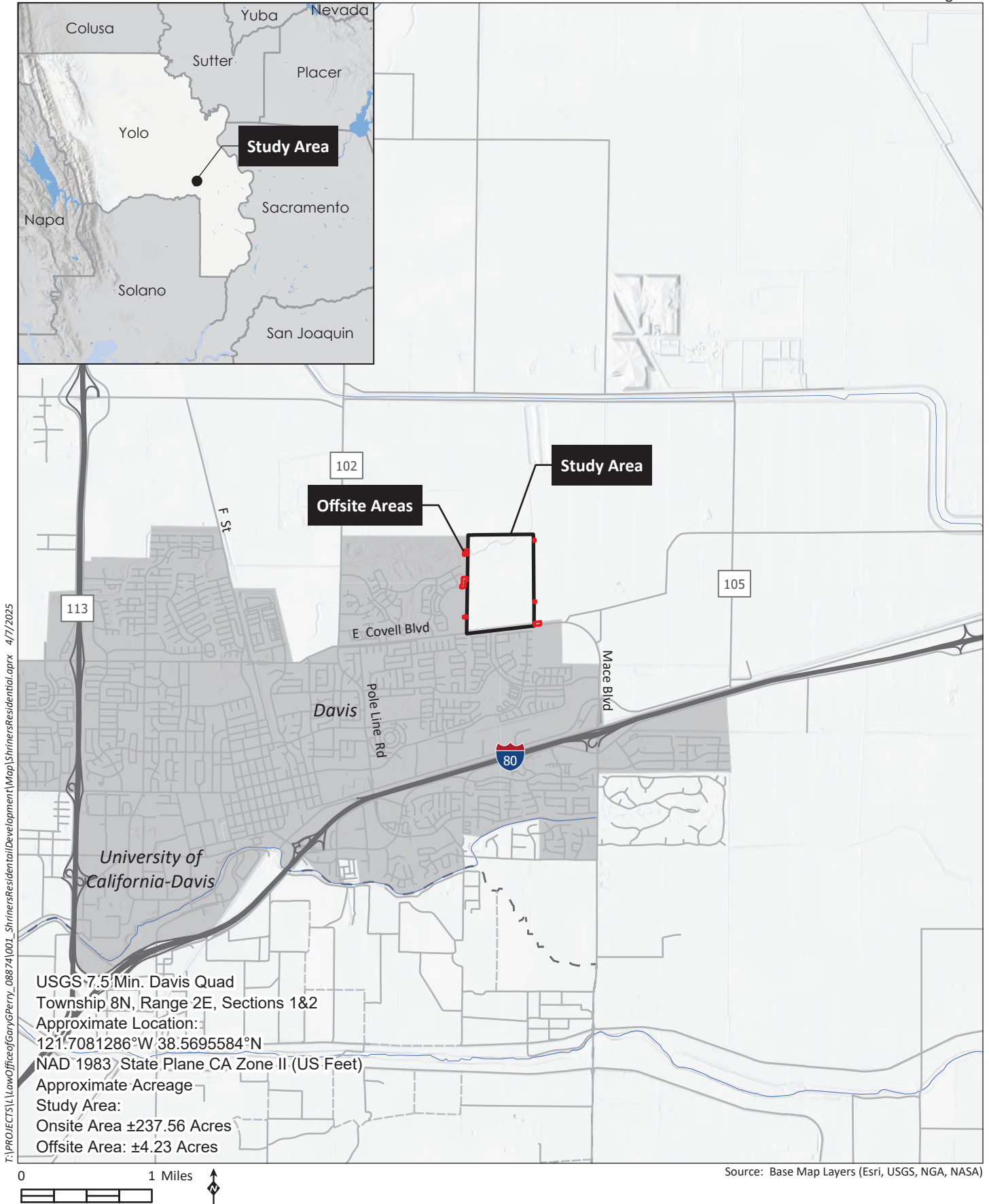
- 2025b. Willowgrove Project: Aquatic Resources Delineation Report. Located in the City of Davis, Yolo County, California. Prepare for the Davis Eastside, LLC.
- 2025c. Arborist Survey for the Willowgrove Project. Located in the City of Davis, Yolo County, California. Prepare for the Davis Eastside, LLC.
- Jennings, M.R., and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California.
- Koch, J., J. Strange, and P. Williams. 2012. Bumble bees of the Western United States. USDA-Forest Service, Pollinator Partnership. Washington, DC. 144 pp.
- Mayer, K.E. and W.F. Laudenslayer. 1988. A Guide to Wildlife Habitats of California. State of California, Resources Agency, Department of Fish and Game, Sacramento, CA 166pp.
- Natomas Basin Habitat Conservancy. 2024. Swainson's Hawk. Available at: <https://natomasbasin.org/education/the-nbhcp-species/swainsons-hawk/>.
- NETR Online. 2025. Aerial Imagery 1957-2022. Accessed April 2025.
- Nial K.R., Drizd, L. and Voorhies K.J. 2019. Butterflies Across the Globe: A Synthesis of the Current Status and Characteristics of Monarch (*Danaus plexippus*) Populations Worldwide. *Front. Ecol. Evol.* 7:362. Doi: 10.3389/fevo.2019.00362.
- Science Applications International Corporation (SAIC). 2012. *Preliminary Public Draft Report for the Butte Regional Habitat Conservation Plan/Natural Community Conservation Plan*. Appendix A: Covered Species Accounts. Prepared for: Butte County Association of Governments, Chico, California. November 30, 2012.
- 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.
- State Water Resources Control Board (SWRCB). 2021. *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State [For inclusion in the Water Quality Control Plans for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California]*. Adopted April 2. Available at: https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf.
- Stebbins, Robert C. California Amphibians and Reptiles. The University of California Press, 1972.
- U.S. Army Corps of Engineers (USACE). 2025. National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Final Version. Gabrielle C. L. David, Ken M. Fritz, Tracie-Lynn Nadeau, Brian J. Topping, Aaron O. Allen, Patrick H. Trier, Steven L. Kichefski, L. Allan James, Ellen Wohl, and Daniel Hamill. U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory.

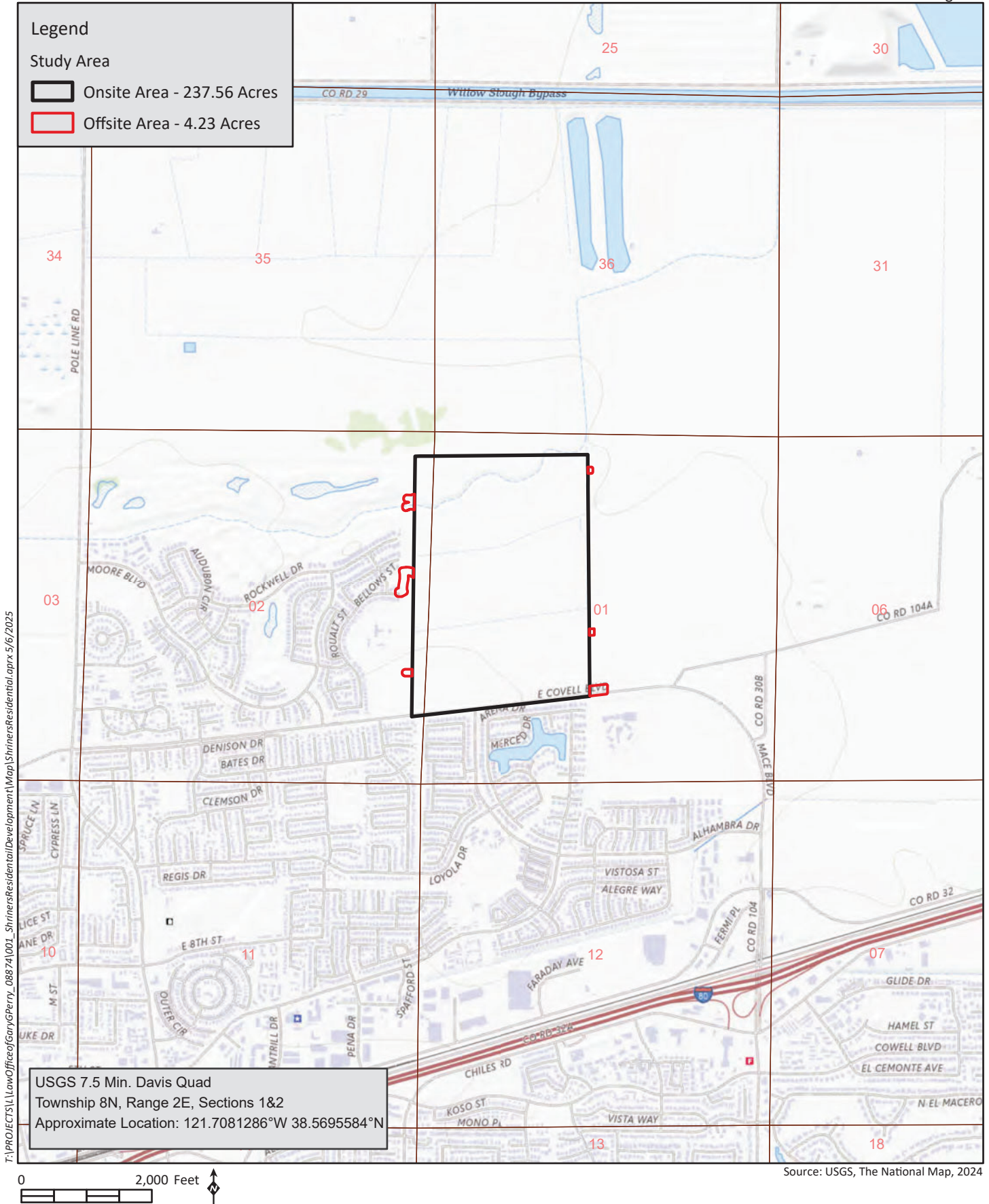
2024. Rapid OHWM Field Identification Data Sheet. Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. K.E. Curtis, and R.W. Lichvar, eds., ERDC/CRREL TR-10-1. Hanover, NH: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory: Available at:
2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). J.S. Akeley, R.W. Lichvar, and C.V. Noble, eds., Technical Report prepared for the U.S. Army Engineer Research and Development Center, Vicksburg, MS.
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2025. Web Soil Survey. Available at: <https://www.nrcs.usda.gov/resources/data-and-reports/web-soil-survey>.
- U.S. Fish and Wildlife Service (USFWS). 2024a. *Information for Planning and Consultation (IpaC) Shiners Property Project*.
- 2024b. Proposed Rule—Endangered and Threatened Wildlife and Plants; Threatened Species Status With Section 4(d) Rule for Monarch Butterfly and Designation of Critical Habitat. December 12, 2024. 89(239); 100662-100716.
2023. Species status assessment report for the northwestern pond turtle (*Actinemys marmorata*) and southwestern pond turtle (*Actinemys pallida*), Version 1.1, April 2023. U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, Ventura, California.
2021. Western Monarch Butterfly Conservation Recommendations. October 15, 2021. Accessed September 30, 2022: https://xerces.org/sites/default/files/publications/21-015_02_USFWSWesternMonarchSec7ConsRecs_10.15.2021.pdf.
2020. Monarch (*Danaus plexippus*) Species Status Assessment Report. V2.1 96 pp + appendices.
2017. Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. Vii + 71 pp.
- U.S. Geological Survey (USGS). 2021. *Davis, California*. 7.5 -minute series topographic quadrangle. U.S. Department of the Interior.
- Woodbridge, B. 1998. *Swainson's Hawk (Buteo swainsoni)*. *The Riparian Bird Conservation Plan: A Strategy for Reversing the Decline of Riparian-associated Birds in California*. California Partners in Flight.
- Yolo County (County). 2007. Yolo County Oak Woodland Conservation and Enhancement Plan. Prepared by the Yolo County Parks and Natural Resources Management Division. Access: <https://www.yolocounty.org/government/general-government-departments/parks/oak-woodlands-conservation-and-management>.
2009. County of Yolo 2030 Countywide General Plan. Adopted November 2009.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. *California's Wildlife: California Wildlife Habitat Relationships*. Volumes I-III. Wildlife and Habitat Data Analysis Branch, California Department of Fish and Game. Available at: <https://wildlife.ca.gov/Data/CWHR>.

Appendix A

Figures







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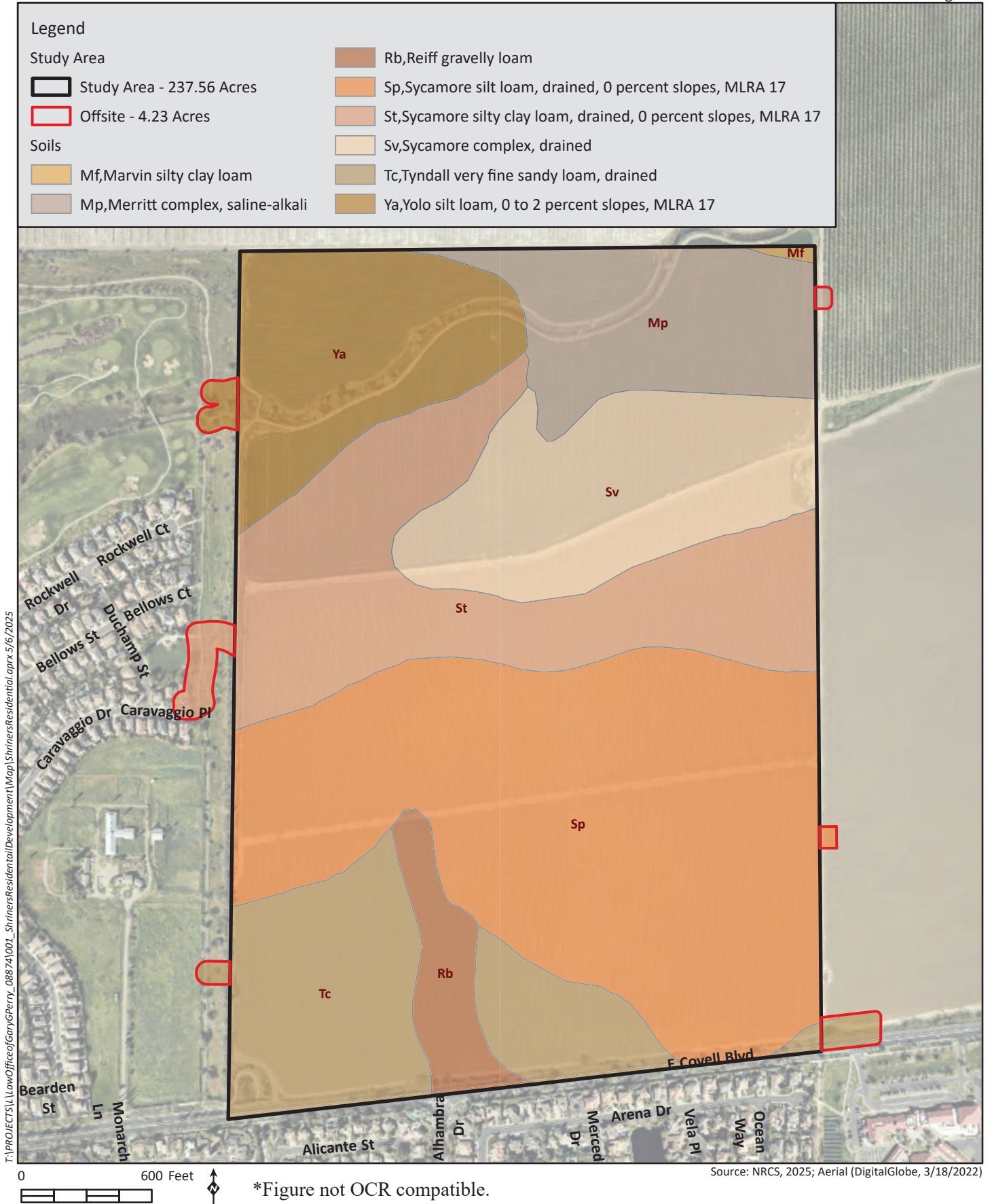


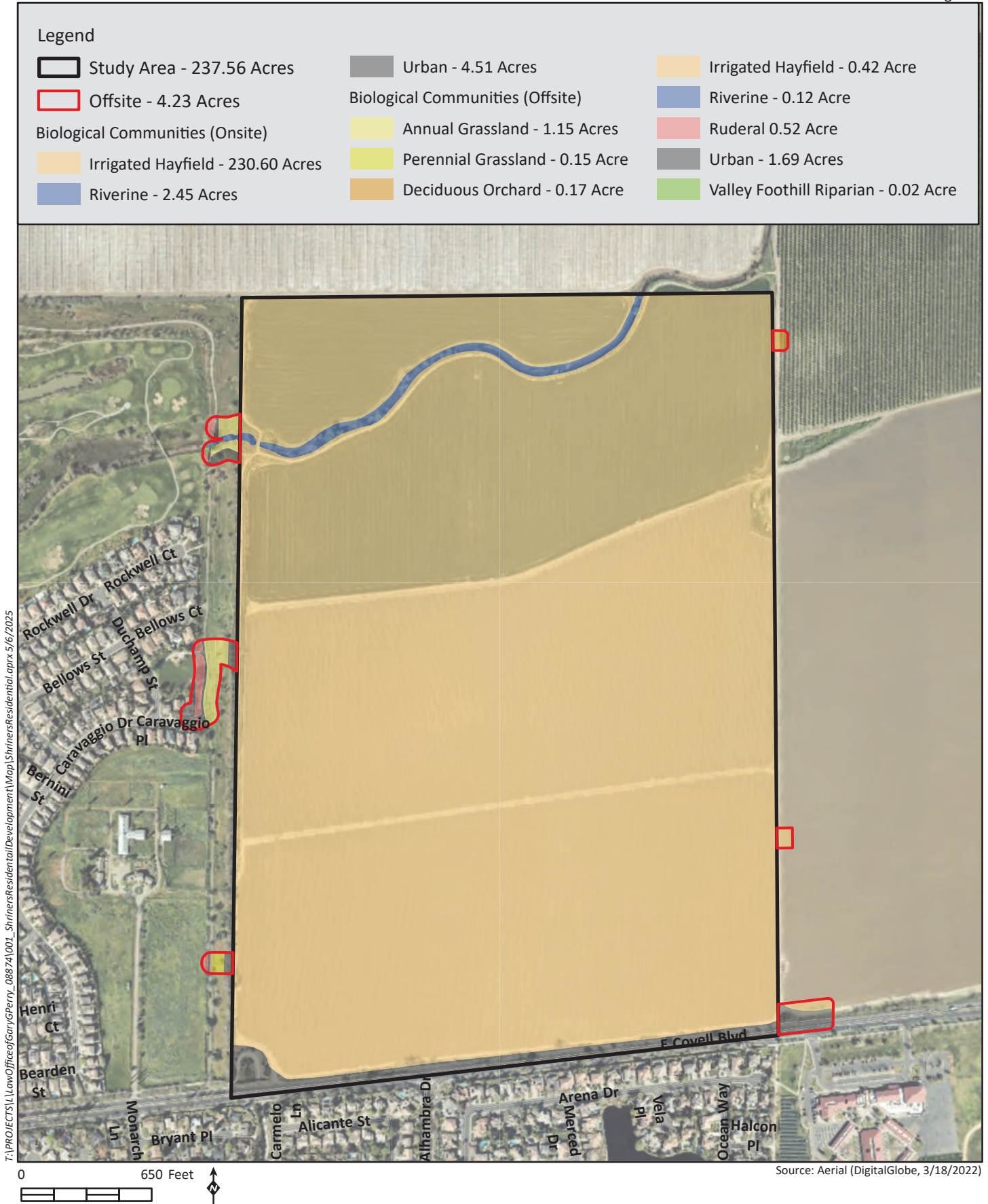
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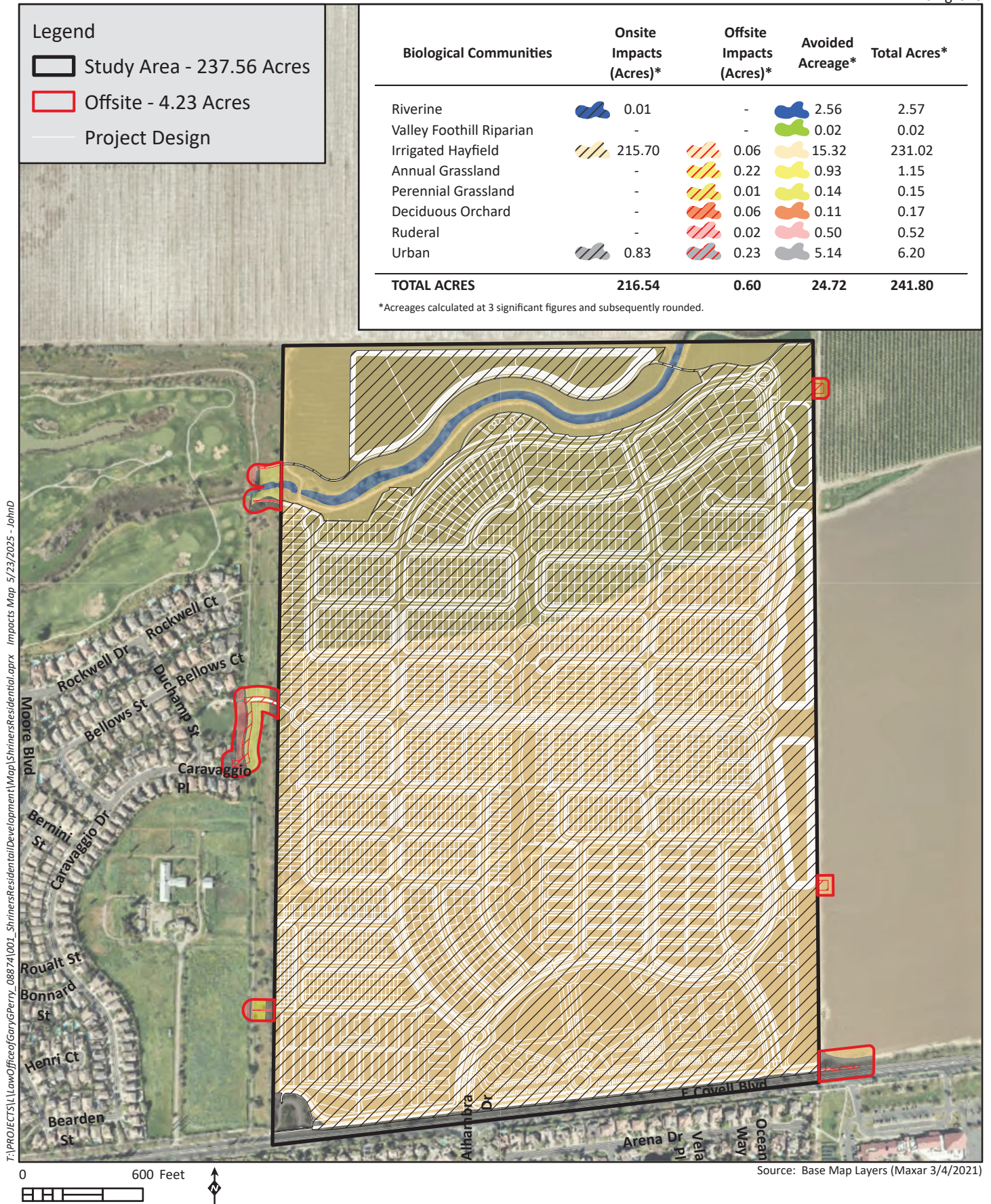
*Figure not OCR compatible.

Conceptual Lotting Plan

Figure 4







Appendix B

CNDDDB, CNPS, and USFWS Lists of
Regionally Occurring Special-Status
Species



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:

12/09/2024 19:15:02 UTC

Project Code: 2024-0075435

Project Name: Shriners Property

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

PROJECT SUMMARY

Project Code: 2024-0075435
Project Name: Shriners Property
Project Type: New Constr - Above Ground
Project Description: Private development.
Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.56957215,-121.70805380051715,14z>



Counties: Yolo County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [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.

BIRDS

NAME	STATUS
Western Snowy Plover <i>Charadrius nivosus nivosus</i> Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

REPTILES

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

AMPHIBIANS

NAME	STATUS
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened
Western Spadefoot <i>Spea hammondi</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

CRUSTACEANS

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: HELIX Environmental Planning Inc.
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Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad> IS >(Dixon (3812147)> OR >Merritt (3812157)> OR >Sacramento West (3812155)> OR >Woodland (3812167)> OR >Grays Bend (3812166)> OR >Taylor Monument (3812165)> OR >Clarksburg (3812145)> OR >Saxon (3812146))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Acipenser medirostris pop. 1</i> green sturgeon - southern DPS	AFCAA01031	Threatened	None	G2T1	S1	SSC
<i>Actinemys marmorata</i> northwestern pond turtle	ARAAD02031	Proposed Threatened	None	G2	SNR	SSC
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
<i>Ambystoma californiense pop. 1</i> California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
<i>Ammodramus savannarum</i> grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G4	S3	SSC
<i>Archoplites interruptus</i> Sacramento perch	AFCQB07010	None	None	G1	S1	SSC
<i>Ardea alba</i> great egret	ABNGA04040	None	None	G5	S4	
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Astragalus tener var. ferrisiae</i> Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
<i>Astragalus tener var. tener</i> alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	Candidate Endangered	G4	S2	SSC
<i>Atriplex cordulata var. cordulata</i> heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
<i>Atriplex depressa</i> brittlescale	PDCHE042L0	None	None	G2	S2	1B.2
<i>Bombus crotchii</i> Crotch's bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
<i>Bombus pensylvanicus</i> American bumble bee	IIHYM24260	None	None	G3G4	S2	
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Branchinecta mesovallensis</i> midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
<i>Carex comosa</i> bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
<i>Centromadia parryi ssp. parryi</i> pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
<i>Charadrius montanus</i> mountain plover	ABNNB03100	None	None	G3	S2	SSC
<i>Charadrius nivosus nivosus</i> western snowy plover	ABNNB03031	Threatened	None	G3T3	S3	SSC
<i>Chloropyron palmatum</i> palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	G1	S1	1B.1
<i>Cicindela hirticollis abrupta</i> Sacramento Valley tiger beetle	IICOL02106	None	None	G5TH	SH	
<i>Circus hudsonius</i> northern harrier	ABNKC11011	None	None	G5	S3	SSC
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T3	S3	
<i>Egretta thula</i> snowy egret	ABNGA06030	None	None	G5	S4	
<i>Elanus leucurus</i> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<i>Elderberry Savanna</i> Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
<i>Eryngium jepsonii</i> Jepson's coyote-thistle	PDAP10Z130	None	None	G2	S2	1B.2
<i>Extriplex joaquinana</i> San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
<i>Falco columbarius</i> merlin	ABNKD06030	None	None	G5	S3S4	WL
<i>Fritillaria pluriflora</i> adobe-lily	PMLIL0V0F0	None	None	G2G3	S2S3	1B.2
<i>Gonidea angulata</i> western ridged mussel	IMBIV19010	None	None	G3	S2	
<i>Great Valley Cottonwood Riparian Forest</i> Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
<i>Hibiscus lasiocarpus var. occidentalis</i> woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Hypomesus transpacificus</i> Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
<i>Lasionycteris noctivagans</i> silver-haired bat	AMACC02010	None	None	G3G4	S3S4	
<i>Lasiurus cinereus</i> hoary bat	AMACC05032	None	None	G3G4	S4	
<i>Lateralus jamaicensis coturniculus</i> California black rail	ABNME03041	None	Threatened	G3T1	S2	FP
<i>Lepidium latipes var. heckardii</i> Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S3	
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	PDAP119030	None	Rare	G2	S2	1B.1
<i>Linderiella occidentalis</i> California linderiella	ICBRA06010	None	None	G2G3	S2S3	
<i>Melospiza melodia pop. 1</i> song sparrow ("Modesto" population)	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
<i>Myrmosula pacifica</i> Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
<i>Navarretia leucocephala ssp. bakeri</i> Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
<i>Neostapfia colusana</i> Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
<i>Nycticorax nycticorax</i> black-crowned night heron	ABNGA11010	None	None	G5	S4	
<i>Oncorhynchus mykiss irideus pop. 11</i> steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	SSC
<i>Oncorhynchus tshawytscha pop. 11</i> chinook salmon - Central Valley spring-run ESU	AFCHA0205L	Threatened	Threatened	G5T2Q	S2	
<i>Oncorhynchus tshawytscha pop. 7</i> chinook salmon - Sacramento River winter-run ESU	AFCHA0205B	Endangered	Endangered	G5T1Q	S2	
<i>Plagiobothrys hystriculus</i> bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
<i>Plegadis chihi</i> white-faced ibis	ABNGE02020	None	None	G5	S3S4	WL
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	AFCJB34020	None	None	G3	S3	SSC
<i>Progne subis</i> purple martin	ABPAU01010	None	None	G5	S3	SSC
<i>Puccinellia simplex</i> California alkali grass	PMPOA53110	None	None	G2	S2	1B.2



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Sidalcea keckii</i> Keck's checkerbloom	PDMAL110D0	Endangered	None	G2	S2	1B.1
<i>Spea hammondi</i> western spadefoot	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC
<i>Spirinchus thaleichthys pop. 2</i> longfin smelt - San Francisco Bay-Delta DPS	AFCHB03040	Endangered	Threatened	G5TNRQ	S1	
<i>Symphotrichum lentum</i> Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Thamnophis gigas</i> giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
<i>Trifolium hydrophilum</i> saline clover	PDFAB400R5	None	None	G2	S2	1B.2
<i>Tuctoria mucronata</i> Crampton's tuctoria or Solano grass	PMPOA6N020	Endangered	Endangered	G1	S1	1B.1
Valley Oak Woodland Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	
<i>Vireo bellii pusillus</i> least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S3	
<i>Xanthocephalus xanthocephalus</i> yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 72



CNPS Rare Plant Inventory

Search Results

3 matches found. Click on scientific name for details

Search Criteria: [CRPR](#) is one of [1A:1B:2A:2B:3] [Fed List](#) is one of [FE:FT:FC] and [State List](#) is one of [CE:CT:CR:CC] , [Quad](#) is one of [3812147:3812157:3812155:3812167:3812166:3812165:3812145:3812146]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE		DATE ADDED	PHOTO
									PLANT RANK	CA ENDEMIC		
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Neostapfia colusana	Colusa grass	Poaceae	annual herb	May-Aug	FT	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Tuctoria mucronata	Crampton's tuctoria or Solano grass	Poaceae	annual herb	Apr-Aug	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available

Showing 1 to 3 of 3 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website <https://www.rareplants.cnps.org> [accessed 9 December 2024].

Appendix C

Special-Status Species in the Region to Occur in the Study Area

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
Plants			
<i>Astragalus tener</i> var. <i>ferrisiae</i> Ferris' milk-vetch	--/--/1B.1	An annual herb that occurs in meadows, seeps, and grassland habitats. It is typically found on subalkaline flats on overflow land in the Central Valley; usually in dry, adobe soil. Occurs from 4 to 80 meters elevation. Blooms April to May (CNPS 2024).	Will not occur. Meadow, seep, and grassland habitats do not occur in the onsite or offsite Study Areas and suitable soil types are absent. In addition, subalkaline flats do not occur in the onsite or offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are two documented occurrences of this species within five miles of the onsite and offsite Study Areas; however, the occurrences are from 1926 and 1954 and may no longer be extant (CDFW 2024).
<i>Astragalus tener</i> var. <i>tener</i> Alkali milk-vetch	--/--/1B.2	An annual herb that occurs in alkaline soils within alkali flats, grasslands, playas, and vernal pools from 0 to 170 meters elevation. Blooms March to June (CNPS 2024).	Will not occur. Grasslands, playas, vernal pools, and alkaline flats do not occur in the onsite or offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are four documented occurrences of this species within five miles of the onsite and offsite Study Areas; three occurrences are presumed extirpated with the remaining record located 4.6 miles north of the Study Area. This record documents an occurrence from 2010 in Woodland (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Atriplex cordulata</i> var. <i>cordulata</i> Heartscale	--/--/1B.2	An annual herb that occurs in sandy, saline or alkaline soils in chenopod scrub, valley and foothill grasslands, meadows, and seeps from 3 to 275 meters elevation. Blooms April to October (CNPS 2024).	Will not occur. While some soil types mapped within the onsite and offsite Study Areas range from neutral to alkaline (NRCS 2024), chenopod scrub, grasslands, meadows, or seeps do not occur in the onsite or offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riparian habitats. There is one documented occurrence of this species within five miles of the onsite and offsite Study Areas; however, the occurrence is considered extirpated (CDFW 2024).
<i>Atriplex depressa</i> Brittlescale	--/--/1B.2	An annual herb found in alkaline and clay soils in playas, grasslands, vernal pools, chenopod scrub, meadows, and seeps from 1 to 320 meters elevation. Blooms April to October (CNPS 2024).	Will not occur. Playa, grassland, chenopod scrub, and suitable aquatic habitats do not occur in the onsite or offsite Study Areas and suitable soil types are absent. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are two documented occurrences of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Carex comosa</i> Bristly sedge	--/--/2B.1	A perennial rhizomatous herb found in marshes and swamps, coastal prairie, and valley and foothill grassland. This species occurs in microhabitats specified as lake margins and wet places from below sea level to 1,010 meters elevation. Blooms May to September (CNPS 2024; CDFW 2024).	Presumed Absent. Coastal prairies, and lake margins, and wet places in grassland habitats do not occur in the onsite or offsite Study Areas. The riverine habitat supports marginal habitat for this species, with extensive periods or intermittent flow. Bristly sedge is a perennial rhizomatous herb that is typically 50 to 100 centimeters tall (Jepson eFlora 2025) and would have been readily identifiable during the site visits to the onsite and offsite Study Areas that occurred on October 5, 2023, April 16, 2024, and January 28, 2025. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas and only one record within the larger nine quadrangle search area in the CNDDDB (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Centromadia parryi</i> ssp. <i>parryi</i> Pappose tarplant	--/--/1B.2	An annual herb often found on alkaline soil within chaparral, coastal prairie, meadows and seeps, coastal salt marshes and swamps, and vernal mesic valley and foothill grasslands from 0 to 420 meters elevation. Blooms May to November (CNPS 2024).	Will not occur. Suitable habitat does not occur in the onsite or offsite Study Areas. While some soil types mapped within the onsite and offsite Study Areas range from neutral to alkaline (NRCS 2024), suitable habitat types are absent from the onsite and offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There is one documented occurrence of this species within five miles of the onsite and offsite Study Area (CDFW 2024).
<i>Chloropyron palmatum</i> Palmate-bracted bird's-beak	FE/SE/1B.1 (Yolo HCP/NCCP)	An annual hemiparasitic herb found in alkaline wetlands in chenopod scrub, and valley and foothill grassland from 5 – 155 meters elevation in the Central Valley. Blooms May – October (CNPS 2024).	Will not occur. Alkaline wetlands and suitable habitat types do not occur in the onsite or offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. The onsite and offsite Study Areas are not within modeled habitat for this species (Conservancy 2018). There is one documented occurrence of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Cicuta maculata</i> var. <i>bolanderi</i> Bolander's water-hemlock	--/--/2B.1	A perennial herb found in coastal salt, fresh, or brackish marshes and swamps from 0 to 200 meters elevation. Blooms July to September (CNPS 2024).	Will not occur. Suitable marsh and swamp habitat does not occur in the onsite or offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Eryngium jepsonii</i> Jepson's coyote thistle	--/--/1B.2	A perennial herb that occurs in vernal pools within valley and foothill grassland habitats from 3 to 300 meters elevation. Blooms April to August (CNPS 2024).	Will not occur. Vernal pool and grassland habitats do not occur in the onsite or offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Extriplex joaquinana</i> San Joaquin spearscale	--/--/1B.2	San Joaquin spearscale is an annual herb found on alkaline soils, seasonal alkali wetlands or alkali sink scrub in chenopod scrub, meadows, seeps, playas, and valley and foothill grasslands from 0 to 835 meters elevation. Blooms April to October. Typically found with saltgrass (<i>Distichlis spicata</i>) and alkali heath (<i>Frankenia salina</i>) (CNPS 2024; CDFW 2024).	Presumed Absent. Suitable habitat does not occur in the offsite Study Areas. While some soil types mapped within the onsite and offsite Study Areas range from neutral to moderately alkaline (NRCS 2024), suitable habitat types are present only in the onsite Study Area. However, San Joaquin spearscale would have been identifiable during the site visits to the onsite Study Areas that occurred on October 5, 2023, and April 16, 2024, which includes riverine habitat. An offsite Study Area with suitable alkaline soil in the Tyndall soil series, rated as moderately alkaline, lacks specific microhabitats in grasslands which include seasonal alkali wetland, alkali sink scrub or other alkali habitats (CDFW 2024). The offsite Study Area, with suitable alkali soil, also lacks species San Joaquin spearscale is typically associated with such as saltgrass and alkali heath. The onsite and offsite Study Areas are also regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. There are five documented occurrences of this species within five miles of the onsite and offsite Study Areas (CDFW 2024). The nearest CNDDb record occurs approximately 1.3 miles west of the Study Area and west of Pole Line Road. This record documents observations of this plant in an area described as a highly disturbed alkali sink along a channelized slough. This species was observed at this location in 1915, 1927 and 1996 (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Fritillaria pluriflora</i> Adobe-lily	--/--/1B.2	A perennial bulbiferous herb often found on adobe soils within chaparral, cismontane woodland, and valley and foothill grassland from 60 to 705 meters elevation. Blooms February to April (CNPS 2024).	Will not occur. Adobe soils and suitable habitat types do not occur in the onsite or offsite Study Areas and is below the elevational range of this species. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i> Wooly rose-mallow	--/--/1B.2	An emergent, perennial, rhizomatous herb often found in riprap on sides of levees and in freshwater marshes and swamps from 0 to 120 meters elevation. Blooms June to September (CNPS 2024).	Will not occur. Marsh and swamp habitat and riprap levees do not occur in the onsite or offsite Study Areas. The riverine habitat in the onsite and offsite Study Areas has earthen-lined banks and fluctuating water levels that coincide with crop production which are unsuitable for this species. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Lepidium latipes</i> var. <i>heckardii</i> Heckard's pepper-grass	--/--/1B.2	An annual herb found on alkaline soils in vernal pools within valley and foothill grassland habitats from 1 to 30 meters elevation. Blooms March to May (CNPS 2024).	Will not occur. While some soil types mapped within the onsite or offsite Study Areas range from neutral to alkaline (NRCS 2024), vernal pools and grasslands do not occur in the onsite or offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are three documented occurrences of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	--/--/1B.1	A perennial herb that occurs in brackish or freshwater marsh habitats from 0 to 10 meters elevation. Also known to occur in riparian scrub and in muddy or silty soil formed through river deposition or riverbank erosion. Blooms April to November (CNPS 2024).	Will not occur. The onsite and offsite Study Areas are above the known elevational range of this species and marsh habitat is absent. Some riparian scrub is present along the riverine feature in the onsite or offsite Study Areas but the onsite and offsite Study Areas is outside of the known range of this species. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	--/--/1B.1	An annual herb found on adobe or alkaline soils in vernal pools and swales within cismontane woodland, lower montane coniferous forest, meadow, and valley and foothill grassland habitats from 3 to 1,680 meters elevation. Blooms April to July (CNPS 2024).	Will not occur. While some soil types mapped within the onsite and offsite Study Areas range from neutral to alkaline (NRCS 2024), suitable habitat types do not occur in the onsite or offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Neostapfia colusana</i> Colusa grass	FT/SE/1B.1	An annual herb that occurs on adobe soils in large vernal pools from 5 to 200 meters elevation. Blooms May to August (CNPS 2024).	Will not occur. Adobe soils and vernal pools do not occur in the onsite or offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are two documented occurrences of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Plagiobothrys hystriculus</i> Bearded popcornflower	--/--/1B.1	An annual herb that occurs in vernal pools and swales within valley and foothill grasslands from 1 to 275 meters elevation. Blooms April to May (CNPS 2024).	Will not occur. Vernal pools and swales do not occur in the onsite or offsite Study Areas and grasslands are absent. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Puccinellia simplex</i> California alkali grass	--/--/1B.2	An annual herb found in alkaline, vernal mesic areas of sinks, flats, and lake margins within chenopod scrub, meadow, and grassland habitats from 1 to 915 meters elevation. Blooms March to May (CNPS 2024).	Will not occur. While some soil types mapped within the onsite and offsite Study Areas range from neutral to alkaline (NRCS 2024), suitable habitat types do not occur in the onsite or offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are eight documented occurrences of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Sidalcea keckii</i> Keck's checkerbloom	FE/--/1B.1	An annual herb that occurs on serpentine, clay soils in cismontane woodland and valley and foothill grassland habitats from 85 to 505 meters elevation. Blooms April to May (CNPS 2024).	Will not occur. The onsite and offsite Study Areas are below the known elevational range of this species and suitable soil and habitat types are absent. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Symphotrichum lentum</i> Suisun Marsh aster	--/--/1B.2	A perennial, rhizomatous herb found in marshes and swamps, which can be brackish or freshwater from 0 to 15 meters elevation. Blooms April to November (CNPS 2024).	Will not occur. Marsh or swamp habitat does not occur in the onsite or offsite Study Areas and the onsite and offsite Study Areas are above the known elevational range of this species. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Trifolium hydrophilum</i> Saline clover	--/--/1B.2	An annual herb found in marshes, swamps, and vernal pools in mesic and alkaline valley and foothill grassland habitats from 0 to 300 meters elevation. Blooms April to June (CNPS 2024).	Will not occur. Suitable aquatic habitat types do not occur in the onsite or offsite Study Areas and grasslands are absent. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. This species does not occur in riverine habitats. There are two documented occurrences of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).
<i>Tuctoria mucronata</i> Crampton's tuctoria	FR/SE/1B.1	An annual herb found in clay bottoms of drying vernal pools and lakes in valley grassland habitat from 5 to 15 meters elevation. Blooms April to August (CNPS 2024).	Will not occur. Vernal pools and lakes do not occur in the onsite or offsite Study Areas. The onsite and offsite Study Areas are regularly disturbed in association with agricultural activities or landscaped maintenance and herbicide is also known to be used onsite and offsite with likely further limits the potential special-status plants could occur. There is one documented occurrence of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
Wildlife			
Invertebrates			
<i>Bombus crotchii</i> Crotch's bumblebee	--/CE/--	This species occurs in grassland and scrub habitats. New colonies are initiated by solitary queens, generally in the early spring, which typically occupy abandoned rodent burrows (CDFW 2019). This species is a generalist forager and has been reported visiting a wide variety of flowering plants. The flight period for queens in California is from February to October. New queens hibernate over the winter and initiate a new colony the following spring. Crotch's bumble bees are rare throughout their range and are in decline in the Central Valley and southern California (CDFW 2019). The current known range of this species follows a small strip from western Trinity County south to Tehama County and along the entire Central Valley and coast south of Monterey to the southernmost portions of the State. The range is generally bound on the east by the high Sierra Nevada range and areas east of Bishop, Ridgecrest, and the Salton Sea (CDFW 2023).	May occur. Suitable grassland or scrub habitat is not present in the onsite or offsite Study Areas. Some plant species suitable for foraging occur along the perimeter of the onsite or offsite Study Areas and in the riverine corridor. Mammal burrows are also present in offsite Study Area, which may provide underground refuge for annual colonies and overwintering queens. However, the onsite and offsite Study Areas have been managed for agriculture or landscaped maintenance and have been subjected to use of herbicides and likely pesticides which are one of the leading causes for decline in bumble bees. Additionally, constant disturbance of soil from agricultural uses is not suitable for underground bee colonies and overwintering queens. This species has been historically documented in the vicinity of the onsite and offsite Study Areas but is unlikely to occur in the onsite or offsite Study Areas based on the conditions described above. There is one documented occurrence of this species within five miles of the onsite and offsite Study Areas. This record documents a nonspecific location in the City of Davis at the UC Davis Arboretum from 1949, 1954, 1957, 1959, 1968 and 1998 (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Bombus occidentalis</i> Western bumblebee	--/CE/--	This species occurs in meadows and grasslands with an abundance of floral resources (CDFW 2019). This species is a generalist forager and have been reported visiting a wide variety of flowering plants such as <i>Melilotus</i> spp., <i>Cirsium</i> spp., <i>Trifolium</i> spp., <i>Centaurea</i> spp., <i>Eriogonum</i> spp., and <i>Chrysothamnus</i> spp. The flight period for queens in California is from early February to late November, peaking in late June and late September. New queens hibernate over the winter and initiate a new colony the following spring (Thorp <i>et al.</i> 1983). Rare throughout its range and in decline west of the Sierra Nevada crest. The most current known range of this species is limited to areas near the Klamath and northern Coast Range mountains as well as mountain areas in Shasta, Plumas, Sierra, Nevada, Placer, El Dorado, Lassen, Amador, Alpine, and Calaveras counties (CDFW 2023a).	Not expected. The onsite and offsite Study Areas are outside of the current known range of this species and suitable habitat types do not occur in the onsite or offsite Study Areas. In addition, the onsite and offsite Study Areas have been managed for agriculture or landscaped maintenance and have been subjected to use of herbicides and likely pesticides which are one of the leading causes for decline in bumble bees. Additionally, constant disturbance of soil from agricultural uses is not suitable for underground bee colonies and overwintering queens. There is one historical documented occurrence of this species within five miles of the onsite and offsite Study Areas. This record documents a nonspecific location in the City of Davis from 1950, 1953, 1963 and 1965 (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Bombus pensylvanicus</i> American bumblebee	--/--/CSA	Bumble bees are primitively eusocial insects that live in underground nests made up of one queen, female workers, and reproductive members of the nest. New nests are initiated by solitary queens, generally in the early spring, which typically occupy abandoned rodent burrows, under rotten logs or under tall grass (CDFW 2024). This species occurs in farmlands and open fields, such as grasslands (USFWS 2024). A long-tongued bumble bee; select food plants include <i>Vicia</i> spp., <i>Helianthus</i> spp., <i>Solidago</i> spp., <i>Trifolium</i> spp., <i>Hypericum</i> spp., and <i>Cirsium</i> spp. (CDFW 2024; Koch et al. 2012). The flight period for queens in California is from early March to late November, peaking in June. New queens hibernate over the winter and initiate a new colony the following spring (Thorp et al. 1983).	Not expected. Plant species suitable for foraging occur in the onsite and offsite Study Areas, especially along the margins of the Study Area and along the margins of riverine habitat. However, the onsite or offsite Study Areas consist primarily of cultivated or managed vegetation communities that are regularly irrigated and routinely disked and otherwise manipulated and managed. The onsite and offsite Study Areas do not provide optimal conditions to support bumble bees that require underground refuge sites or tall dense grass for nesting. Native plant assemblages that would provide suitable habitat for this species are absent and the onsite and offsite Study Areas consisted mostly of bare ground or managed annual or perennial vegetation. There are five documented occurrences for this species within five miles of the onsite and offsite Study Areas; with the nearest record of this species as a non-specific record located two miles northwest of the City of Davis in 1970 (CDFW 2024).
<i>Branchinecta conservacion</i> Conservancy fairy shrimp	FE/--/--	Found in large, clay-bottomed vernal pool playas with turbid water within grassland habitats. Occurs at elevation ranges from 5 to 145 meters. Endemic to the grasslands of the northern two-thirds of the Central Valley (CDFW 2024).	Will not occur. Suitable wetland habitat types for this species do not occur in the onsite or offsite Study Areas. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT/--/--	Occurs in a variety of seasonally inundated habitats, especially with grassy or muddy substrates. Typically found in turbid water, but also occurs in clear water with aquatic vegetation. Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains (CDFW 2024).	Will not occur. Suitable wetland habitat types for this species do not occur in the onsite or offsite Study Areas. There is one documented occurrence of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).
<i>Branchinecta mesovallensis</i> Midvalley fairy shrimp	--/--/CSA	Occurs in a variety of seasonally inundated habitats, especially shallower vernal pools and swales (CDFW 2024).	Will not occur. Suitable wetland habitat types for this species do not occur in the onsite or offsite Study Areas. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Cicindela hirticollis abrupta</i> Sacramento Valley tiger beetle	--/--/CSA	Occurs in sandy floodplain habitat in the Sacramento Valley. Requires fine to medium sand, terraced floodplains or low sandy water edge flats (CDFW 2024).	Will not occur. Sandy floodplain habitat does not occur in the onsite or offsite Study Areas. There is one documented occurrence of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).
<i>Danaus plexippus</i> pop. 1 Monarch butterfly – California overwintering population	FPT/--/--	Overwintering populations of monarch butterflies roost in wind protected tree groves, especially <i>Eucalyptus</i> spp., and species of pine or cypress with nectar and water sources nearby. Winter roost sites extend along the coast from Mendocino County to Baja California. As caterpillars, monarchs feed exclusively on the leaves of milkweed (<i>Asclepias</i> sp.) (Nial <i>et al.</i> 2019 and USFWS 2020). Monarch butterfly migration routes pass east over the Sierra Nevada in the fall and back to the California coast in the spring. The overwintering population is located along the Coast while summer breeding areas occur in interior California and North America with spring breeding areas located further east (USFWS 2020).	May occur. The onsite and offsite Study Areas are outside of the winter roost range and does not contain suitable roosting habitat. However, milkweed was observed along the riverine habitat in the onsite Study Area which could provide suitable larval habitat for this species. This species could pass through the onsite and offsite Study Areas during summer migration and utilize narrow-leaf milkweed plants along the riverine corridor as larval habitat. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT/--/--(Yolo HCP/NCCP)	Depends on elderberry shrubs (<i>Sambucus</i> spp.) and typically occurs near rivers or streams. Stems at least a 1-inch diameter or greater are necessary for larvae and pupae development. Adults emerge in spring until early summer and exit holes are visible on shrub stems year-round (CDFW 2024).	Will not occur. Elderberry shrubs do not occur in the onsite or offsite Study Areas or along the immediate perimeter. Several elderberry shrubs are located at the Wildhorse Golf Course restoration area to the west of the onsite or offsite Study Areas but are at least 50 feet from the project boundary. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024). The onsite or offsite Study Areas are not in modeled habitat for this species (Conservancy 2018) or in proposed critical habitat.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE/--/--	Occurs in a variety of seasonally inundated habitats, particularly low-alkalinity seasonal pools in grasslands. Known to occur in vernal pools, wetlands, and other freshwater habitats. Generally, occurs in larger, deeper features where dissolved oxygen levels are higher and features remain inundated for longer periods (CDFW 2024).	Will not occur. Suitable wetland habitat types for this species do not occur in the onsite or offsite Study Areas. There are four documented occurrences of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).
<i>Linderiella occidentalis</i> California linderiella	--/--/CSA	Occurs in a variety of seasonally inundated habitats, especially large, clear, vernal pools. Typically found in seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions (CDFW 2024).	Will not occur. Suitable wetland habitat types for this species do not occur in the onsite or offsite Study Areas. There are two documented occurrences of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).
<i>Myrmosula pacifica</i> Antioch multilid wasp	--/--/CSA	Detailed ecology information on this species is lacking and/or unknown. Known to occur in interior dunes (CDFW 2024).	Will not occur. Interior dunes do not occur in the onsite or offsite Study Areas. There is one documented occurrence of this species within five miles of the onsite and offsite Study Areas (CDFW 2024).
Fishes			
<i>Acipenser medirostris</i> pop. 1 Green sturgeon	FT/--/--	Occurs in marine, estuary, and river habitats. This species is known to spawn in the Sacramento, Feather, and Yuba rivers; and	Will not occur. Suitable aquatic habitat does not occur in the onsite or offsite Study Areas. The onsite or offsite Study Areas support a

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
		may also spawn in the Stanislaus and San Joaquin rivers. Spawning occurs in cool sections of rivers with substrate containing small to medium sized sand, gravel, cobble or boulder. Non-spawning adults occupy marine/estuary habitats. The Delta Estuary is important habitat for rearing juveniles (CDFW 2024).	seasonally inundated channel that appears to hold water in association with agricultural practices and does not provide habitat for special-status fish. There is one documented occurrence of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Archoplites interruptus</i> Sacramento perch	--/--/SSC	Extinct in its native range, all known populations of this species are the result of introductions. The species is adapted for life in sloughs, slow moving rivers, and large lakes in the Central Valley, and can tolerate high temperatures and salinities as well as high pH (alkalinity). Extant populations are in reservoirs; the species has been replaced in its native range by introduced game fishes (Crain and Moyle 2011).	Will not occur. Suitable aquatic habitat does not occur in the onsite or offsite Study Areas. The onsite or offsite Study Areas support a seasonally inundated channel that appears to hold water in association with agricultural practices and does not provide habitat for special-status fish. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Hypomesus transpacificus</i> Delta smelt	FT/SE/--	Delta smelt are found only from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties. The majority of their life span is spent within the freshwater outskirts of the mixing zone (saltwater-freshwater interface) within the Delta. Shortly before spawning, adults migrate upstream from the brackish-water habitat associated with the mixing zone and disperse into river channels and tidally-influenced backwater sloughs. They spawn in shallow, fresh or slightly brackish water upstream of the mixing zone. Most spawning happens in tidally-influenced backwater sloughs and channel edge-waters (USFWS 2017).	Will not occur. Suitable aquatic habitat does not occur in the onsite or offsite Study Areas. The onsite or offsite Study Areas support a seasonally inundated channel that appears to hold water in association with agricultural practices and does not provide habitat for special-status fish. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Oncorhynchus mykiss irideus</i> pop. 11 Steelhead, Central Valley DPS	FT/--/--	Distinct population of the Sacramento and San Joaquin rivers and their tributaries. Found in	Will not occur. Suitable aquatic habitat does not occur in the onsite or offsite Study Areas.

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
		cool, clear, fast-flowing permanent streams and rivers with riffles and ample riparian vegetation cover or overhanging banks. Spawning occurs in streams with pool and riffle complexes. This species requires cold water and gravelly streambed to successfully breed (CDFW 2024).	The onsite or offsite Study Areas support a seasonally inundated channel that appears to hold water in association with agricultural practices and does not provide habitat for special-status fish. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Oncorhynchus tshawytscha</i> pop. 11 Chinook salmon, Central Valley spring-run ESU	FT/ST/--	Central Valley spring-run Chinook salmon spawn in rivers and streams with cool, clear, water and suitable cobble and gravel substrate. Historically occurred in all major rivers and tributaries of the Central Valley. Spawning is currently located in tributary streams of the Sacramento River. Immigration of adults through the Delta and lower Sacramento River occurs from March through September. Spawning occurs between late-August through October (NMFS 2014).	Will not occur. Suitable aquatic habitat does not occur in the onsite or offsite Study Areas. The onsite or offsite Study Areas support a seasonally inundated channel that appears to hold water in association with agricultural practices and does not provide habitat for special-status fish. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Oncorhynchus tshawytscha</i> pop. 7 Chinook salmon, Sacramento River winter-run ESU	FE/SE/--	Chinook salmon spawn in rivers and streams with cool, clear, water and suitable cobble and gravel substrate. Immigration of adults through the Delta and lower Sacramento River occurs from December through July. Spawning is currently limited to the Sacramento River downstream of Keswick Dam and upstream of the Red Bluff Diversion and the lower reaches of Battle Creek. Spawning occurs between late-April through mid-August (NMFS 2014).	Will not occur. Suitable aquatic habitat does not occur in the onsite or offsite Study Areas. The onsite or offsite Study Areas support a seasonally inundated channel that appears to hold water in association with agricultural practices and does not provide habitat for special-status fish. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	--/--/SSC	Endemic to the Central Valley. They occur below the Red Bluff Diversion Dam in Tehama County to the downstream reaches of the Sacramento and American Rivers. They also occur in the lower reaches of the Feather, Merced, Tuolumne River and the San Joaquin Rivers. This species is largely confined to the Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and Sacramento-San Joaquin estuary. This species occurs predominantly in freshwater estuarine systems and prefers low-salinity, shallow-water habitats. Occurs in slow-moving sections of rivers, sloughs, and marshes. Species abundance is strongly tied to outflows because spawning occurs over flooded vegetation (Moyle <i>et al.</i> 2015).	Will not occur. Suitable aquatic habitat does not occur in the onsite or offsite Study Areas. The onsite or offsite Study Areas support a seasonally inundated channel that appears to hold water in association with agricultural practices and does not provide habitat for special-status fish. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Spirinchus thaleichthys</i> Longfin smelt	FC/ST/--	Inhabits estuaries and bays in the Delta and Sacramento-San Joaquin rivers. Migrates to freshwater to spawn (CDFW 2024).	Will not occur. Suitable aquatic habitat does not occur in the onsite or offsite Study Areas. The onsite or offsite Study Areas support a seasonally inundated channel that appears to hold water in association with agricultural practices and does not provide habitat for special-status fish. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
Amphibians			
<i>Ambystoma californiense</i> pop. 1 California tiger salamander	FT/ST/WL (Yolo HCP/NCCP)	Requires both aquatic breeding habitat and suitable upland habitat. Typically found in grasslands, meadows, oak savannah, and oak woodland habitats. Adults aestivate in small mammal burrows and other crevices throughout summer, and typically emerge after the first heavy rains to migrate to breeding pools. Breeding takes place in vernal pools, ponds, wetlands, and other freshwater habitats where predators, such as fish, are absent. Adults have been known to inhabit upland habitats 1.24 miles from breeding pools, and juveniles have been known to occur up to 2 miles from breeding pools (Trenham 2001).	Will not occur. Suitable habitat does not occur in the onsite or offsite Study Areas. Aquatic habitats within the onsite and offsite Study Areas are agricultural drainage ditches and a channelized seasonal stream channel that is seasonally inundated. The agricultural ditches are ephemeral and are altered regularly in association with crop rotation and do not consistently hold water. Suitable upland habitat is also lacking from the onsite or offsite Study Areas and which experience regular disturbance in association with farming or landscaping activities. The surrounding area is also developed with urban and agricultural uses, including highways and busy roads. The onsite and offsite Study Areas lack connectivity with suitable habitat for this species or nearby records of this species. The nearest CNDDDB record documents one individual adult in 1993 found in a parking lot. The individual was believed to have originated from “West Pond” on the western side of the City of Davis (CDFW 2024). The onsite or offsite Study Areas are not in modeled habitat for this species (Conservancy 2018).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Spea hammondi</i> Western spadefoot	FPT/--/SSC	Occurs in a variety of open habitats including grasslands, coastal sage scrub, chaparral, sandy washes, and playas. Can also be found in valley-foothill woodlands. This species spends the majority of its life underground and typically emerges between October to May to breed. Breeding occurs in vernal pools, depressional wetlands, and sometimes puddles. Breeding sites must remain inundated for at least 30 days for larvae to mature (CDFW 2024).	Will not occur. Suitable habitat does not occur in the onsite or offsite Study Areas. Aquatic habitats within the onsite and offsite Study Areas are agricultural drainage ditches and a channelized seasonal stream channel that is seasonally inundated. The agricultural ditches are ephemeral and are altered regularly in association with crop rotation and do not consistently hold water. Suitable upland habitat is also lacking from the onsite or offsite Study Areas and which receives regular disturbance in association with farming and landscaping activities. The surrounding area is also developed with urban and agricultural uses, including highways and busy roads. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
Reptiles			
<i>Actinemys marmorata</i> Northwestern pond turtle	FPT/--/SSC (Yolo HCP/NCCP)	Occurs in a variety of aquatic habitats; typically, permanent ponds, lakes, streams, irrigation ditches, canals, marshes, or pools in intermittent drainages. Prefers areas lined with abundant vegetation and either rocky or muddy substrates. Requires basking sites such as logs, rocks, cattail mats or exposed banks. Active from February to November, and breeding occurs from April to May. Overwintering occurs in upland terrestrial habitats close to water sources (approximately 300 feet), in which they will bury themselves under loose soil (CDFW 2024).	May occur. Suitable habitat is marginal for this species in the onsite and offsite Study Areas. Agricultural ditches within the onsite Study Area appear to be regularly altered in association with crop rotation and water regime, and do not consistently hold water. These features also lack essential habitat components for this species. The riverine habitat contains sufficient emergent vegetation and basking areas but does not appear to regularly hold water of sufficient depth during the active season of this species and in most years, appears to be completely dry (Google Earth 2024). This species could occasionally occur in the riverine habitat when sufficiently inundated or in the surrounding uplands, but would generally be expected to occur outside of the onsite or offsite Study Areas in more suitable habitat. There is one documented occurrences of this species within five miles of the onsite and offsite Study Areas. This occurrence is located 2.2 miles southwest of the onsite and offsite Study Areas and is from 2001 at UC Davis. The record documents 76 individuals captured during a study, consisting of mostly adults and a few juveniles (CDFW 2024). The onsite and offsite Study Areas are in modeled habitat that includes aquatic, nesting, and overwintering habitat (Conservancy 2018).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Thamnophis gigas</i> Giant garter snake	FT/ST/-- (Yolo HCP/NCCP)	Occurs in aquatic habitats with open, sunny areas for basking, vegetation cover along banks, and abundant prey. Typically occurs in agricultural wetlands, canals, and sloughs; especially near rice fields. Upland habitat with small mammal burrows present above flood level is also required for this species. This species is normally found in the immediate vicinity of permanent or semi-permanent sources of water (CDFW 2024; Zeiner <i>et al.</i> 1990).	May occur. This species is known to occur in agricultural settings, but the ditches and drainage within the onsite or offsite Study Areas lack vital habitat components for this species. The agricultural ditches appear to be regularly altered in association with crop rotation and water regime, and do not consistently hold water. The riverine habitat contains sufficient emergent vegetation but does not appear to regularly hold water and in most years appears to be completely dry during this species active season (Google Earth 2024). This species is generally found in areas with permanent or semi-permanent water and it requires water during its active season. This species could occasionally occur in the riverine habitat when sufficiently inundated but would generally be expected to occur outside of the onsite and offsite Study Areas in more suitable habitat. There are 22 documented occurrences of this species within five miles of the onsite and offsite Study Areas. The nearest occurrence is located one mile north of the onsite and offsite Study Areas and is from 1987 and occurs along Willow Slough Bypass, which is hydrologically connected to the riverine habitat in the onsite and offsite Study Areas. The record documents two adult snakes (CDFW 2024). The onsite and offsite Study Areas are in modeled habitat that includes overwintering habitat and active season upland movement habitat (Conservancy 2018).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
Birds			
<i>Agelaius tricolor</i> Tricolored blackbird	--/ST/SSC (Yolo HCP/NCCP)	Common locally throughout central California. Nests and seeks cover in emergent wetland vegetation, thorny vegetation, and cattails and tules. Nesting area must be large enough to support a minimum colony of 50 pairs as they are a highly colonial species. Forages on ground in croplands, grassy fields, flooded land, and edges of ponds (Shuford and Gardali 2008).	May occur. This species may pass through or forage within the onsite and offsite Study Areas but suitable nesting habitat for this species is marginal within the onsite and offsite Study Areas. The only potentially suitable nesting habitat is located along the riverine corridor and it does not appear to be flooded during the nesting season which may be unsuitable for this species (Google Earth 2024). There is one documented occurrence of this species within five miles of the onsite and offsite Study Areas; this record is from 2011 and documents a suspected breeding colony located 1.9 miles north of the onsite and offsite Study Areas (CDFW 2024). The onsite and offsite Study Areas is in modeled habitat that includes foraging habitat for this species (Conservancy 2018).
<i>Ammodramus savannarum</i> Grasshopper sparrow	--/--/SSC	Occurs in dense grasslands, lowland plains, and in valleys and hillsides of lower mountain slopes. Appears to favor native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting (CDFW 2024).	Will not occur. Suitable nesting or foraging habitat for this species is not present in the onsite or offsite Study Areas. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Ardea alba</i> Great egret	--/--/CSA	Common year-round resident of California that nests and roosts in groves of trees isolated from human activities. Nesting colonies may be mixed with other species such as great blue herons. Adults will abandon nests if disturbed by human activities. This species may forage up to 20 miles from the rookery. Foraging habitat typically consists of shallow-water feeding or in open fields (Zeiner <i>et al.</i> 1990).	Not expected. There is no suitable rookery habitat within the onsite or offsite Study Areas. This species could occur while foraging but because rookery habitat is absent from the onsite and offsite Study Areas, it is not anticipated to be impacted by the proposed project. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Ardea herodias</i> Great blue heron	--/--/CSA	Common year-round resident of California that nests and roosts in tall trees. Nesting colonies or rookeries occur in tall tree snags or live trees. This species may forage up to 10 miles from the rookery. Foraging habitat typically consists of shallow-water feeding or in open fields (Zeiner <i>et al.</i> 1990).	Not expected. There is no suitable rookery habitat within the onsite or offsite Study Areas. This species could occur while foraging but because rookery habitat is absent from the onsite and offsite Study Areas, it is not anticipated to be impacted by the proposed project. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Athene cunicularia</i> Burrowing owl	--/--/SSC (Yolo HCP/NCCP)	Occurs in a variety of open habitats; typically grasslands, desert scrub, agricultural fields, washes, and disturbed areas such as golf courses or vacant lots. Burrows, perch sites, and friable soil are necessary for this species, and areas with low-lying, sparse vegetation are preferred. May utilize culverts, abandoned pipes, rubble piles, and other artificial structures for nesting if burrows are absent. Often associated with high densities of burrowing mammals. Breeding pairs stay near a nesting burrow and wintering owls may move around or roost outside of burrows (CDFW 2024).	High. The onsite or offsite Study Areas contain suitable nesting and foraging habitat for this species in agricultural ditches and along the northwest corner of the onsite and offsite Study Areas along the edge of a golf course. Small mammal burrows were observed in the onsite and offsite Study Areas and are suitable nesting or wintering sites for this species, and suitable foraging habitat occurs throughout the onsite and offsite Study Areas. In 2004, 2006 and 2009, this species was documented nesting in restored habitat on Wildhorse Golf Course west of the onsite and offsite Study Areas (CDFW 2024). On January 28, 2025, one burrowing owl was observed southeast of the onsite or offsite Study Areas in the adjacent agricultural field at a water pump system. The onsite and offsite Study Areas are in modeled habitat for this species mapped as “Other,” which includes mixed pasture, alfalfa and other grassy habitat (Conservancy 2018).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Buteo swainsoni</i> Swainson's hawk	--/ST/-- (Yolo HCP/NCCP)	Occurs in a variety of habitats, typically open grassland, riparian, riparian woodland, and agricultural. Nest sites typically occur in riparian areas or in isolated trees bordered by foraging habitat. Most used nest trees in the Central Valley include valley oak, Fremont's cottonwood, walnut, large willows, and occasionally eucalyptus, pine and redwood trees. Forages in row, hay, and grain crops, especially post-harvest when the height of the vegetation is short and easy to observe prey (CDFW 2024).	High. Onsite and offsite Study Areas provides suitable foraging habitat for this species and suitable nest trees occur along riverine habitat, along the boundary of the onsite and offsite Study Areas, and are also present in the surrounding area. This species was observed during the site visit conducted on October 5, 2023, which is after the nesting season for this species, and was observed nesting onsite during the Aquatic Resources Delineation for the site on April 16, 2024. There are over 100 documented occurrences of this species within a five-mile radius of the onsite and offsite Study Areas (CDFW 2024). The onsite and offsite Study Areas are in modeled habitat that includes agricultural foraging habitat (Conservancy 2018).
<i>Charadrius nivosus nivosus</i> Western snowy plover	FT/--/SSC	Nests on the ground on broad open beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly, or friable soils for nesting. Typically builds nest adjacent to an object including kelp, driftwood, shells, rocks, and even in footprints (CDFW 2024).	Will not occur. Suitable habitat for this species does not occur in the onsite or offsite Study Areas. There are no recent CNDDDB reported occurrences for this species within five miles of the onsite or offsite Study Areas (CDFW 2024). A historic account of this species is located approximately 1.8 miles northeast of the onsite and offsite Study Areas which documents this species nesting in 1963 at the Davis Sewage Treatment Ponds (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Circus hudsonius</i> Northern harrier	--/--/SSC	Occurs in large tracts of coastal scrub, grassland, marsh, riparian scrub, and wetland habitats with low, dense vegetation. Also known to occur in agricultural habitats. Nests on the ground in shrubby vegetation usually at the edge of aquatic habitat (CDFW 2024).	May occur. Suitable nesting and foraging habitat are present in the onsite and offsite Study Areas. This species could nest in the riverine habitat or in suitable areas adjacent to the onsite and offsite Study Areas. Suitable foraging habitat is present throughout the onsite and offsite Study Areas but would be limited depending on the current crop rotation. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Coccyzus americanus occidentalis</i> Western yellow-billed cuckoo	FT/SE/-- (Yolo HCP/NCCP)	An uncommon and rare summer migrant that occurs in riparian forest habitats along large rivers. Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, and which abut on slow-moving watercourses, backwaters, or seeps. Willow is almost always a dominant component of the vegetation. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape (Zeiner <i>et al.</i> 1990).	Will not occur. Suitable expansive riparian forest habitat does not occur in or near the onsite or offsite Study Areas. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024). The onsite or offsite Study Areas are not in modeled habitat for this species (Conservancy 2018).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Elanus leucurus</i> White-tailed kite	--/FP/--(Yolo HCP/NCCP)	Occurs in a variety of habitats including grasslands, savannah, oak woodland, riparian woodland, open suburban areas, and agriculture fields. Nests in lone trees or trees near aquatic habitats. Foraging occurs within un-grazed or lightly-grazed fields, agricultural areas, and open grasslands (CDFW 2024).	High. Onsite or offsite Study Areas provide suitable foraging habitat for this species and suitable nest trees occur in onsite and offsite Study Areas, and in surrounding areas where trees are present. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024). The onsite and offsite Study Areas are in modeled habitat that includes primary and secondary foraging habitat (Conservancy 2018).
<i>Falco columbarius</i> Merlin	--/--/WL	An uncommon winter migrant in California; breeds in Alaska and Canada. Uses a variety of habitats but requires trees close to water for cover and is usually found near coastlines, lakeshores, and wetlands (Zeiner <i>et al.</i> 1990).	Not expected. This species does not nest in the region of the onsite or offsite Study Areas. This species could occur foraging or otherwise dispersing through the onsite and offsite Study Areas in the winter but will not nest onsite. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Laterallus jamaicensis coturniculus</i> California black rail	--/ST/--	Occurs in marsh habitats; typically saltwater or brackish marshes that border bays. However, small, isolated populations are known from the Sierra Nevada foothills. Requires shallow permanent water within the marsh and dense vegetation (CDFW 2024).	Will not occur. The onsite and offsite Study Areas are outside of the current known range of this species. Some emergent wetland vegetation is present within the riverine habitat but it does not contain shallow permanent water and is subject to fluctuating water levels in association with agricultural needs which is unsuitable for this species. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Melospiza melodia</i> pop. 1 Song sparrow “Modesto” population	--/--/SSC	Occurs in the central lower basin of the Great Valley, from Colusa County south to Stanislaus County and east of Suisun Marshes. Occupies habitats containing dense emergent vegetation such as marshes, riparian forests, agricultural canals, and wetlands. Typically nests and occurs in areas dominated by tules, cattails, or willows (CDFW 2024).	May occur. Suitable nesting and foraging habitat are present along the margins of the riverine habitat in trees and shrubs. Suitable emergent wetland vegetation is present along the riverine habitat that could support nesting for this species. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Plegadis chihi</i> White-faced ibis	--/--/WL	This species nests sporadically in the Sacramento-San Joaquin Valley but occurs as a transient throughout California. This species requires extensive marshes for nesting and forages in marshes, pastures, and croplands. It no longer nests regularly in the Central Valley (Zeiner et al. 1990).	Will not occur. Suitable habitat for this species does not occur in the onsite or offsite Study Areas. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Progne subis</i> Purple martin	--/--/SSC	Nests in cavities in open areas with low canopy cover at the height of the nest, near large bodies of water that support high densities of large insects. Martins use a variety of cavities including in bridges, large tree snags, and collapsed lava tubes. The species is very sensitive to competition from European starlings and is extirpated from most low-elevation areas by starlings (Shuford and Gardali 2008).	Will not occur. Suitable habitat for this species does not occur in the onsite or offsite Study Areas. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Riparia riparia</i> Bank swallow	--/ST/-- (Yolo HCP/NCCP)	Found primarily in riparian and lowland habitat in California. Nests in colonies along cliffs or steep riverbanks in holes. In California, a majority of the population is situated along the Sacramento River and the Feather River. Other smaller populations persist near Monterey and north of Shasta counties (Zeiner et al. 1990).	Will not occur. Suitable habitat for this species does not occur in the onsite or offsite Study Areas. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024). The onsite and offsite Study Areas are not in modeled habitat for this species (Conservancy 2018).
<i>Vireo bellii pusillus</i> Least Bell's vireo	FE/SE/-- (Yolo HCP/NCCP)	It is an obligate riparian species during the breeding season that prefers early successional habitat. Typically found in structurally diverse habitat such as cottonwood-willow forests, oak woodlands, and mule fat scrub (USFWS 1998) that generally contains both canopy and shrub layers and includes some associated upland habitat. This species will winter in arroyos that contain mesquite scrub habitat and are not limited to willow dominated habitats. Previously considered to be limited to southern California, recent account of this species with successful breeding in Salinas Valley and in Yolo County show that this species is expanding back into its former range (NatureServe 2024; CDFW 2024).	Will not occur. Suitable habitat for this species does not occur in the onsite or offsite Study Areas. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024). The onsite and offsite Study Areas are not in modeled habitat for this species (Conservancy 2018).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
Mammals			
<i>Antrozous pallidus</i> Pallid bat	--/--/SSC	Occurs throughout California except for the high Sierra Nevada and the northern Coast Ranges. Habitats include grasslands, shrublands, woodlands, and forests from sea level to about 6,000 feet. Most common in open, dry habitats with rocky areas for roosting; roosts also include cliffs, abandoned buildings, and under bridges (Bolster, ed. 1998).	Not expected. This species may pass through the onsite and offsite Study Areas but because typical habitat types do not occur in the onsite or offsite Study Areas and suitable roosts are also absent, it is not expected to occur. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Lasionycteris noctivagans</i> Silver-haired bat	--/--/CSA	Occurs in lower montane coniferous forests, old growth forests, and riparian woodlands. Roosts in hollow trees, beneath exfoliating bark, in abandoned woodpecker holes, and rarely in rock outcrops. They primarily occur in coastal and montane forests, feeding over streams, ponds, and open brushy areas (Zeiner <i>et al.</i> 1990).	Will not occur. Suitable forest and riparian habitats do not occur in the onsite or offsite Study Areas. There are no documented occurrences of this species within five miles of the onsite or offsite Study Areas (CDFW 2024).
<i>Lasiurus cinereus</i> Hoary bat	--/--/CSA	Occurs in cismontane woodland, coniferous forest, and broadleaf upland forest habitats. Requires a water source and appears to prefer open habitats or habitat mosaics within the forest. Roosts in dense foliage of medium to large trees (CDFW 2024).	Will not occur. Suitable forest habitat does not occur in the onsite or offsite Study Areas. There is one documented occurrence of this species within five miles of the onsite and offsite Study Areas. This record documents multiple collections of this species that were preserved at the Museum of Vertebrate Zoology from 1925 to 1991 (CDFW 2024).

Species Name/ Common Name ¹	Status ²	Habitat, Ecology and Life History	Potential to Occur
<i>Taxidea taxus</i> American badger	--/--/SSC	Occurs in a variety of dry, open habitats including grasslands, open woodlands, shrublands, and open chaparral. Loose, friable soil is required for this species to dig den sites. Needs sufficient food, friable soils and open, uncultivated ground. Typically found in areas away from human activity (CDFW 2024).	Will not occur. Suitable habitat does not occur in the onsite or offsite Study Areas and which is regularly cultivated and disturbed in association with farming and landscaping activities. Additionally, the surrounding area is developed for agriculture or is urban and lacks connectivity to suitable habitat for this species. There is one undated record of this species in the CNDDDB that documents this species in the City of Davis. This specimen is preserved in the Museum of Vertebrate Zoology (CDFW 2024).

¹ Sensitive species reported in CNDDDB or CNPS on the “Dixon, Merritt, Davis, Sacramento West, Woodland, Grays Bend, Taylor Monument, Clarksburg, and Saxon” USGS quads, or in the USFWS list for the Study Area.

² Status is as follows: Federal (ESA) listing/State (CESA) listing/other CDFW status or CRPR. F = Federal; S = State of California; E = Endangered; T = Threatened; C = Candidate; P = Proposed; FP=Fully Protected; SSC=Species of Special Concern; WL=Watch List; CSA= California Special Animal; Yolo HCP/NCCP = Yolo HCP/NCCP Covered Species.

³ Status in the Study Area is assessed as follows. **Will Not Occur:** Species is either sessile (*i.e.* plants) or so limited to a particular habitat that it cannot disperse on its own and/or habitat suitable for its establishment and survival does not occur on the Study Area; **Not Expected:** Species moves freely and might disperse through or across the Study Area, but suitable habitat for residence or breeding does not occur on the Study Area, potential for an individual of the species to disperse through or forage in the site cannot be excluded with 100% certainty; **Presumed Absent:** Habitat suitable for residence and breeding occurs on the Study Area; however, focused surveys conducted for the current project were negative; **May Occur:** Species was not observed on the site and breeding habitat is not present but the species has the potential to utilize the site for dispersal, **High:** Habitat suitable for residence and breeding occurs on the Study Area and the species has been recorded recently on or near the Study Area, but was not observed during surveys for the current project; **Present:** The species was observed during biological surveys for the current project and is assumed to occupy the Study Area or utilize the Study Area during some portion of its life cycle.

CRPR = California Rare Plant Rank: 1B to rare, threatened, or endangered in California and elsewhere; 2B to rare, threatened, or endangered in California but more common elsewhere. Extension codes: .1 to seriously endangered; .2 to moderately endangered.

REFERENCES

- Bolster, B.C., editor. 1998. Terrestrial Mammal Species of Special Concern in California. Draft Final Report prepared by P.V. Brylski, P.W. Collins, E.D. Pierson, W.E. Rainey and T.E. Kucera. Report submitted to California Department of Fish and Game Wildlife Management Division, Nongame Bird and Mammal Conservation Program for Contract No. FG3146WM.
- California Department of Fish and Wildlife (CDFW). 2019. Report to the Fish and Game Commission: Evaluation of the Petition from the Xerces Society, Defenders of Wildlife and the Center for Food Safety to List Four Species of Bumble Bees as Endangered Under the California Endangered Species Act. April 2019. Special California Department of Fish and Wildlife, Sacramento, California, USA.
2023. Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species. California Department of Fish and Wildlife. Sacramento, CA.
2024. California Natural Diversity Database (CNDDDB); For: *Dixon, Merritt, Davis, Sacramento West, Woodland, Grays Bend, Taylor Monument, Clarksburg, and Saxon* USGS 7.5 minute series quadrangles, Sacramento, CA.
- California Native Plant Society (CNPS). 2024. Inventory of Rare and Endangered Plants (online edition, v8-03 0.45) For: *Dixon, Merritt, Davis, Sacramento West, Woodland, Grays Bend, Taylor Monument, Clarksburg, and Saxon* USGS 7.5-minute series quadrangles, Sacramento, CA.
- Conservancy. 2018. The Yolo Habitat Conservation Plan/Natural Communities Conservation Plan. Yolo Habitat Conservancy. Dated April 2018.
- Crain, Patrick K, and Peter B Moyle. 2011. Biology, History, Status and Conservation of Sacramento Perch, *Archoplites interruptus*. San Francisco Estuary and Watershed Science 9(1): 1546-2366.
- Jepson Flora Project (eds.). 2025. Jepson eFlora, <https://ucjeps.berkeley.edu/eflora/>, accessed on May 05, 2025.
- Koch, J., J. Strange, and P. Williams. 2012. Bumble bees of the Western United States. USDA-Forest Service, Pollinator Partnership. Washington, DC. 144 pp.
- Moyle, P.B., R. M. Quiñones, J. V. Katz and J. Weaver. 2015. Fish Species of Special Concern in California. Sacramento: California Department of Fish and Wildlife. www.wildlife.ca.gov
- NatureServe. 2024. NatureServe Explorer: An online encyclopedia of life [web application]. NatureServe, Arlington, Virginia. Available at: <http://explorer.natureserve.org>. (Accessed: October 31, 2024).
- National Marine Fisheries Service (NMFS). 2014. Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead. California Central Valley Area Office.

- Nial K.R., Drizd, L. and Voorhies K.J. 2019. Butterflies Across the Globe: A Synthesis of the Current Status and Characteristics of Monarch (*Danaus plexippus*) Populations Worldwide. *Front. Ecol. Evol.* 7:362. doi: 10.3389/fevo.2019.00362
- Shuford, W.D., and T. Gardali, 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.
- Thorp, R. W., D. S Horning and L. L. Dunning. 1983. Bumble bees and cuckoo bumble bees of California (Hymenoptera: Apidae). *Bulletin of the California Insect Survey* 23: viii.
- Trenham, P.C. 2001. Terrestrial Habitat Use by Adult California Tiger Salamanders. *Journal of Herpetology*, 35(2): 343-346. Source within Appendix G-2 to Final South Sacramento Habitat Conservation Plan EIS/EIR.
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2024. Web Soil Survey. Available at: <https://www.nrcs.usda.gov/resources/data-and-reports/web-soil-survey>.
- U.S. Fish and Wildlife Service (USFWS). 2017. Delta Smelt (*Hypomesus transpacificus*), species account. Available online at <https://www.fws.gov/sfbaydelta/EndangeredSpecies/Species/Accounts/DeltaSmelt/DeltaSmelt.htm>.
2020. Monarch (*Danaus plexippus*) Species Status Assessment Report. V2.1 96 pp + appendices.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1990. California's Wildlife. Vol. I-III. California Department of Fish and Game, Sacramento, California.

Appendix D

Plant and Wildlife Species Observed in the Study Area

Family	Species Name	Common Name	Status
Native			
Apocynaceae	<i>Asclepias fascicularis</i>	Narrow leaf milkweed	--
Asteraceae	<i>Artemisia douglasiana</i>	California mugwort	--
	<i>Baccharis pilularis</i>	Coyote brush	--
	<i>Xanthium strumarium</i>	Rough cocklebur	--
Boraginaceae	<i>Heliotropium curassavicum</i>	Salt heliotrope	--
Cyperaceae	<i>Cyperus eragrostis</i>	Tall flatsedge	--
	<i>Schoenoplectus californicus</i>	California bulrush	--
Cleomaceae	<i>Cleomella arborea</i>	bladderpod	--
Ericaceae	<i>Arctostaphylos manzanita</i>	Common manzanita	--
Fabaceae	<i>Cercis occidentalis</i>	Western redbud	--
Fagaceae	<i>Quercus agrifolia</i>	Coast live oak	--
	<i>Quercus lobata</i>	Valley oak	--
Frankeniaceae	<i>Frankenia salina</i>	Alkali heath	--
Juglandaceae	<i>Juglans hindsii</i>	Northern California black walnut	--
Juncaceae	<i>Juncus effusus</i>	Common bog rush	--
	<i>Juncus mexicanus</i>	Mexican rush	--
Malvaceae	<i>Malvella leprosa</i>	Alkali mallow	--
Onagraceae	<i>Epilobium brachycarpum</i>	Annual fireweed	--
Platanaceae	<i>Platanus racemosa</i>	California sycamore	
Poaceae	<i>Elymus (=Leymus) triticoides</i>	Beardless wildrye	--
	<i>Festuca californica</i>	California fescue	--
	<i>Muhlenbergia rigens</i>	deergrass	--
	<i>Stipa pulchra</i>	Purple needlegrass	--
Rhamnaceae	<i>Frangula californica</i>	California coffeeberry	--
Rosaceae	<i>Heteromeles arbutifolia</i>	Toyon	--
Salicaceae	<i>Populus fremontii</i>	Fremont cottonwood	--
	<i>Salix laevigata</i>	Polished willow	--
Sapindaceae	<i>Acer negundo</i>	Boxelder	--
	<i>Aesculus californica</i>	California buckeye	--
Non-native			
Amaranthaceae	<i>Amaranthus albus</i>	Pigweed amaranth	--
Apiaceae	<i>Conium maculatum</i>	Poison hemlock	Moderate
Anacardiaceae	<i>Schinus terebinthifolius</i>	Brazilian pepper tree	Limited
Apiaceae	<i>Daucus carota</i>	Wild carrot	--
	<i>Foeniculum vulgare</i>	sweet fennel	
Asteraceae	<i>Carduus pycnocephalus</i>	Italian thistle	Moderate
	<i>Centaurea calcitrapa</i>	Purple star thistle	Moderate
	<i>Centaurea solstitialis</i>	Yellow-star thistle	High
	<i>Cirsium vulgare</i>	Bull thistle	Moderate
	<i>Dittrichia graveolens</i>	Stinkwort	Moderate
	<i>Helminthotheca echioides</i>	Bristly ox-tongue	Limited
	<i>Lactuca serriola</i>	Prickly lettuce	--
Chenopodiaceae	<i>Atriplex prostrata</i>	Fat-hen	--
Brassicaceae	<i>Brassica nigra</i>	Black mustard	Moderate
	<i>Lepidium latifolium</i>	Perennial pepperweed	High
	<i>Sisymbrium altissimum</i>	Tumble mustard	--
Caryophyllaceae	<i>Spergularia rubra</i>	Purple sand spurry	--
Convolvulaceae	<i>Convolvulus arvensis</i>	Field Bindweed	--/C

Family	Species Name	Common Name	Status
Euphorbiaceae	<i>Triadica sebifera</i>	Chinese tallowtree	Moderate
Malvaceae	<i>Malva parviflora</i>	Cheeseweed	--
Oleaceae	<i>Olea europaea</i>	Olive tree	Limited
Poaceae	<i>Avena barbata</i>	Slender Oats	Moderate
	<i>Bromus diandrus</i>	Common ripgut grass	Moderate
	<i>Bromus hordeaceus</i>	Soft Brome	Limited
	<i>Cynodon dactylon</i>	Bermuda Grass	Moderate
	<i>Elymus caput-medusae</i>	Medusahead	High
	<i>Festuca myuros</i>	Rattail sixweeks grass	Moderate
	<i>Festuca perennis</i>	Italian Ryegrass	--
	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean Barley	--
	<i>Hordeum murinum</i>	Foxtail Barley	Moderate
	<i>Phalaris minor</i>	Mediterranean canarygrass	--
	<i>Sorghum halepense</i>	Johnsongrass	--
Polygonaceae	<i>Polygonum aviculare</i>	Prostrate knotweed	--
	<i>Rumex crispus</i>	Curly Dock	Limited

Family	Scientific Name	Common Name
Fish		
Cyprinidae	<i>Cyprinus carpio</i>	common carp
Reptiles		
Colubridae	<i>Pituophis catenifer catenifer</i>	Pacific gopher snake
Phrynosomatidae	<i>Sceloporus occidentalis</i>	western fence lizard
Birds		
Accipitridae	<i>Astur cooperii</i>	Cooper's hawk
	<i>Buteo jamaicensis</i>	red-tailed hawk
	<i>Buteo swainsoni</i>	Swainson's hawk
Anatidae	<i>Anas platyrhynchos</i>	mallard
	<i>Branta canadensis</i>	Canada goose
Cathartidae	<i>Cathartes aura</i>	turkey vulture
Charadriidae	<i>Charadrius vociferus</i>	killdeer
Columbidae	<i>Zenaida macroura</i>	mourning dove
Corvidae	<i>Aphelocoma californica</i>	California scrub-jay
	<i>Corvus brachyrhynchos</i>	American crow
Falconidae	<i>Falco sparverius</i>	American kestrel
Fringillidae	<i>Haemorhous mexicanus</i>	house finch
	<i>Haemorhous purpureus</i>	purple finch
	<i>Spinus psaltria</i>	lesser goldfinch
Icteridae	<i>Agelaius phoeniceus</i>	red-winged blackbird
	<i>Sturnella neglecta</i>	western meadowlark
Laridae	<i>Sterna forsteri</i>	Forster's tern
Mimidae	<i>Mimus polyglottos</i>	northern mockingbird
Parulidae	<i>Setophaga coronata</i>	Yellow-rumped warbler
Passerellidae	<i>Melospiza crissalis</i>	California towhee
	<i>Pipilo maculatus</i>	Spotted towhee
	<i>Zonotrichia atricapilla</i>	Golden-crowned sparrow
	<i>Zonotrichia leucophrys</i>	white-crowned sparrow
Picidae	<i>Colaptes auratus</i>	Northern flicker
	<i>Dryobates nuttallii</i>	Nuttall's woodpecker
Regulidae	<i>Corthylio calendula</i>	Ruby-crowned kinglet
Strigidae	<i>Athene cunicularia</i>	Burrowing owl
Sturnidae	<i>Sturnus vulgaris</i>	European starling
Trochilidae	<i>Calypte anna</i>	Anna's hummingbird
Troglodytidae	<i>Thryomanes bewickii</i>	Bewick's wren
Tyrannidae	<i>Sayornis nigricans</i>	black phoebe
	<i>Sayornis saya</i>	Say's phoebe
	<i>Tyrannus verticalis</i>	western kingbird
Mammals		
Cricetidae	<i>Microtus californicus</i>	California vole
Leporidae	<i>Sylvilagus audubonii</i>	Desert cottontail
Sciuridae	<i>Otospermophilus beecheyi</i>	California ground squirrel

Appendix E

Representative Photographs



Photo 1. Representative view of irrigated hayfield within the Study Area.
Photo date: 10/5/2023.



Photo 2. Representative view of ditch on the western side of the Study Area.
Photo date: 10/5/2023.



Photo 3. Representative view of irrigated hayfield with a water pump structure on the western side of the Study Area. Photo date: 10/5/2023.



Photo 4. Representative view of riverine habitat in the Study Area.
Photo date: 10/5/2023.



Photo 5. Representative view of ditch on the eastern side of the Study Area.
Photo date: 10/5/2023.



Photo 6. Representative view urban habitat on the south side of the Study Area.
Photo date: 10/5/2023.

Appendix F

Yolo HCP/NCCP Map

Legend

- | | |
|--|--|
|  Onsite Area - 237.56 Acres |  Open Water |
|  Offsite Area - 4.05 Acres |  Pasture |
|  Annual Grassland |  Semiagricultural/Incidental to Agriculture |
|  Deciduous Fruits/Nuts |  Truck/Nursery/Berry Crops |
|  Field Crops |  Urban |
|  Grain/Hay Crops |  Valley Foothill Riparian |

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Source: Aerial (DigitalGlobe, 3/18/2022)