

Appendix 3.4-1

**Biological Resources Evaluation for the Las Camas Solar
Development Project**

BIOLOGICAL RESOURCES EVALUATION FOR THE LAS CAMAS SOLAR DEVELOPMENT PROJECT

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Acronyms and Abbreviations

BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
BNLL	Blunt nosed-leopard lizard
CDFG	California Department of Fish and Game
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
CNPPA	California Native Plant Protection Act
CNPS's	California Native Plant Society's
CRL	California red-legged frog
CRPR	California Rare Plant Rank
CTS	California tiger salamander [<i>Ambystoma californiense</i>]
CWA	Clean Water Act
County General Plan	2030 Merced County General Plan
DPS	distinct population segment
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
ESRP	Endangered Species Recovery Program
FR	Federal Register
GKR	giant kangaroo rat
HCP	Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
Mph	miles per hour
NCCP	natural community conservation plan
NPDES	National Pollutant Discharge Elimination System
OHWM	ordinary high water mark
proposed project	Las Camas Solar Development Project
RWQCB	Regional Water Quality Control Board

Sand Hill	Sand Hill Wind, LLC.
SR	State Route
State Water Board	State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
waters of the state	waters of the State of California

Chapter 1

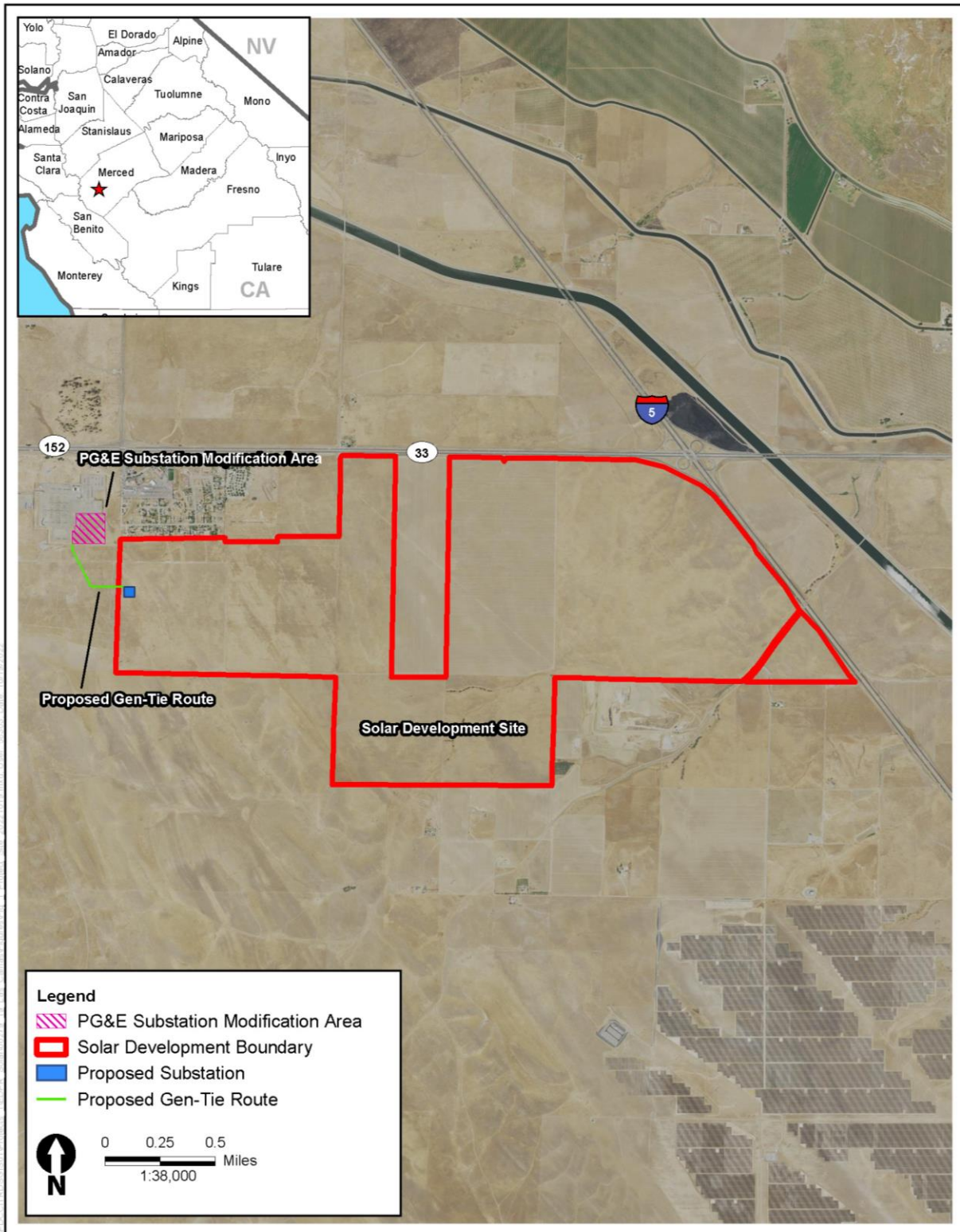
Introduction

This report presents the methods and results of biological and aquatic resource surveys and a special-status species habitat assessment conducted for the proposed Las Camas Solar Development project (proposed project), located in western Merced County, California (Figure 1). The project proponent, EDPR CA Solar Park III LLC (Proponent) a wholly owned subsidiary of EDPR CA Solar Park III LLC, North America LLC., is proposing to develop the approximately 1,751-acre site. Land use at the proposed site consists largely of agricultural crop cultivation and sheep-grazing. The surrounding area has similar land use but also includes residential development, a Pacific Gas & Electric substation, and a landfill.

The proposed study area (hereafter referred to as the study area) is bordered by State Route (SR) 33 to the north, Interstate 5 to the east, and privately owned farmland and the Billy Wright Landfill to the south and west. Billy Wright Road intersects the southeasternmost portion of the study area. Small patches of orchard are also present in surrounding lands. The study area is situated in an area of low rolling hills, with elevations ranging from approximately 200 to 500 feet, and is dominated by nonnative annual grasses including slender wild oat (*Avena barbata*) and ripgut brome (*Bromus diandrus*). Eucalyptus (*Eucalyptus* sp.) trees planted as wind breaks and a historic cottonwood (*Populus* sp.) area were also observed within the study area.

The study area has a history of disturbance, predominantly from dry farming grain and hay crops such as wheat and alfalfa. One section, located along the northern boundary of the study area, is currently in dryland wheat production and had been recently harvested this year and mowed by machinery. Grazing was evident in the easternmost portion of the study area, as flocks of domestic sheep were present. The majority of the study area is fallowed agricultural land that has been abandoned and has become nonnative annual grassland with minimal plant diversity. Similar to the study area, the surrounding lands to the west and southwest are also grazed nonnative annual grassland. This land cover type has the potential to support several listed and special-status species.

The area is rural in character. There is an isolated residential subdivision, a small commercial area, and a power substation at the junction of SR 152 and SR 33, directly northwest of the study area. The community of Santa Nella, is located approximately 2 miles north of the study area and the city of Los Banos is located 5 miles to the east.



Summary of Results

The 1,751-acre study area consists primarily of nonnative annual grasslands with a few scattered eucalyptus trees and a historic cottonwood area. Agricultural dryland farming has been conducted throughout much of the study area in the past, and active dryland farming is currently conducted on a portion of the study area. Based on wildlife and botanical survey results, one special-status species was confirmed present at the site, Swainson's hawk (*Buteo swainsoni*), which is listed as threatened under the California Endangered Species Act (CESA). The grasslands also provide suitable habitat for San Joaquin kit fox (*Vulpes macrotis mutica*), which is listed as endangered under the federal Endangered Species Act (ESA) and as threatened under CESA. Aquatic habitat for special-status fairy shrimp (*Branchinecta* sp.), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), and special-status plants is not present within the study area. Aquatic breeding habitat for California tiger salamander (CTS) is not present within 1.24 miles of the study area based on the site assessment conducted for this species. Aquatic habitat for California red-legged frog is also lacking at or within 1-mile of the study area. All the potentially occurring special-status species are discussed in detail below. Suitable habitat for the blunt-nosed leopard lizard (*Gambelia sila*) is considered marginal to unsuitable. The dense introduced annual grasslands present at the site are generally too dense to provide suitable foraging areas for this species.

An aquatic resource delineation was conducted within the study area consistent with U.S. Army Corps of Engineers (USACE) guidelines and requirements to identify wetlands and nonwetland waters. The *Aquatic Resource Delineation* section in Chapter 2, *Methods*, describes the methods and results of the delineation. In summary, 0.61 acre of aquatic habitats were delineated in the survey area, consisting of an ephemeral drainage evaluated as a non-wetland waters in the southeast portion of the study area and 0.40 acre of streambed habitat located in and around the PG&E substation. These features do not qualify as a Water of the U.S. (WOTUS), because the features do not receive or contribute water flow to a traditional navigable water (e.g., WOTUS). All of these aquatic habitats would be considered jurisdictional under the Porter-Cologne Act and CDFW 1600 LSAA program.

Study Area and Data Sources

ICF biologists reviewed existing documentation for the study area and queried resource databases for the project vicinity to identify potential special-status species that could occur in the study area. The queries were used to develop lists of special-status species and other sensitive biological resources known to occur in the project vicinity (i.e., within approximately 5 miles of the study area). Information presented in this report is based on the following data sources.

- California Natural Diversity Database (CNDDB) records search of the Howard Ranch, Ingomar, San Luis Dam, Volta, Los Banos, Los Banos Valley, and Ortigalita Peak NW U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles (California Department of Fish and Wildlife 2022).
- California Native Plant Society's online Inventory of Rare and Endangered Plants of California (California Native Plant Society 2022).
- Web Soil Survey (Natural Resources Conservation Service 2022).
- National Wetlands Inventory (U.S. Fish and Wildlife Service 2022).

Lands within 1.24 miles of the study area were also reviewed through aerial photo interpretation and where possible, on the ground surveys, to determine if potential aquatic breeding habitat for listed amphibians is present in the vicinity of the study area.

Representative photographs of the study area are provided in Appendix A.

Regulatory and Management Considerations

This section provides an overview of the major laws and regulations that influence the management of biological resources in the study area.

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over species listed as threatened or endangered under Section 9 of ESA. ESA protects listed species from harm, or *take*, which is broadly defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” For any project involving a federal agency in which a listed species could be affected, the federal agency must consult with USFWS in accordance with Section 7 of ESA. USFWS issues a biological opinion and, if the project would not jeopardize the continued existence of the listed species, issues an incidental take permit. When no federal context is present, proponents of a project affecting a listed species must consult with USFWS and apply for an incidental take permit under ESA Section 10. Section 10 requires an applicant to submit a habitat conservation plan that specifies project impacts and mitigation measures.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 United States Code 668) prohibits take and disturbance of individuals and nests. Take permits for birds or body parts are limited to religious, scientific, or falconry pursuits. However, the BGEPA was amended in 1978 to allow mining developers to apply to USFWS for permits to remove inactive golden eagle (*Aquila chrysaetos*) nests in the course of “resource development or recovery” operations.

In 2009, USFWS issued the 2009 Final Rule on new permit regulations that allows take “for the protection of...other interests in any particular locality” and where the take is “associated with and not the purpose of an otherwise lawful activity...” (74 Federal Register [FR] 46836–46879). The 2009 Final Rule authorized programmatic take (take that is recurring and not in a specific, identifiable timeframe or location) of eagles only if avoidance measures have been implemented to the maximum extent achievable such that take was no longer avoidable.

In 2016, USFWS issued revisions to the Final Rule pertaining to incidental take and take of eagle nests. The Final Rule changed the programmatic take standard to a new standard authorizing “incidental take” if all “practicable” measures to reduce impacts on eagles are implemented. An eagle incidental take permit under the 2016 Revisions to the Final Rule (50 Code of Federal Regulations [CFR] 22) is available for activities that may disturb or otherwise take eagles on an ongoing basis, such as operational activities. The eagle incidental take permit under the 2009 Final Rule was valid for up to 5 years. In 2012, USFWS proposed extending the maximum term for eagle incidental take permits from 5 to 30 years (77 FR 22267–22278). In 2013, USFWS issued a Final Rule to extend the maximum term for eagle incidental take permits to 30 years, subject to a recurring 5-year review

process throughout the life of the permit. Although this rule was challenged in 2015, the final regulations under the 2016 Revisions to the Final Rule also include a maximum permit term of 30 years, subject to a recurring 5-year review process throughout the life of the permit (81 FR 91494–91554).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 United States Code Section 703, et seq.), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA of 1918 provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. On December 22, 2017, the U.S. Department of the Interior's Office of the Solicitor issued a legal, revised interpretation (Opinion M-37050) of the MBTA's prohibition on the take of migratory bird species. Opinion M-37050 concludes that "consistent with the text, history, and purpose of the MBTA, the statute's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs." According to Opinion M-37050, take of a migratory bird, its nest, or eggs that is incidental to another lawful activity does not violate the MBTA, and the MBTA's criminal provisions do not apply to those activities. Opinion M-37050 may affect how MBTA is interpreted but it does not legally change the regulation itself. The current list of species protected by the MBTA can be found in Title 50 CFR, Section 10.13. The list includes nearly all birds native to the United States.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) is the regulatory framework by which California public agencies identify and mitigate significant environmental impacts. A project normally has a significant environmental impact on biological resources if it would substantially affect a rare or endangered species or the habitat of that species, substantially interfere with the movement of resident or migratory fish or wildlife, or substantially diminish habitat for fish, wildlife, or plants. The State CEQA Guidelines define rare, threatened, and endangered species as those listed under ESA or CESA or any other species that meet the criteria of the resource agencies or local agencies (e.g., species of special concern, as designated by CDFW). The guidelines state that the lead agency preparing an environmental impact report must consult with and receive written findings from CDFW concerning project impacts on species listed as endangered or threatened. The effects of a proposed project on these resources are important in determining whether the project would have significant environmental impacts under CEQA.

CDFW maintains lists of plants of special concern in California, in addition to those listed as threatened or endangered (California Department of Fish and Wildlife 2019). These species have no formal protection under CESA, but plants with a California Rare Plant Rank of 1A, 1B, or 2 meet the definitions of *endangered* or *rare*

in Section 1901 of the California Fish and Game Code and may qualify for state listing. Pursuant to Section 15380(d) of CEQA, such plant species are considered to be endangered, rare, or threatened for this analysis.

California Endangered Species Act

CESA prohibits the take of endangered and threatened species; however, unlike under ESA, habitat destruction is not included in the state's definition of *take*. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. CDFW administers CESA and authorizes take through agreements under California Fish and Game Code Section 2081.

California Fish and Game Code

Fully Protected Species

The California Fish and Game Code provides protection from take for a variety of species referred to as *fully protected species*. Section 5050 lists fully protected amphibians and reptiles, Section 3515 lists fully protected fish, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals. The California Fish and Game Code defines *take* as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Except for take related to scientific research or authorized pursuant to an approved natural community conservation plan, all take of fully protected species is prohibited.

Sections 3503 and 3503.5

Section 3503 of the California Fish and Game Code prohibits the killing of birds and the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests.

Section 1600: Streambed Alteration Agreements

In addition to regulating listed and special-status species, CDFW regulates activities that would interfere with the natural flow—or substantially alter the channel, bed, or bank—of a lake, river, or stream. These activities are regulated under California Fish and Game Code Sections 1600–1616 and require a streambed alteration agreement. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. CDFW may require avoidance or minimization of vegetation removal, use of standard erosion control measures, limitations on the use of heavy equipment, limitations on work periods to avoid impacts on fish and wildlife, and restoration of degraded sites or compensation for permanent habitat losses, among other conditions.

California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA) of 1977 provides the California Fish and Game Commission the authority to list plant species as rare or endangered and authorizes the commission to adopt regulations prohibiting importation of rare and endangered plants into California, take of rare and endangered plants, and sale of rare and endangered plants. The CNPPA prohibits take, possession, transportation, exportation, importation, or sale of rare and threatened plants, except as a result of agricultural practices, fire control measures, timber operations, mining, or actions of public agencies or private utilities. Private landowners are also exempt from the prohibition against removing rare and endangered plants, although they must provide 10-day notice to CDFW before removing the plants. The CNPPA has mostly been superseded by CESA.

Porter-Cologne Water Quality Control Act

Pursuant to the Porter-Cologne Water Quality Control Act (California Water Code [Cal. Water Code] § 13000 et seq.), State Water Resource Control Board (SWRCB) is authorized to regulate any activity that would result in discharges of waste or fill material into waters of the state, including “isolated” waters and wetlands (e.g., vernal pools and seeps), saline waters, and groundwater within the boundaries of the state (Cal. Water Code § 13050(e)). The Porter-Cologne Water Quality Control Act authorizes SWRCB to adopt, review, and revise policies for all waters of the state and directs SWRCB to develop and implement regional basin plans that recognize and maintain the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, maintaining water quality, and addressing the water quality issues of that region. Cal. Water Code Section 13170 also authorizes SWRCB to adopt water quality control plans on its own initiative.

The water quality control plan is designed to maintain, preserve, and enhance the quality of water resources. The purpose of the plan is to designate beneficial uses for surface water and groundwater, designate water quality objectives for the reasonable protection of those uses, and establish an implementation plan to achieve the objectives within all nine SWRCB regions of California. This may include preservation and enhancement of fish, wildlife, and designated biological habitats of special significance as well as other aquatic resources or preserves.

Clean Water Act

The CWA was passed by Congress in 1972 with a broad mandate “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The chief purpose of the CWA is to establish the basic structure for regulating discharges of pollutants into waters of the United States. The CWA authorizes the U.S. Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations, and includes programs addressing both point-source and nonpoint-source pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation’s waters are unlawful unless specifically authorized by a permit; permit review is the CWA’s primary regulatory tool. Aquatic resources, specifically one drainage feature and a seasonal pond, are present in the study area and may be regulated under CWA Section 404.

Section 402: Permits for Stormwater Discharge

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by EPA. In California, the State Water Resources Control Board (State Water Board) is authorized by EPA to oversee the NPDES program through the Regional Water Quality Control Boards (Regional Water Boards).

NPDES permits are required for projects that disturb more than 1 acre of land and result in a discharge to water of the United States. The NPDES permitting process requires the applicant to file a public notice of intent to discharge stormwater and to prepare and implement a stormwater pollution prevention plan (SWPPP). The SWPPP must include a site map, a description of proposed

construction activities, and the best management practices (BMPs) that will be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. Permittees are required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants. Because the proposed project would disturb more than 1 acre of land, EDPR CA Solar Park III LLC would prepare a SWPPP and apply for an NPDES permit.

Section 404: Permits for Placement of Fill in Waters of the United States (Including Wetlands)

Waters of the United States, including wetlands, are protected under Section 404 of the CWA. Any activity that involves a discharge of dredged or fill material into waters of the United States, including wetlands, is subject to regulation by USACE. *Waters of the United States* is defined to encompass navigable waters of the United States; interstate waters; all other waters where their use, degradation, or destruction could affect interstate or foreign commerce; tributaries of any of these waters; and wetlands that meet any of these criteria or are adjacent to any of these waters or their tributaries. *Wetlands* are defined under Section 404 as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Jurisdictional wetlands must meet three wetland delineation criteria.

- They support hydrophytic vegetation (i.e., plants that grow in saturated soil).
- They have hydric soil types (i.e., soils that are wet or moist enough to develop anaerobic conditions).
- They have wetland hydrology.

Section 401: Water Quality Certification

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must apply for water quality certification from the state. Therefore, all projects with a federal component that may affect the quality of waters of the state (including projects that require federal approval, such as a CWA Section 404 permit) must comply with CWA Section 401.

In California, CWA Section 401 is administered by the State Water Board through the Regional Water Boards. All areas qualifying as waters of the United States under CWA Section 404 also qualify as waters of the State of California (waters of the state) under the jurisdiction of CWA Section 401 and the State Water Board and Regional Water Boards; however, some areas considered as waters of the state do not qualify as waters of the United States. State Water Board jurisdiction at streams, lakes, and ponds considered as waters of the United States extends beyond the ordinary high water mark to the top of bank or to the greatest lateral extent of riparian vegetation, whichever is greater. Isolated wetlands, non-navigable waters, and intrastate waters may also qualify as waters of the state subject to State Water Board jurisdiction under CWA Section 401.

The proposed project is not expected to result in a discharge of pollutants into waters of the United States.

Local Regulations

2030 Merced County General Plan

The *2030 Merced County General Plan* (Merced County 2013) includes policies that recognize high-quality wetlands as an important habitat type and that encourage the minimization of impacts on wetlands and habitat for threatened and endangered species.

Policy NR-1.4: Important Vegetative Resource Protection. Minimize the removal of vegetative resources which stabilize slopes, reduce surface water runoff, erosion, and sedimentation.

Policy NR-1.5: Wetland and Riparian Habitat Buffer. Identify wetlands and riparian habitat areas and designate a buffer zone around each area sufficient to protect them from degradation, encroachment, or loss.

Policy NR-1.6: Terrestrial Wildlife Mobility. Encourage property owners within or adjacent to designated habitat connectivity corridors that have been mapped or otherwise identified by the California Department of Fish and Game or U.S. Fish and Wildlife Service to manage their lands in accordance with such mapping programs. In the planning and development of public works projects that could physically interfere with wildlife mobility, the County shall consult with the California Department of Fish and Game¹ or U.S. Fish and Wildlife Service to determine the potential for such effects and implement any feasible mitigation measures.

Policy NR-1.11: On-Going Habitat Protection and Monitoring. Cooperate with local, State, and Federal agencies to ensure that adequate on-going protection and monitoring occurs adjacent to rare and endangered species habitats or within identified significant wetlands.

Policy NR-1.12: Wetland Avoidance. Avoid or minimize loss of existing wetland resources by careful placement and construction of any necessary new public utilities and facilities, including roads, railroads, high speed rail, sewage disposal ponds, gas lines, electrical lines, and water/wastewater systems.

Policy NR-1.13: Wetland Setbacks. Require an appropriate setback, to be determined during the development review process, for developed and agricultural uses from the delineated edges of wetlands.

Policy NR-1.17: Agency Coordination. Consult with private, local, State, and Federal agencies to assist in the protection of biological resources and prevention of degradation, encroachment, or loss of resources managed by these agencies.

Policy NR-1.21: Special Status Species Surveys and Mitigation. Incorporate the survey standards and mitigation requirements of State and Federal resource management agencies for use in the County's review processes for both private and public projects.

Policy NR-2.4: Solar Power. Encourage on-site solar power use in residential, commercial, and industrial buildings, and utility-scale solar facilities in rural locations that do not harm long-term agricultural productivity and habitat values.

Policy NR-2.6: Open Space Impacts. Work with public agencies and private energy providers to ensure that energy projects avoid or minimize impacts to open space, natural resources, and productive agricultural land.

¹ In 2013, the California Department of Fish and Game (CDFG) changed its name to California Department of Fish and Wildlife (CDFW).

This biological resources evaluation of the study area included a background search of existing and available information, a habitat evaluation for special-status wildlife, focused field surveys for rare plants, and an aquatic resource delineation. All these efforts were used to identify and describe the biological resources in the study area.

Special-status species refers to animal and plant species that are legally protected under ESA, CESA, or other state, federal, and local regulations.

Background Search

The sources of information listed below were reviewed to identify special-status species potentially occurring in the study area.

- CDFW's California Natural Diversity Database (CNDDB) records search of the Howard Ranch, Ingomar, San Luis Dam, Volta, Los Banos, Los Banos Valley, and Ortigalita Peak NW U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles (California Department of Fish and Wildlife 2022).
- USFWS Information Planning and Consultation Trust Resource report species list for the study area (U.S. Fish and Wildlife Service 2022).
- Draft and final versions of *Environmental Impact Report for the Wright Solar Park Conditional Use Permit Application CUP12-017* (Merced County 2014a, 2014b).

ICF also reviewed aerial photographs of the study area in Google Earth Pro (Google 2020) to obtain information on historical habitat conditions.

Field Surveys

Field surveys conducted for biological resources in the study area consisted of a delineation of aquatic resources and a habitat assessment for special-status plants and wildlife species. Each of these surveys is described below.

Aquatic Resource Delineation

ICF botanists and wetland ecologists Kate Carpenter and Ali Summers conducted initial aquatic resource mapping within the study area on May 13-16, 2019 to determine the presence and extent of wetland and nonwetland waters of the United States. An aquatic resource delineation was conducted on April 25, 2022, by ICF biologist Sean O'Brien and botanist Shannon Henke. An additional delineation of the PG&E substation area and proposed gen-tie route was conducted on November 10, 2022 by ICF biologist Sean O'Brien.

The regulation defining the extent of waters of the United States (WOTUS) has changed a number of times since the enactment of the CWA. The April 25, 2022 delineation used the most recent,

September 3, 2021 definition, used in all states and territories (U.S Army Corps of Engineers and Environmental Protection Agency 2021). This definition establishes the scope of USACE and Environmental Protection Agency (EPA) authority under the CWA and includes seven categories of jurisdictional WOTUS (codified at 33 CFR 328.3(a)(1) – (7) prior to August 2015). The seven categories of jurisdictional WOTUS are as follows: The delineation was conducted in accordance with the guidance provided in the 1987 *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Arid West Region* (U.S. Army Corps of Engineers 2008), and 33 CFR 328.3(e) and 329.11(a)(1). The ordinary high water mark was identified according to USACE's Regulatory Guidance Letter No. 05-05 and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual* (U.S. Army Corps of Engineers 2005; Lichvar and McColley 2008).

Special-Status Plants

ICF botanists conducted botanical surveys within the study area to identify special-status plants on May 13 through 16, 2019. The botanical surveys followed the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish and Game 2009), the current accepted protocol outlining the requirements for conducting surveys for special-status plants. The surveys focused on determining the presence of special-status plant species with the potential to occur in the project region that would be evident and identifiable at the time of the survey, and evaluating the vegetation communities for the suitability to support species that would not be identifiable at the time of the survey (Table 1).

Special-Status Wildlife

ICF wildlife biologists conducted habitat assessment surveys on May 13 through 16, 2019. The surveys focused on evaluating vegetation communities within and adjacent to the study area for their suitability to support special-status wildlife species with potential to occur in the project region (Tables 2). The areas of special-status habitat assessment consisted of the study area, its perimeter, and all accessible areas within 500 feet of the study area. General conditions of the site were recorded and habitats that could potentially support special-status species were mapped. During the assessment, the site was surveyed by the biologists on foot by walking meandering transects spaced approximately 100 to 300 feet apart. Access roads throughout the site were assessed using a vehicle. Inaccessible areas (i.e., neighboring private properties) were assessed using binoculars.

ICF conducted a site assessment for California red-legged frog and CTS in the study area in 2019. The CTS site assessment was updated in 2022 (Attachment A). The desktop site assessments were conducted in accordance with USFWS's (2005) *Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog* and the California Department of Fish and Game's (subsequently changed to California Department of Fish and Wildlife) (2003) *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander*.

Surveys for Swainson's hawks were conducted between March 22 and April 20, 2022 and followed the 2000 Swainson's Hawk Technical Advisory Committee's *Recommended Timing and Methodology for Swainson's Hawks Nesting Surveys in California's Central Valley*. Surveys were conducted by ICF wildlife biologists Seth Taylor, Sean O'Brien, Kara Martinusen, and Andrew Manning. Surveys were

conducted by vehicle and on foot between 0700 and 1000 during the first survey period (March 20 to April 5) and between 0830 and 1200 during the second survey period (April 5 to April 20). A total of six surveys were conducted.

A survey of the PG&E substation area was conducted on April 20, 2022 by Sean O'Brien.

All wildlife species observed, and potential wildlife habitats (e.g., Swainson's hawk nest trees, large burrows, burrow complexes, large nests, aquatic features, or rocky outcrops) were recorded during the survey on the iPad Collector Application.

Table 1. Special-Status Plants Known to Occur or that May Occur in the Las Camas Solar Development Vicinity

Species	Status ^a Federal/State/CRPR	California Distribution	Habitats	Blooming Period	Likelihood to Occur in Study Area
<i>Astragalus tener</i> var. <i>tener</i> Alkali milk-vetch	-/-/1B.2	Historically found in western San Joaquin Valley, San Francisco Bay Area, and Monterey County; likely extirpated from all historical occurrences except those in Merced, Solano, and Yolo Counties, below 120 feet in elevation	Playas and grasslands with adobe clay soils and alkaline vernal pools	March–June	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.
<i>Atriplex cordulata</i> var. <i>cordulata</i> Heartscale	-/-/1B.2	Western Central Valley and valleys of adjacent foothills, at 0–1,500 feet in elevation	Alkali grasslands, alkali meadows, alkali scrublands	April–October	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.
<i>Atriplex minuscula</i> Lesser saltscale	-/-/1B.1	Sacramento and San Joaquin Valley, Butte County to Kern County, at 50–650 feet in elevation	Alkali sink and sandy alkaline soils in grasslands, chenopod scrub	May–October	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.
<i>Atriplex persistens</i> Vernal pool smallscale	-/-/1B.2	Scattered occurrences throughout the Central Valley, at 30–350 feet in elevation	Alkali vernal pools	June–October	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.
<i>Caulanthus lemmonii</i> Lemmon’s jewel- flower	-/-/1B.2	Southeast San Francisco Bay Area, south through the southern Coast Ranges and adjacent San Joaquin Valley to Ventura County, at 80–3,600 feet in elevation	Dry, exposed slopes in grasslands and pinyon-juniper woodland	March–May	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.
<i>Chloropyron molle</i> ssp. <i>hispidum</i> Hispid bird’s-beak	-/-/1B.1	Central Valley (Kern, Fresno, Merced, Placer, and Solano Counties) and Alameda County, at 3–500 feet in elevation	Meadows, grasslands, and playas; on alkaline soils	June–September	None — May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.

Species	Status ^a Federal/State/CRPR	California Distribution	Habitats	Blooming Period	Likelihood to Occur in Study Area
<i>Delphinium recurvatum</i> Recurved larkspur	-/-/1B.2	San Joaquin Valley and interior valleys of the southern Coast Ranges, Contra Costa County to Kern County, at 10–2,500 feet in elevation	Alkaline soils in annual grassland, saltbush scrub, cismontane woodland, vernal pools	March–June	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.
<i>Eryngium racemosum</i> Delta button-celery	-/E/1B.1	San Joaquin Valley, including San Joaquin, Merced, and Stanislaus County and extending to Calaveras County to east and Contra Costa County to the north, at 10–100 feet in elevation	Riparian scrub, wetland	June–October	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.
<i>Eryngium spinosepalum</i> Spiny-sepaed button-celery	-/-/1B.2	San Joaquin Valley and interior valleys of the southern Coast Ranges, Contra Costa County to Kern County, at 250–3,200 feet in elevation	Valley and foothill grassland, vernal pool, wetland	April–July	Moderate —Although May 2019 botanical surveys did not find an occurrence, suitable grassland habitat is present in the study area; however, the habitat is degraded by weeds and grazing.
<i>Lasthenia glabrata</i> <i>ssp. coulteri</i> Coulter's goldfields	-/-/1B.1	San Joaquin Valley and interior valleys of the southern Coast Ranges, Contra Costa County to Kern County, 3–4,000 feet in elevation	Alkali playa, marsh and swamp, salt marsh, vernal pool, wetland	February–June	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.
<i>Layia munzii</i> Munz's tidy-tips	-/-/1B.2	Fresno, Kern, San Benito, and San Luis Obispo Counties, at 450–2,100 feet in elevation	Chenopod scrub, valley, and foothill grassland	March–June	Moderate —Although May 2019 botanical surveys did not find an occurrence, suitable grassland habitat is present in the study area; however, the habitat is degraded by weeds and grazing.

Species	Status ^a Federal/State/CRPR	California Distribution	Habitats	Blooming Period	Likelihood to Occur in Study Area
<i>Lepidium jaredii</i> ssp. <i>album</i> Panoche pepper- grass	-/-/1B.2	Fresno, San Benito, and San Luis Obispo Counties, at 600–2,500 feet in elevation	Valley and foothill grassland	February– June	Moderate —Although May 2019 botanical surveys did not find an occurrence, suitable habitat is present in the study area; however, the habitat is degraded by weeds and grazing.
<i>Malacothamnus hallii</i> Hall's bush-mallow	-/-/1B.2	Contra Costa, Merced, Santa Clara, San Mateo, Stanislaus Counties, at 30–2,300 feet in elevation	Chaparral, coastal scrub, ultramafic soils	May– September	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.
<i>Navarretia nigelliformis</i> ssp. <i>radians</i> Shining navarretia	-/-/1B.2	Inner and outer South Coast Ranges, at 525–1,770 feet in elevation	Cismontane woodland, valley and foothill grassland, vernal pool, wetland	April–July	Moderate —Although May 2019 botanical surveys did not find an occurrence, suitable grassland habitat is present in the study area; however, the habitat is degraded by weeds and grazing.
<i>Navarretia prostrata</i> Prostrate vernal pool navarretia	-/-/1B.1	San Joaquin Valley, Central Coast, San Francisco Bay Area, inner and outer southern Coast Ranges, South Coast, and Peninsular Ranges at <2,100 feet in elevation	Coastal scrub, meadow and seep, valley and foothill grassland, vernal pool, wetland	April–July	Moderate —Although May 2019 botanical surveys did not find an occurrence, suitable grassland habitat is present in the study area; however, the habitat is degraded by weeds and grazing.
<i>Puccinellia simplex</i> California alkali grass	-/-/1B.2	Tehachapi Mountains, Sacramento Valley, San Joaquin Valley, San Francisco Bay Area, below 2,700 feet in elevation	Chenopod scrub, meadow and seep, valley and foothill grassland, vernal pool	March–May	Moderate —Although May 2019 botanical surveys did not find an occurrence, suitable grassland habitat is present in the study area; however, the habitat is degraded by weeds and grazing.

Species	Status ^a Federal/State/CRPR	California Distribution	Habitats	Blooming Period	Likelihood to Occur in Study Area
<i>Sagittaria sanfordii</i> Sanford's arrowhead	-/-/1B.2	North Coast, Klamath Ranges, Cascade Range foothills, Sacramento Valley, San Joaquin Valley, and South Coast, at 3–2,100 feet in elevation	Marsh and swamp, wetland	May– October	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.
<i>Streptanthus insignis</i> <i>ssp. lyonii</i> Arburua ranch jewelflower	-/-/1B.2	Inner southern Coast Ranges, at 750–2,800 feet in elevation	Coastal scrub, ultramafic soil	March–May	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.
<i>Trichocoronis wrightii</i> <i>var. wrightii</i> Wright's trichocoronis	-/-/2B.2	Sacramento Valley, San Joaquin Valley, and the South Coast, below 1,500 feet in elevation	Marsh and swamp, meadow and seep, riparian forest, vernal pool, wetland	May– September	None —May 2019 botanical surveys did not find an occurrence or suitable habitat present in the study area.

a Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

– = no listing.

State

E = listed as endangered under the California Endangered Species Act.

– = no listing.

California Rare Plant Rank (CRPR)

1A = List 1A species: presumed extinct in California.

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.

CRPR Code Extensions:

0.1 = seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat).

0.2 = fairly endangered in California (20–80% of occurrences threatened).

b = Populations uncertain or extirpated in the county.

Table 2. Special-Status Wildlife Species Known to Occur or that May Occur in the Las Camas Solar Development Study Area and Vicinity

Scientific Name Common Name	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Likelihood to Occur in the Study Area
Invertebrates				
<i>Branchinecta longiantenna</i> Longhorn fairy shrimp	E/-	Eastern margin of central Coast Ranges from Contra Costa County to San Luis Obispo County; disjunct population in Madera County	Small, clear pools in sandstone rock outcrops of clear to moderately turbid clay- or grass-bottomed pools	None —Rock outcrop pools are not present in the study area.
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	T/-	Central Valley, central and southern Coast Ranges from Tehama County to Santa Barbara County; isolated populations also in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools	None —No alkali wetlands, small ephemeral ponds, or vernal pools in the study area provide suitable breeding habitat.
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	T/-	Shasta County south to Merced County	Vernal pools and ephemeral stock ponds	None —No alkali wetlands, small ephemeral ponds, or vernal pools in the study area provide suitable breeding habitat.
<i>Desmocerus californicus</i> Valley elderberry longhorn beetle	T/-	Streamside habitats below 3,000 feet in elevation throughout the Central Valley	Riparian and oak savanna habitats with elderberry shrubs and streamside habitats below 3,000 in elevation; elderberry shrub is the host plant	None —Elderberry host plants not observed in the study area.
Fish				
<i>Hypomesus transpacificus</i> Delta smelt	T/T	Primarily in the Sacramento–San Joaquin Estuary, but has been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River; range extends downstream to San Pablo Bay	Estuary habitat in the Delta where fresh and brackish water mix in the salinity range of 2–7 parts per thousand	None —No suitable habitat (estuary) in the study area.

<i>Scientific Name</i> Common Name	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Likelihood to Occur in the Study Area
Amphibians				
<i>Ambystoma californiense</i> California tiger salamander	T/T	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Sonoma County south to Santa Barbara County	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy	Low to None —Species has not been previously detected in the study area. Closest record is 2.7 miles from the study area (California Department of Fish and Wildlife 2022). No ponds, alkali wetlands, or vernal pools located in the study area. Roadside creek located approximately 0.1 mile southeast of the study area, along Billy Wright Road, and a stock pond at the north end of Wright Solar park were evaluated, but do not provide adequate ponding depth and duration except in extremely wet years.
<i>Rana boylei</i> Foothill yellow-legged frog	–/SSC	Occurs in the Klamath, Cascade, north Coast, south Coast, Transverse, and Sierra Nevada Ranges up to approximately 6,000 feet	Creeks or rivers in woodland, forest, mixed chaparral, and wet meadow habitats with rock and gravel substrate and low overhanging vegetation along the edge; usually found near riffles with rocks and sunny banks nearby	None —No suitable stream habitat present in the study area or within 500 feet.
<i>Rana draytonii</i> California red-legged frog	T/SSC	Found along the coast and coastal mountain ranges of California from Mendocino County to San Diego County and in the Sierra Nevada from Butte County to Stanislaus County	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation; may estivate in rodent burrows or cracks during dry periods	None —No ponds were located within the study area. Roadside creek located approximately 0.1 mile southeast of the study area, along Billy Wright Road, and a stock pond at the north end of Wright Solar park were evaluated, but do not provide adequate ponding depth and duration except in extremely wet years.

<i>Scientific Name</i> Common Name	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Likelihood to Occur in the Study Area
<i>Spea hammondi</i> Western spadefoot	–/SSC	Central Valley and southern Coast Ranges and foothills	In winter, breeds in vernal pools, seasonal wetlands, and streams with a minimum 2- to 3-week inundation period; in summer, aestivates in grassland habitat, soil crevices, and rodent burrows.	None —No alkali wetlands, small ephemeral ponds, or vernal pools in the study area provide suitable breeding habitat.

Reptiles

<i>Gambelia sila</i> Blunt-nosed leopard lizard	E/E	Western Merced County south to Kern County, and into western Tulare County; isolated population in western Madera County, and populations in Carrizo Plain and Cuyama Valley	Typically inhabits open, sparsely vegetated areas of low relief on the San Joaquin Valley floor and in the surrounding foothills; found in annual grasslands and valley sink scrub; requires small mammal burrows for shelter from predators and temperature extremes.	Low to None —The majority of the study area has been disturbed by past cultivation of crops. Grasslands at the study area are generally dense and would not be suitable. Ground squirrel burrows and other fossorial mammal burrows are generally not dense within the study area. There are no recent records for blunt-nosed leopard lizards in the CNDDDB. The closest CNDDDB location to the study area partially overlaps with the north-west corner of the project site, but the record is from 1931 and the occurrence is broadly mapped to an area with a radius of 1 mile. The next closest CNDDDB location from the 1970s (specific year is not available) is 0.75 mile south of the study area at the junction of Billy Wright Road and Jasper Sears Road. There are no additional records for this species within 5 miles of the project site.
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Scientific Name Common Name	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Likelihood to Occur in the Study Area
<i>Actinemys marmorata</i> Western pond turtle	–/SSC	Uncommon to common in suitable aquatic habitat throughout California west of the Sierra-Cascade crest, and absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests; nests are typically constructed in upland habitat within 0.25 mile of aquatic habitat	None —No ponds were located within the study area. No ponds were located within one mile of the study area. No flowing water was present in the drainage off Billy Wright Road near the study area.
<i>Masticophis flagellum ruddocki</i> San Joaquin coachwhip	–/SSC	From Colusa County in the Sacramento Valley southward to the grapevine in the San Joaquin Valley and westward into the inner Coast Ranges, plus an isolated population at Sutter Buttes; known elevational range is 66–2,953 feet	Open, dry, vegetative associations with little or no tree cover; in valley grassland and saltbush scrub associations; and often in association with mammal burrows	Moderate —Suitable grassland habitat is present within the study area; known occurrences located just south of the study area (California Department of Fish and Wildlife 2022).
<i>Phrynosoma blainvillii</i> Blainville's (Coast) horned lizard	–/SSC	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging	Low —Annual grasslands provide potential habitat for the species, but microhabitat conditions such as loose soils and open areas are limited within the study area.
<i>Thamnophis gigas</i> Giant garter snake	T/T	Central Valley from the vicinity of Burrell in Fresno County to near Chico in Butte County; extirpated from areas south of Fresno	Sloughs, canals, low-gradient streams, and freshwater marshes where there is a prey base of small fish and amphibians; also irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter	None —No suitable aquatic habitat is present in the study area. There are no CNDDB records within five miles of the site.
Birds				

<i>Scientific Name</i> Common Name	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Likelihood to Occur in the Study Area
<i>Haliaeetus leucocephalus</i> Bald eagle	D/E	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin; reintroduced into central coast; winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County	Nests and roosts in coniferous forests within 1 mile of a lake, reservoir, or stream, or the ocean	Moderate —The study area is located in close proximity to the San Luis Reservoir and O'Neill Forebay, which provide suitable nesting and foraging habitat. The study area provides suitable winter foraging habitat. There are no CNDDDB records within five miles of the site.
<i>Aquila chrysaetos</i> Golden eagle	–/FP	Foothills and mountains throughout California; uncommon nonbreeding visitor to lowlands such as the Central Valley	Nests in cliffs and escarpments or tall trees; forages in annual grasslands, chaparral, or oak woodlands that provide abundant medium and large-sized mammals for prey	High —Suitable nesting and foraging habitat is present in and surrounding the study area. This species has been documented nesting within 2 miles of the study area (California Department of Fish and Wildlife 2022).
<i>Buteo swainsoni</i> Swainson's hawk	–/T	Lower Sacramento and San Joaquin Valleys, Klamath Basin, and Butte Valley; highest nesting densities occur near Davis and Woodland, Yolo County	Nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields	High (Occupied) —The species was identified nesting in the northeast portion of the study area in a cottonwood tree. Additional active nest is located directly adjacent to the southwest portion of the study area. Suitable foraging habitat is located throughout the site.
<i>Elanus leucurus</i> White-tailed kite	–/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	Moderate —Suitable foraging habitat occurs in the study area. Nesting habitat is present in isolated trees located in the study area. The species has not been recorded nesting within 5 miles of the study area.

Scientific Name Common Name	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Likelihood to Occur in the Study Area
<i>Circus cyaneus</i> Northern harrier	–/SSC	Breeding range encompasses much of lowland California; winter range expands to include the remaining lowland areas.	Nests on the ground among herbaceous vegetation, such as grasses or cattails; forages in grasslands, agricultural fields, and marshes.	Moderate —The study area contains suitable foraging habitat for the species but limited nesting habitat due to cultivation and the low stature of the annual grasslands in most of the study area.
<i>Athene cunicularia</i> <i>hypugea</i> Western Burrowing owl	–/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast	Level, open, dry, heavily grazed or low-stature grassland or desert vegetation with available burrows	High —The species was not observed during May surveys. Suitable grassland foraging habitat occurs throughout the study area. Suitable nesting habitat in ground squirrel burrow is located throughout the study area; however, the low density of burrows and dense nonnative grass limits the overall suitability of the study area. Several CNDDDB occurrences are present within and adjacent to the study area.
<i>Lanius ludovicianus</i> Loggerhead shrike	–/SSC	Resident and winter visitor in lowlands and foothills throughout California; rare on coastal slope north of Mendocino County, occurring only in winter	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches; nests in densely foliated trees or shrubs	High (Occupied) —The species was observed in the study area during May surveys, and there is suitable nesting and foraging habitat within the study area.
<i>Agelaius tricolor</i> Tricolored blackbird	–/T	Permanent resident in the Central Valley from Butte County to Kern County; breeds at scattered coastal locations from Marin County south to San Diego County and at scattered locations in Lake, Sonoma, and Solano Counties; rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grain fields; habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony	Moderate —This species was not observed in the study area during May surveys. There is no suitable nesting habitat within the study area, however, suitable foraging habitat is present. There are numerous CNDDDB records around San Luis Reservoir, with the closet record 1.7 miles north of the study area (California Department of Fish and Wildlife 2022).

<i>Scientific Name</i> Common Name	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Likelihood to Occur in the Study Area
<i>Xanthocephalus</i> Yellow-headed blackbird	–/SSC (nesting)	Breeding range primarily in the Central Valley, northeastern California, and portions of southern California; most individuals migrate south of California in winter	Nests in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds; forages along moist shorelines and in grasslands and agricultural areas	None —No suitable foraging or nesting habitat occurs within the study area. The species has not been documented within five miles of the study area (California Department of Fish and Wildlife 2022).

Scientific Name Common Name	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Likelihood to Occur in the Study Area
Mammals				
<i>Antrozous pallidus</i> Pallid bat	-/SSC	Low elevations throughout California	Occurs in a variety of habitats from desert to coniferous forest; most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California; prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging; uses caves, crevices, mines, and hollow trees for roosting.	Low —This species may forage in the study area but no suitable roosting habitat is present.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	-/SSC	Throughout California except high elevation areas	Found in all habitats except subalpine and alpine habitats; requires caves, mines, tunnels, buildings, or other human-made structures for roosting.	Low —The study area provides suitable foraging habitat for this species; however, no old structures are located within the project study area that could provide roost habitat for the species.
<i>Lasiurus blossevillei</i> Western red bat	-/SSC	Throughout California west of the Sierra Nevada/Cascade crest and deserts	Roosting habitat includes forests and woodlands; roosts alone in the foliage of trees or shrubs; forages over a variety of habitats	Low —The study area provides suitable foraging habitat for this species, and trees within the study area may provide roost habitat for the species.
<i>Eumops perotis californicus</i> Western mastiff bat	-/SSC	Year-round range spans most of California, with records absent from the northwest and northeast portions of the state	Typically roosts in crevices in cliffs and rocky outcrops, in colonies of fewer than 100 individuals; may also roost in bridges, caves and buildings that allow sufficient height and clearance for dropping into flight; there is at least one record of this species roosting in an untrimmed palm tree; forages in a variety of grassland, shrub, and wooded habitats, including riparian and urban areas, although most commonly in open, arid lands	Low —The study area provides suitable foraging habitat for this species; however, no cliffs, rock outcrops, or old structures are located within the project study area that could provide roost habitat for the species.

Scientific Name Common Name	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Likelihood to Occur in the Study Area
<i>Ammospermophilus nelson</i> Nelson's (San Joaquin) antelope squirrel	-/T	Current range is largely restricted to western Kern County and on the Carrizo and Elkhorn Plains in eastern San Luis Obispo County	Typically found in sparsely vegetated grasslands with moderate shrub cover; typically avoids steep slopes.	None —The study area is north of the current known range for the species.
<i>Dipodomys ingens</i> Giant kangaroo rat	E/E	Current range confined to six major geographic units spanning from western Fresno and San Benito Counties south to Kern County and then west to the Carrizo Plain and Cuyama Valley	Low-density annual grasslands with few or no shrubs on gentle slopes that are generally less than 10%, with friable, sandy-loam soils; forms colonies of burrows.	None —The study area is outside of the known range of the species. Currently, the site is low-quality habitat for the species. No individuals or signs of the species, including characteristic precincts, burrows, track, scat, or "haysticks," were observed anywhere on the site. The historic and extensive discing, plowing, planting, and mowing of the site for agriculture likely excluded or eradicated the species if it ever did exist in the area. The dense annual grassland is also unfavorable because it impedes the species' bipedal locomotion.
<i>Dipodomys nitratoideus exilis</i> Fresno kangaroo rat	E/E	Merced County south to northern Kings County	Elevated grassy patches on alkali plains or in grass terrain with scattered alkali patches on the flat valley floor of the San Joaquin Valley; found in areas with friable soils	None —The study area is outside of the known range of the species. The species is also only known from the flat valley floor and the site generally consists of rolling hills.
<i>Taxidea taxus</i> American badger	-/SSC	In California, badgers occur throughout the state except in humid coastal forests of northwestern California in Del Norte and Humboldt Counties	Badgers occur in a wide variety of open, arid habitats but are most commonly associated with grasslands, savannas, mountain meadows, and open areas of desert scrub; the principal habitat requirements for the species appear to be sufficient food (burrowing rodents), friable soils, and relatively open, uncultivated ground	High —Suitable habitat is present throughout the study area. A potential burrow was identified directly adjacent to the study area during May 2019 surveys.

Scientific Name Common Name	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Likelihood to Occur in the Study Area
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	E/T	Principally occurs in the San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern County north to Contra Costa County	Saltbush scrub, grassland, oak, savanna, and freshwater scrub	High —Suitable habitat is present throughout the study area. Numerous recent records at and within 1 mile of the site.

^a Status explanation:

Federal

- E = listed as endangered under the federal Endangered Species Act.
- T = listed as threatened under the federal Endangered Species Act.
- D = Removed from listing under the federal Endangered Species Act.
- = no listing.

State

- E = listed as endangered under the California Endangered Species Act.
- T = listed as threatened under the California Endangered Species Act.
- FP = fully protected under the California Fish and Game Code.
- SSC = species of special concern in California.
- = no listing.

Potential Occurrence in the Study Area

- High: Known occurrences of the species within the study area, or numerous CNDDDB, or other documents records the occurrence of the species within a 5-mile radius of the study area; suitable habitat is present within the study area.
- Moderate: CNDDDB or other documents record of the species within a 5-mile radius of the study area; suitable quality habitat is present within the study area, generally some essential habitat component missing.
- Low: CNDDDB, or other documents, does not record the occurrence of the species within a 5-mile radius of the study area; suitable habitat is present within the study area.

Much of the study area is previously disturbed by dryland agriculture. A portion of the site continues to be actively dryland farmed. A portion of the study area is also grazed by sheep, and sheep were present in the southwest portion of the site during the May 2019 survey. The study area and surrounding area is mostly shrub-less and treeless and is generally characterized by rolling foothills of annual grassland, steeper on the west and gradually flatter toward the east where the terrain slopes toward the floor of the Central Valley. Elevations range from approximately 200 to 500 feet above sea level.

Land Cover Types

A *land cover type* is defined as the dominant character of the land surface discernible from aerial photographs, as determined by vegetation, water, or human uses. Land cover types are the most widely used units in analyzing ecosystem function, habitat diversity, natural communities, wetlands and streams, and special-status species habitat.

Land cover types within the study area are summarized in Table 3 and 4 below and identified on Figures 2a through 2c. Each land cover type is described below. Representative photographs of land cover types in the study area are provided in Appendix A.

Table 3. Approximate Acreage of Land Cover Types

Land Cover/Habitat Type	Acres
Terrestrial Habitat	
Abandoned ditch	1.85
Cropland	309.07
Nonnative annual grassland	1,424.17
Tree stand	3.02
<i>Subtotal</i>	<i>1,740.19</i>
Aquatic Habitat	
Ephemeral drainage	0.61
<i>Subtotal</i>	<i>0.61</i>
Total	1,740.80

Figure 2a
Land Cover

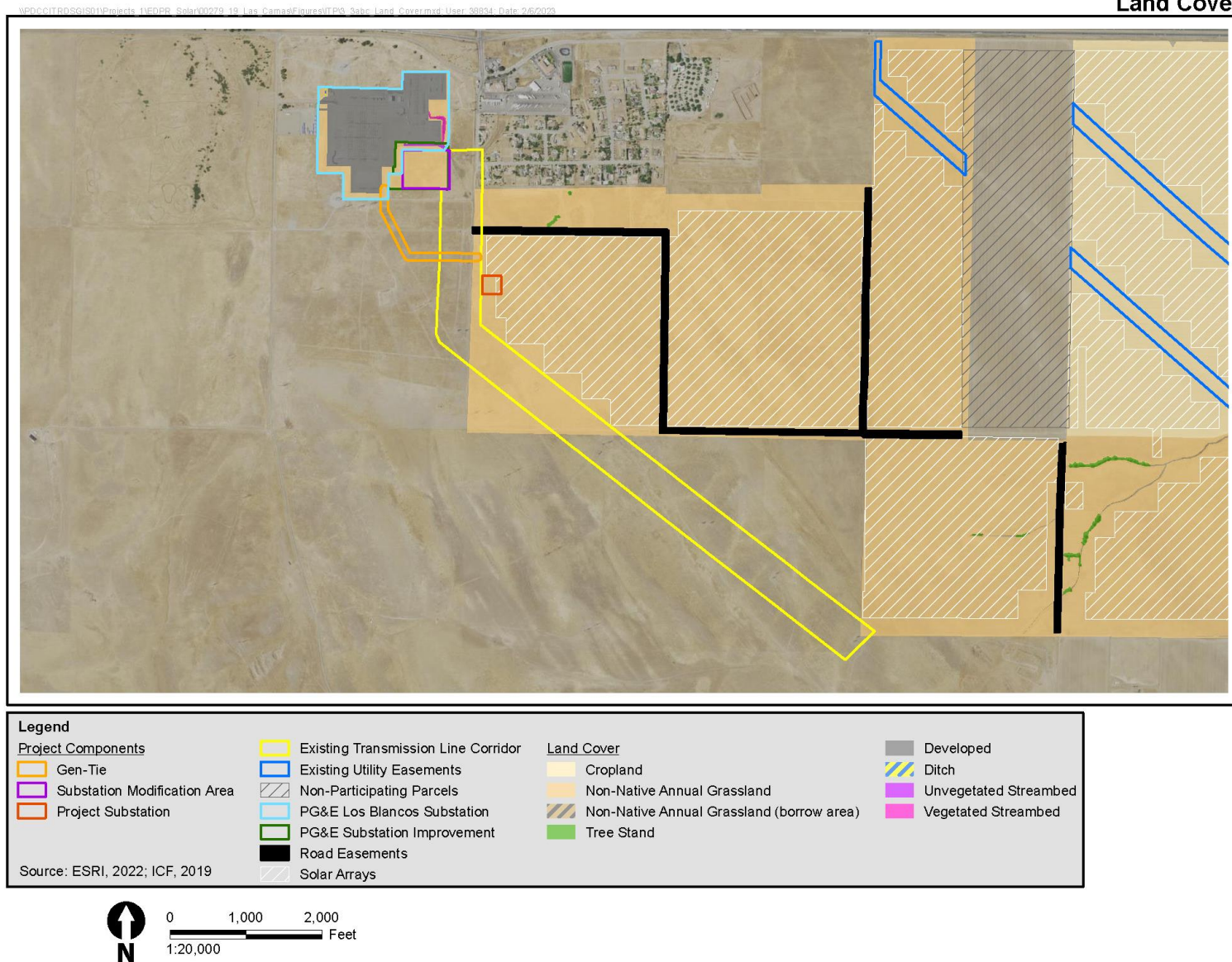


Figure 2b
Land Cover

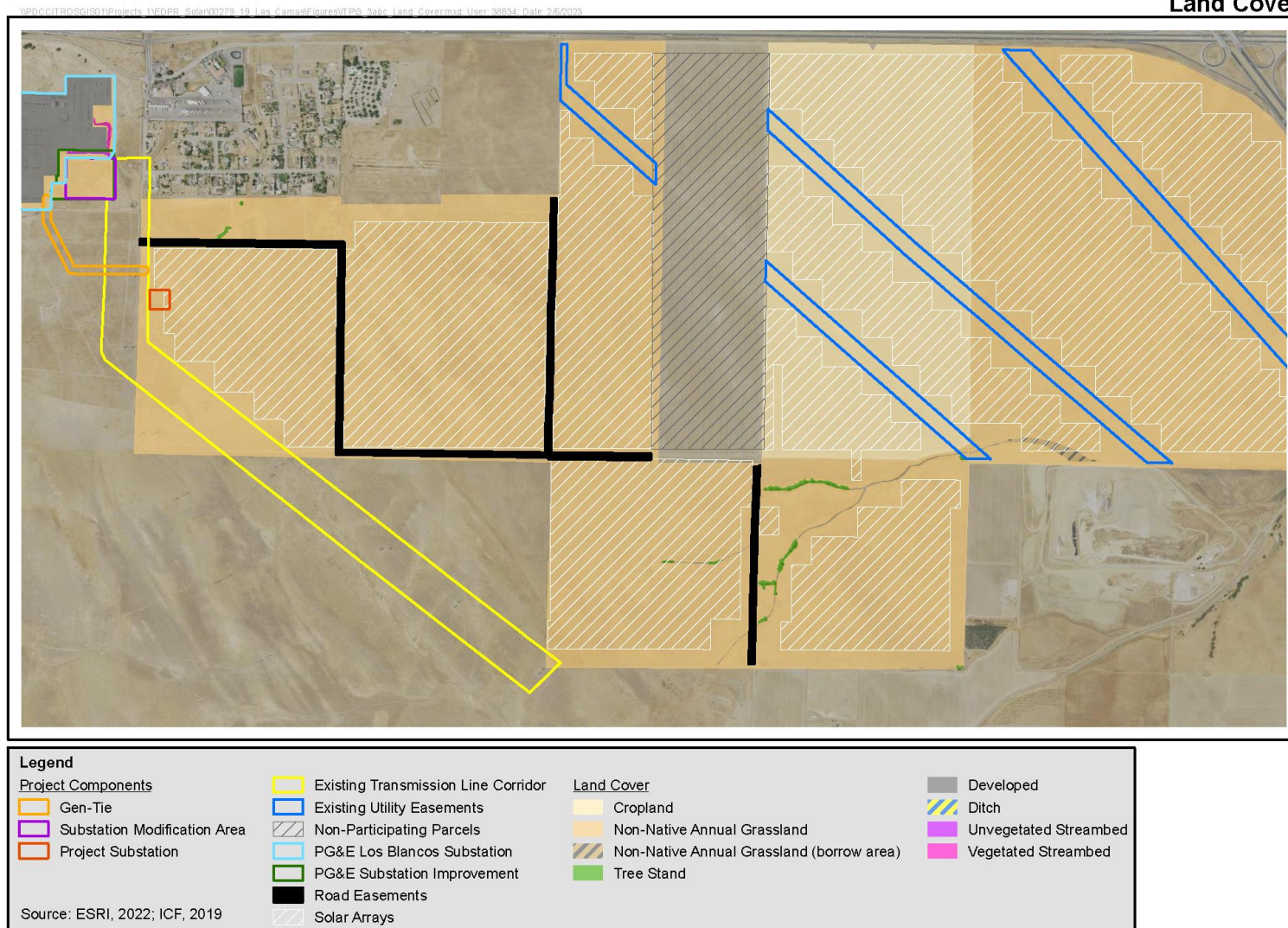


Figure 2c
Land Cover

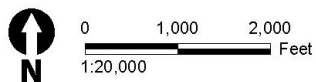


Table 4. Approximate Acreage of Land Cover Types within the PG&E Substation Improvements Area

Land Cover/Habitat Type	Acres
Terrestrial Habitat	
Nonnative annual grassland	9.85
Developed	0.01
<i>Subtotal</i>	<i>9.86</i>
Aquatic Habitat	
Unvegetated streambed	0.37
Vegetated streambed	0.03
<i>Subtotal</i>	<i>0.40</i>
Total	10.26

Abandoned Ditch

The abandoned ditch land cover type in the study area consists of historically constructed features which were once used to convey water, presumably to flood irrigate for pastureland. These features have a bed and bank structure; however, no evidence of current water flow was identified in the field. Analysis of historic aerial photographs and observations from field work determined that flow was cut off during construction activities related to the adjacent landfill. Specifically, the portion of the drainage system that is directly north of the landfill appears to have been used as a borrow area. The vegetation within these features is not discernable from the surrounding nonnative annual grassland. Eucalyptus trees are present along the upper north banks of most of these features. Inactive irrigation tubing was also observed at the base of the trees and may have historically provided water from the ditch to the trees. No wetland or riparian vegetation was observed within the abandoned ditches. Vegetation in the ditches consisted of nonnative grasses and ruderal species. No special-status plants are expected to occur in this habitat type within the study area. Representative photos of the abandoned ditch can be found in Appendix A.

Cropland

Cropland within the study area consists of areas where the native vegetation has been cleared for dry-land farming of crops such as winter wheat. This habitat type does not include rangeland, which is often characterized as an agricultural land use (rangeland within the study area is classified as nonnative annual grassland). No special-status plants are expected to occur in this habitat type within the study area. Representative photos of the cropland can be found in Appendix A.

Nonnative Annual Grassland

Nonnative annual grassland in the study area consists of open areas lacking woody vegetation and is characterized by herbaceous vegetation dominated by nonnative grasses and flowering forbs. This land cover type is dominated by grasses and forbs that originated elsewhere and that have aggressive life cycles that have outcompeted the native grassland vegetation.

No special-status plants are expected to occur in this habitat type within the study area. Representative photos of nonnative annual grassland can be found in Appendix A.

Tree Stands

No forest or woodland habitats occur at the study area. However, small stands of trees are present within the study area. A few individual trees are also present at scattered locations within the study area. These individual trees are included in and discussed as a component of the tree stand habitat.

No special-status plants are expected to occur in this habitat type within the study area. Representative photos of the tree stands can be found in Appendix A.

Aquatic Habitats

One ephemeral drainage is present within the study area. The drainage is anticipated to be inundated seasonally during years with above-normal rainfall, primarily during or immediately following rainfall events. The bed of the ephemeral stream varied in vegetation density and ranged from sparsely vegetated with patches of bare ground to densely vegetated. Dominated species being seaside barley (*Hordeum marinum*, FAC), foxtail barley, and perennial pepperweed. Other infrequent species includes purple sand spurry (*Spergularia rubra*, FAC), alkali weed (*Cressa truxillensis*, FACW). Areas above the OHWM tended to have high vegetation cover consistent with the dominant species present in the ephemeral streambed in addition to Mojave silverscale (*Atriplex argentea* var. *expansa*, FAC), redscale, salt grass, beardless wild rye, and seaside heliotrope. Other nonnative annual grassland species also intergrade from the adjacent community such as seaside heron's bill and ripgut brome. The bank slope at the OHWM for ephemeral streams in the survey area varied from roughly 10% to 30%.

A small area within the ephemeral drainage was previously mapped as a seasonal pond during the 2019 wetland mapping. This pond may have been constructed to capture and detain water during large storm events to minimize downstream flooding within the ephemeral drainage for livestock purposes and appears to contain surface water during above average rain years (Google Earth 2022). However, this area did not contain hydrophytic and did not meet the 3-parameter definition of a wetland. Therefore, this area was consolidated into the ephemeral drainage habitat because it is hydrologically connected (via surface water) and likely still flows water during storm events (albeit at a slower rate due to the artificial berm constriction).

Special-Status Species

Special-status plants and animals that are legally protected under ESA, CESA or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing occur in or near the study area. Special-status species are defined as follows.

- Species that are listed or proposed for listing as threatened or endangered under ESA (50 CFR 17.11 [listed animals]; 50 CFR 17.12 [listed plants]; and various notices in the Federal Register.
- Species that are candidates for possible future listing as threatened or endangered under ESA (77 FR 69993, November 21, 2012).
- Species that are identified by USFWS as birds of conservation concern.
- Species that are listed or proposed for listing by the State of California as threatened or endangered under CESA (14 California Code of Regulations 670.5).

- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380).
- Plants listed as rare under the CNPPA (California Department of Fish and Wildlife Commission 1900 et seq.).
- Plants with a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, and 2B (California Department of Fish and Wildlife 2013).
- Animals listed as species of special concern on CDFW's Special Animals List (California Department of Fish and Game 2011).
- Animals that are fully protected in California (California Fish and Game Code Sections 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).

Figure 3 shows CNDDDB records for special-status species within 5 miles of the study area boundary.

A summary of special-status plant and wildlife species known or with a potential to occur in the study area is provided below.

Special-Status Plants

Based on a review of the CNDDDB and California Native Plant Society inventory, 19 special-status plant species were identified as having the potential to occur in the study area vicinity (Table 1). Grassland present in the study area is the only vegetation type which has the potential to support the following 6 special-status plants. The remaining species in Table 1 are not expected to occur in the study area, based on the specific microhabitat conditions and geographic range.

- Spiny-sealed button-celery (*Eryngium spinosepalum*) —CRPR 1B.2
- Munz's tidy-tips (*Layia munzii*) —CRPR 1B.2
- Panoche pepper-grass (*Lepidium jaredii* ssp. *album*) —CRPR 1B.2
- Shining navarretia (*Navarretia nigelliformis* ssp. *radians*)—CRPR 1B.2
- Prostrate vernal pool navarretia (*Navarreita prostrata*)—CRPR 1B.1
- California alkali grass (*Puccinellia simplex*) —CRPR 1B.2

Botanical surveys conducted May 13 through 16, 2019 were during the appropriate time to identify all six special status plants that have potential habitat within the study area. None of the special-status plant species was observed during the survey. In addition, the nonnative annual grassland habitat is dominated by noxious weeds, such as ripgut brome, that form a dense cover that out competes native vegetation.



Special-Status Wildlife

Based on a review of the CNDDDB (California Department of Fish and Wildlife 2022), the USFWS species list (U.S. Fish and Wildlife Service 2022), as well as other environmental documents prepared for projects near the study area, 32 special-status wildlife species were initially identified as having the potential to occur in the study area and vicinity (Table 2) (Figure 3). Thirteen of the 32 special-status species identified in Table 2 were determined through the onsite field investigation to have no potential to occur at the study area based on the lack of specific habitat components essential to the species' life cycle (e.g. aquatic habitat for foothill yellow-legged frogs [*Rana boylii*]). Three other special-status mammals, pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and Western mastiff bat (*Eumops perotis californicus*), may occasionally occur at the study area during migration and while foraging, but these species are not addressed in detail in this report because they are not known to nest or breed in the area.

Nonnative grassland in the study area have a low to high potential to support the following special-status wildlife species. Suitable habitat and the likelihood of occurrence in the study area for these species is described in Table 2 and are discussed below.

- California tiger salamander (*Ambystoma californiense*)—state- and federally listed as threatened.
- California red-legged frog (*Rana draytonii*)—federally listed as threatened.
- Blunt-nosed leopard lizard (*Gambelia sila*)—state- and federally listed as endangered.
- San Joaquin coachwhip (*Masticophis flagellum ruddocki*)—CDFW species of special concern.
- Blainville's horned lizard (*Phrynosoma blainvillii*)—CDFW species of special concern.
- Bald eagle (*Haliaeetus leucocephalus*)—state-listed as threatened.
- Golden eagle (*Aquila chrysaetos*)—California fully protected.
- Swainson's hawk (*Buteo swainsoni*)—state-listed as threatened.
- White-tailed kite (*Elanus leucurus*)—California fully protected.
- Northern harrier (*Circus cyaneus*)—CDFW species of special concern.
- Western burrowing owl (*Athene cunicularia*)—CDFW species of special concern.
- Loggerhead shrike (*Lanius ludovicianus*)—CDFW species of special concern.
- Tricolored blackbird (*Agelaius tricolor*)—state-listed as threatened.
- Western red bat (*Lasiurus blossevillii*)—CDFW species of special concern.
- American badger (*Taxidea taxus*)—CDFW species of special concern.
- San Joaquin kit fox (*Vulpes macrotis mutica*)—state-listed as threatened; federally listed as endangered.

Survey conditions during the May field investigation of the site were mild with temperatures ranging from 65 to 90° Fahrenheit. Conditions were mild and partly sunny on May 13-15 and rainy and overcast conditions were encountered during May 16 and 17.

California Tiger Salamander

The Central California distinct population segment of CTS, which overlaps with the study area, is federally listed as threatened (69 FR 47212–47248). CTS is also state listed as threatened.

CTS occurs in the Central Valley and the adjacent Sierra Nevada foothills and Coast Ranges up to 1,500 feet, generally from Yolo County south to Kern County (California Department of Fish and Game 2010; 69 FR 47214). In the coastal region, populations are scattered from Sonoma County in the northern San Francisco Bay Area to Santa Barbara County up to 3,000 feet in elevation (California Department of Fish and Game 2010). CTS is a lowland species restricted to grasslands and low foothill regions where its breeding habitat occurs (Jennings and Hayes 1994). Breeding habitat includes ponds, vernal pools, and other seasonal or permanent water bodies that are typically inundated during winter rains and hold water for a minimum of 12 weeks during an average rainfall year (California Department of Fish and Game 2010). Permanent aquatic sites are unlikely to be used for breeding unless they lack fish predators (Jennings and Hayes 1994). CTSs also require dry-season refuge sites near breeding sites, generally within 1 mile (Jennings and Hayes 1994). California ground squirrel (*Spermophilus beecheyi*) burrows are important refuge sites for adults and juveniles but the species is also known to use pocket gopher burrows (Loredo et al. 1996; Trenham and Shaffer 2005).

Adult CTSs migrate to and from breeding ponds during the rainy season, generally November to May, with the greatest activity occurring December to February (California Department of Fish and Game 2010). Metamorphosed juveniles leave their ponds in the late spring or early summer and move to terrestrial refuge sites before seasonal ponds dry (Loredo et al. 1996). Some larvae have been observed in ponds for approximately 1 year (Alvarez 2004).

California tiger salamanders were not observed during the May 2019 or April 2022 field surveys, and suitable breeding and migratory habitats for this species were not observed at the study area. The closest aquatic feature that could hold water long enough for California tiger salamander to breed is in a roadside creek approximately 0.1 mile southeast of the solar project site along Billy Wright Road (Figure 4). The seasonal pond within this feature, described above in the aquatic habitat section, land cover descriptions, did not appear to hold sufficient water for salamander larvae to complete their aquatic life cycle or have an adequate ponding depth to support breeding California tiger salamanders. There was no standing water during the May 2019 survey, which was during a year when precipitation was higher than normal and ponding would have been expected in this feature. The April 2022 survey was conducted during a California drought year and no ponding was overserved. The roadside creek contains culverts on either side of Billy Wright Road that drain and potentially pool water in the study area; these could facilitate California tiger salamander movement into the study area. The second potential wetland is a manmade stock pond within a swale located south of the project area approximately 2.1 miles from the nearest point of the project boundary (Figure 4). It is between two blocks of solar arrays in the Wright Solar Park. This area was investigated by ICF biologists during development of the solar facility as well as subsequent biological surveys and monitoring related to operations and maintenance to fulfill the commitments for development of the site. Since initial development of the Wright Solar Park in 2018 until 2022 (5 years), the swale has not held water with an adequate depth or duration to provide suitable California tiger salamander breeding habitat. No additional potential aquatic breeding habitat was identified within 1.24 miles of the project site during the desktop review and field investigations.

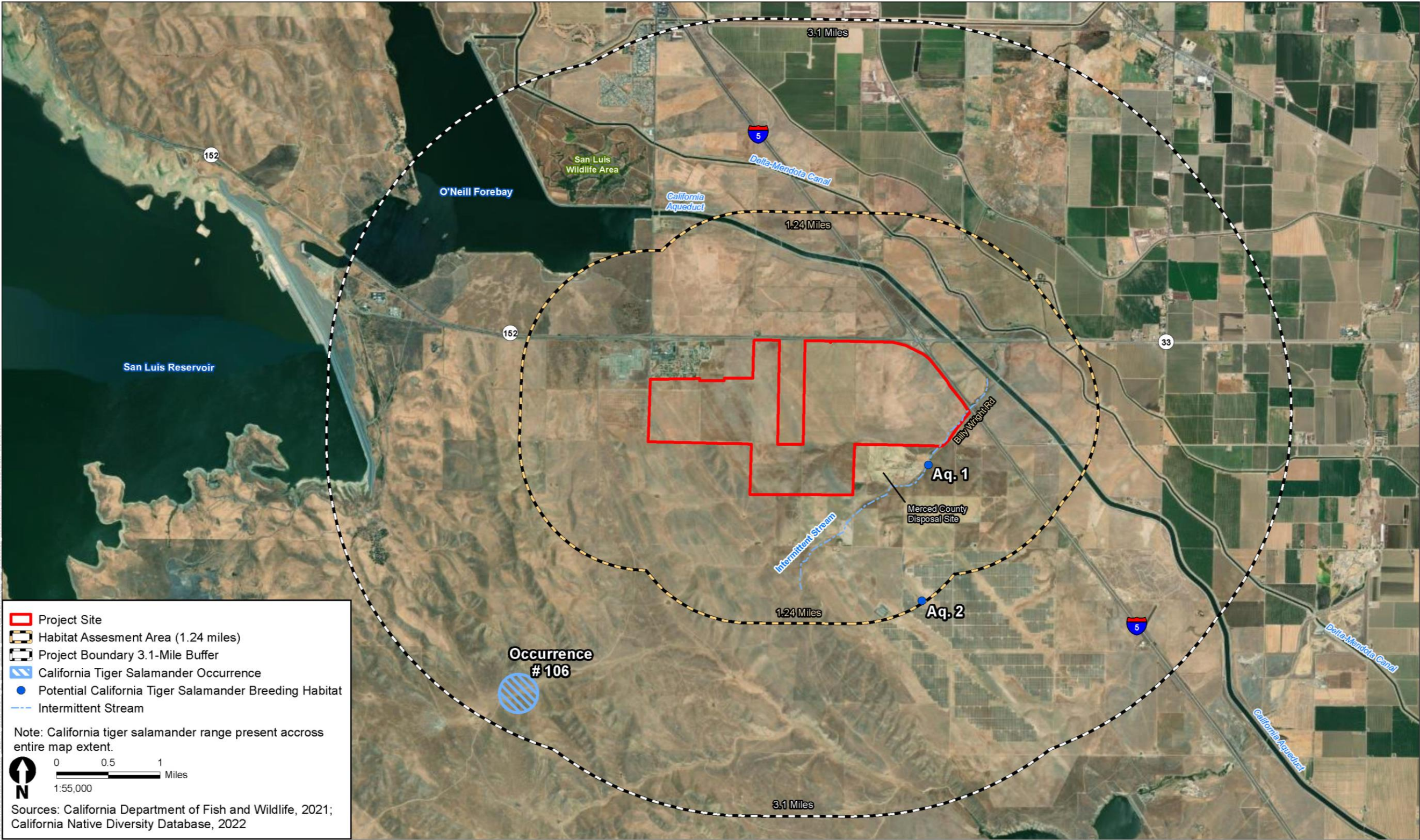


Figure 4
California Tiger Salamander Occurrence Records and Potential Aquatic Breeding Habitat Within 3.1 Miles of the Project Site

USFWS considers upland habitat within 1.24 miles (2 kilometers) of California tiger salamander breeding habitat to be potential upland habitat for the species (USFWS 2003). California ground squirrel (*Otospermophilus beechyi*) burrows, which could provide estivation habitat for California tiger salamander, were observed during the assessment but were in poor-quality habitat for California tiger salamander. The grasses throughout the study area where ground squirrel burrows were located, were generally overgrown with dense annual grasslands. However, if California tiger salamander breed within the aquatic habitat identified above, grasslands within 1.24 miles of those breeding locations could be occupied. The closest region of critical habitat for this species is approximately 5 miles southwest of the study area. The closest CNDDDB record for California tiger salamander is from an area approximately 2.7 miles southwest of the study area (Occurrence No. 106, 1992) (Figure 4). The individual from this record was observed approximately 0.8 mile west of the intersection of Jasper Sears Road and Billy Wright Road (life stages or any specific information on this occurrence is not available in the CNDDDB). Although this record is current (i.e., less than 30 years old), the distance of the occurrence, landscape, and geographic barriers between the record and the study area suggest that California tiger salamander are unlikely to migrate into the site.

California Red-legged Frog

California red-legged frog is a California species of special concern and is federally listed as threatened. The species is known from isolated locations in the Sierra Nevada, North Coast, and northern Transverse Ranges. It is relatively common in the San Francisco Bay Area and along the central coast. California red-legged frog is believed to be extirpated from the floor of the Central Valley (U.S. Fish and Wildlife Service 2002).

California red-legged frogs use a variety of aquatic, riparian, and upland habitats (U.S. Fish and Wildlife Service 2002). California red-legged frogs may complete their entire life cycle in a pond or other aquatic site that is suitable for all life stages (66 FR 14626). California red-legged frogs inhabit marshes; streams; lakes; ponds; and other, usually permanent, sources of water that have dense riparian vegetation (Stebbins 2003). Habitat consists of deep (at least 2.5 feet) still or slow-moving water with shrubby riparian vegetation (willows [*Salix* sp.], tules, or cattails [*Typha* sp.]) (Jennings and Hayes 1994). Incised stream channels with portions narrower and depths greater than eighteen inches also may provide important summer sheltering habitat (61 FR 25813). California red-legged frogs breed from November through April and typically lay their eggs in clusters around aquatic vegetation (U.S. Fish and Wildlife Service 2002). Larvae undergo metamorphosis from July to September, 3.5 to 7 months after hatching (66 FR 14626). However, larvae have been observed to take more than 1 year to complete metamorphosis in four counties on the central coast (Fellers et al. 2001). Movement corridors may include annual grasslands, riparian corridors, woodlands, and sometimes active agricultural lands (Fellers and Kleeman 2007). Adults may take refuge during dry periods in rodent holes or leaf litter in riparian habitats (U.S. Fish and Wildlife Service 2002).

California red-legged frog was not observed during the field surveys. A survey of the study area did not identify any aquatic habitat that could support breeding California red-legged frog. A search of the surrounding area did not identify any suitable breeding habitat within 1 mile of the study area. The drainage area adjacent to Billy Wright Road could be used as a dispersal corridor for the species; however, there is no evidence of adequate ponding in this area or within one mile of this site that would provide suitable habitat for a source breeding population. The closest CNDDDB location is 4.6 miles south of the study area near the western edge of Los Banos Reservoir.

Blunt-nosed Leopard Lizard

Blunt-nosed leopard lizard is state- and federally listed as endangered and is a California fully protected species. Blunt-nosed leopard lizard is endemic to the San Joaquin Valley and adjacent foothills. The species is known to occur on the west side of the valley from southwestern Merced County south to southern Kern County and on the east side of the valley from southwestern Tulare County to southern Kern County. Blunt-nosed leopard lizard also occurs in the eastern portions of the Coast Range foothills, including the Carrizo Plain in eastern San Luis Obispo County and the Cuyama Valley in portions of San Luis Obispo, Santa Barbara, and Ventura Counties (U.S. Fish and Wildlife Service 2010a).

Blunt-nosed leopard lizard inhabits open, sparsely vegetated areas of low relief in nonnative annual grasslands and valley sink scrub. The lizards use small rodent burrows for shelter from predators and temperature extremes. They typically use abandoned ground squirrel burrows or abandoned or occupied kangaroo rat burrows. They have been found to construct shallow, simple tunnels in earth berms or under rocks in areas where there is low mammal burrow density (U.S. Fish and Wildlife Service 2010a).

Currently, the study area would be considered low to unsuitable-quality habitat for blunt-nosed leopard lizard, largely due to the density of nonnative grass across the study area, poor prey base (low insect and *Uta* sp. abundance) lack of small mammal burrows on which blunt-nosed leopard lizard relies for thermoregulation and escaping predation, and lack of minimally vegetated washes and intermittent streams. Historic plowing, discing, planting, and mowing of the land is also likely to have excluded blunt-nosed leopard lizard. The potential blue-line features observed in the study area were grown over with thick grasses that would inhibit movement of blunt-nosed leopard lizard. No blunt-nosed leopard lizards were observed during May 2019 surveys; however, weather conditions during the survey were not always ideal for detection. Surveys during the 2022 surveys did not detect any blunt-nose leopard lizards.

There are no recent records for blunt-nosed leopard lizards in the CNDDDB. The closest CNDDDB location to the study area partially overlaps with the north-west corner of the project site, but the record is from 1931 and the occurrence is broadly mapped to an area with a radius of 1 mile. The next closest CNDDDB location from the 1970s (specific year is not available) is 0.75 mile south of the study area at the junction of Billy Wright Road and Jasper Sears Road. There are no additional records for this species within 5 miles of the project site

Blainville's Horned Lizard

Blainville's horned lizard is a California species of special concern. Although fragmented, the range of Blainville's horned lizard generally extends along the Pacific Coast from the Baja California border west of the deserts and the Sierra Nevada, north to the Bay Area, and inland as far north as Shasta Reservoir. It also occurs on the Kern Plateau east of the crest of the Sierra Nevada (CaliforniaHerps.com 2013). The species occurs between sea level and an elevation of 8,000 feet (Stebbins 2003).

Blainville's horned lizard occupies a variety of habitats, including areas with an exposed gravelly sandy substrate supporting scattered shrubs, chamise chaparral, annual grassland (Jennings and Hayes 1994), broadleaf woodland, and conifer forest (Stebbins 2003). The species is most common in lowlands along sandy washes with scattered shrubs for cover. Habitat requirements include open areas for basking; patches of fine, loose soil where it can bury itself; and ants and other insect prey

(Stebbins 2003). For extended periods of inactivity or hibernation, horned lizards occupy small mammal burrows or burrow into loose soils under surface objects (Zeiner et al. 1988). Blainville's horned lizards have been observed to be active between April and October, and hatchlings first appear in July and August (Jennings and Hayes 1994).

Annual grassland in the study area provides suitable habitat for Blainville's horned lizard where substrate conditions exist: friable soils and rocky areas. The dense nonnative grasses that cover the study area may limit the overall suitability for horned lizards. There are no CNDDDB records for Blainville's horned lizard within 5 miles of the study area. Based on the range of the species and the presence of suitable habitat in the study area, the potential for horned lizards to occur in the study area is considered low.

San Joaquin Coachwhip

San Joaquin coachwhip is one of six subspecies of whipsnake that has a known range extending from Colusa County in the Sacramento Valley, south to the Grapevine in Kern County in the San Joaquin Valley, and west to the inner southern Coast Ranges. An isolated population occurs in the Sutter Buttes. The taxon is known to occur from 65 to 2,950 feet above sea level. San Joaquin whipsnake lives in open, dry vegetative associations with little or no tree cover. In the western San Joaquin Valley, this whipsnake inhabits grassland and saltbush scrub associations, and is known to climb bushes such as saltbush to view prey and predators. Mammal burrows are used by San Joaquin coachwhip for refuge and likely as oviposition sites. Whipsnake subspecies will not emerge from burrows until near-surface temperatures reach 28° Celsius (C) on either a daily or seasonal basis. For this reason, emergence tends to be late in the season (April to early May) and later in the morning (10 to 11 a.m.), although younger individuals may emerge earlier in the day. The subspecies primarily eats lizards and robs the nests of birds and mammals but may also eat carrion (Jennings and Hayes 1994).

Annual grassland in the study area provides suitable habitat for San Joaquin coachwhip where substrate conditions exist: small mammal burrows for San Joaquin coachwhip. The dense nonnative grasses that cover the study area may limit the overall suitability for coachwhips. There are three CNDDDB records for the coachwhip within 5 miles of the study area. All the records are located in the vicinity of Los Banos Reservoir in grazed nonnative grasslands. Based on the CNDDDB records near the study area and the presence of suitable habitat in the study area, the potential for the coachwhip to occur in the study area is moderate.

Bald Eagle

Bald eagle is a state-listed endangered species and is also protected by the MBTA, the BGEPA, and several sections of the California Fish and Game Code.

Bald eagle occurs throughout most of North America. It breeds from the Aleutian Islands and Alaska in the north, east through Canada to Labrador, and south to Florida, Baja California, and other scattered locations in northern Mexico (64 FR 128, Buehler 2000). In the contiguous United States, bald eagle breeding distribution is concentrated in the Cascade Range of Washington, Oregon, and northern California; the Rocky Mountains; the Great Lakes region; Maine; the Atlantic Coast; Florida; the Gulf Coast in Louisiana and Texas; and central Arizona (Buehler 2000). The species' winter range includes the coastal portion of Alaska and Canada, southern Canada, and nearly the entire continental United States.

Bald eagle breeds or winters throughout California, except in the desert areas (Zeiner et al. 1990a). Most breeding activity in California occurs in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties (Zeiner et al. 1990a). California's breeding population of bald eagle is resident year-long in most areas where the climate is relatively mild (Jurek 1988). Bald eagle nests in only a few scattered locations south of the northern Sacramento Valley.

Currently, the study area is considered moderate-quality habitat for bald eagle. The study area is located in close proximity to the San Luis Reservoir and O'Neill Forebay to the north and Los Banos Reservoir to the south, all of which provide suitable nesting and foraging habitat for bald eagles. Additionally, the study area provides suitable winter foraging habitat for this species. Suitable nesting habitat is present within scattered trees throughout the study area. There are no CNDDDB records for this species located within 5 miles of the study area. Based on the suitable nesting and foraging habitat located in and within the vicinity of the study area, the potential for this species to occur in the study area is moderate.

Golden Eagle

Golden eagle is fully protected under the California Fish and Game Code. It is also protected by the MBTA, the BGEPA, and several sections of the California Fish and Game Code.

Golden eagle is a year-round resident throughout much of California. The species does not breed in the center of the Central Valley but breeds in much of the rest of the state. Golden eagles typically occur in rolling foothills, mountain areas, sage-juniper flats, and deserts (Zeiner et al. 1990a). In California, golden eagles nest primarily in open grasslands and oak (*Quercus* spp.) savanna but will also nest in oak woodland and open shrublands. Golden eagles forage in open grassland habitats (Kochert et al. 2002). Preferred territories include those that have a favorable nest site, a dependable food supply (medium to large mammals and birds), and broad expanses of open country for foraging. Hilly or mountainous country where takeoff and soaring are supported by updrafts is generally preferred to flat habitats (Johnsgard 1990). In the interior central Coast Ranges of California, golden eagles favor open grasslands and oak savanna, with lesser numbers in oak woodland and open shrublands. In the Diablo Range of California, all except a few pairs nest in trees in oak woodland and oak savanna habitats because of a lack of suitable rock outcrops or cliffs. Nest tree species include several oak species, foothill pine (*Pinus sabianiana* and *P. coulteri*), California bay laurel (*Umbellularia californica*), eucalyptus (*Eucalyptus* spp.), and western sycamore (*Platanus racemosa*).

The study area is considered high quality habitat for golden eagle. Annual grassland in the study area is populated with small rodents (e.g., voles and mice) that provide abundant prey for raptors, including golden eagle. Suitable nesting habitat is present within scattered trees throughout the study area. The closest CNDDDB record for this species is located approximately 1.8 mile east of the study area. A nesting site was indicated in this record. Based on the presence of suitable nest trees and foraging habitat found throughout and within a vicinity of the study area, the potential for this species to occur within the study area is high.

Swainson's Hawk

Swainson's hawk is a state-listed threatened species. Swainson's hawks forage in grasslands, grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Vineyards, orchards, rice, and cotton crops are generally unsuitable for foraging because of the density of the vegetation (California Department of Fish and Game 1994). The majority of Swainson's hawks winter in South

America, although some winter in the United States. Swainson's hawks arrive in California from early March to early April to establish nesting territories and breed (Estep 2008). The species tends to nest in large trees, typically along strips of riparian wooded vegetation, but also in roadside trees, rows or isolated trees in fields, or along field borders, small groves, farmyards, and residential rural areas (Estep 2008). Foraging takes place over open country, historically grassland, but today Swainson's hawk forages mostly over agricultural lands, including alfalfa, fallow fields, some row crops, pasture, and grain crops (California Department of Fish and Game 1994).

Currently, the study area is considered high quality habitat for Swainson's hawk. Two active Swainson's hawk nests were observed within the project boundary and three active nests were observed within the 0.5-mile surrounding survey area (Figure 5) during surveys in March and April of 2022. In addition, there are several CNDDDB records of nesting Swainson's hawks within 5 miles of the study area (Figure 3). The study area provides high-quality habitat due to the abundance of a prey base in the general vicinity, as well as abundance of suitable nest trees and structures (lattice towers) throughout the site and adjacent lands. Due to high nest site fidelity of the species, it is likely that the current pairs onsite and on adjacent land will return. Other raptor nests suitable for future potential use by Swainson's hawk were observed in the study area, including several stick nests in eucalyptus trees.

White-tailed Kite

White-tailed kite (*Elanus leucurus*) is a fully protected species under the California Fish and Game Code. The species occurs throughout California in coastal and valley lowlands (Zeiner et al. 1990a). They occur in low-elevation open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands (Dunk 1995). Pasture and hay crops, compatible row and grain crops, and natural vegetation such as seasonal wetlands and annual grasslands provide foraging habitat for this species (Erichsen 1995). Kites nest in dense oak, willow, or other tree stands near open foraging areas. The breeding season lasts from February through October and peaks from May to August (Zeiner et al. 1990a).

Suitable nesting habitat for white-tailed kite in the study area is limited to scattered trees in the study area and transmission towers. Annual grassland in the study area is populated with small rodents (e.g., voles and mice) that provide abundant prey for raptors, including white-tailed kite. There are no CNDDDB records for white-tailed kites within 5 miles of the study area. Based on the availability of nest sites and potential foraging habitat throughout the site, the potential for white-tailed kite to nest in the study area is considered moderate.

Northern Harrier

Northern harrier (*Circus cyaneus*) is a California species of special concern. Northern harrier is a year-round resident throughout the Central Valley and is often associated with open grassland habitats and agricultural fields. Nests are found on the ground in shrubby or tall vegetation, usually at the edge of a marsh. Northern harrier nests from April to September, with peak activity in June and July. Harriers prey on small mammals, birds, and small reptiles in open grasslands, meadows, and emergent wetlands (Zeiner et al. 1990a).

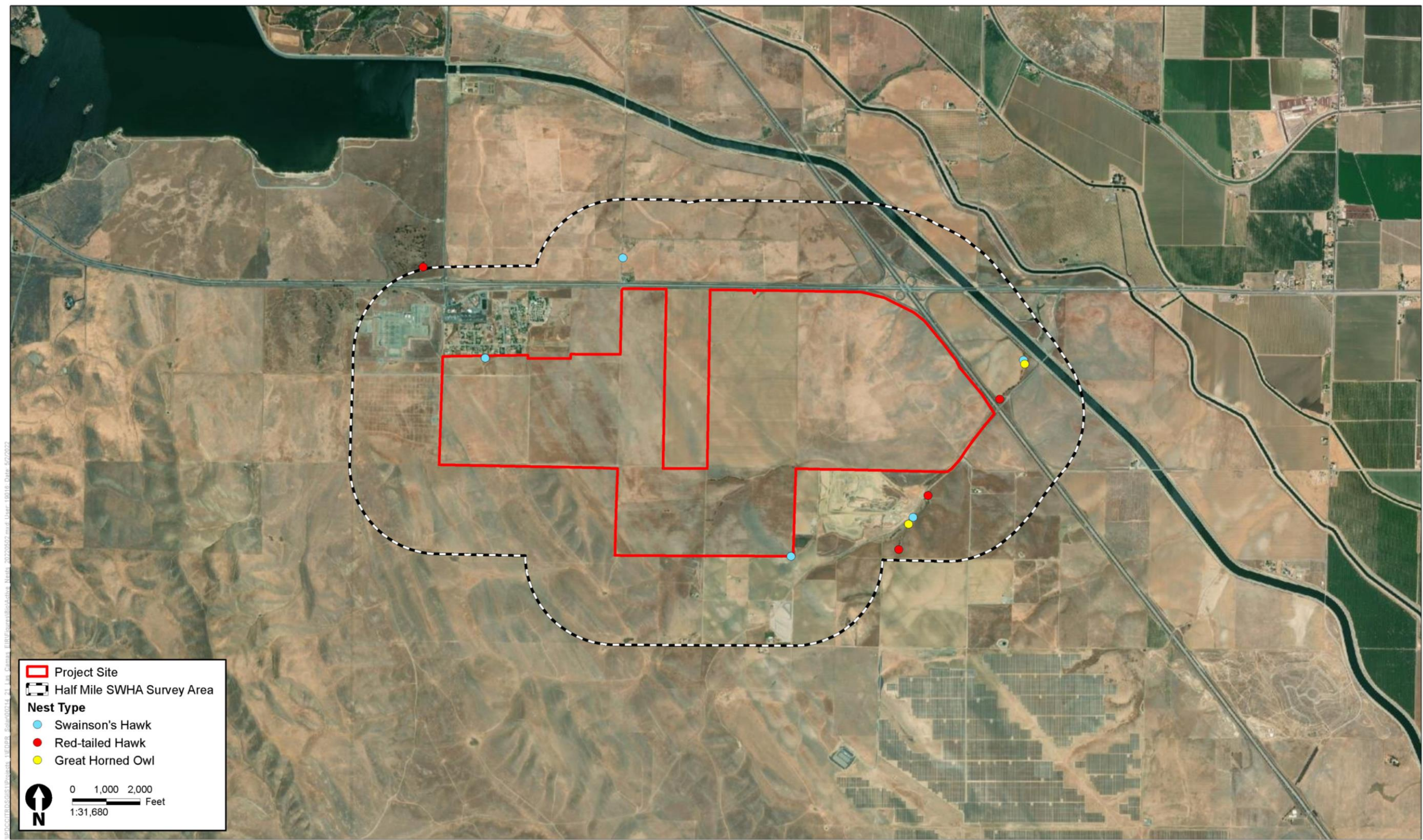


Figure 5
Nesting Bird Survey
for the Las Camas Project Site

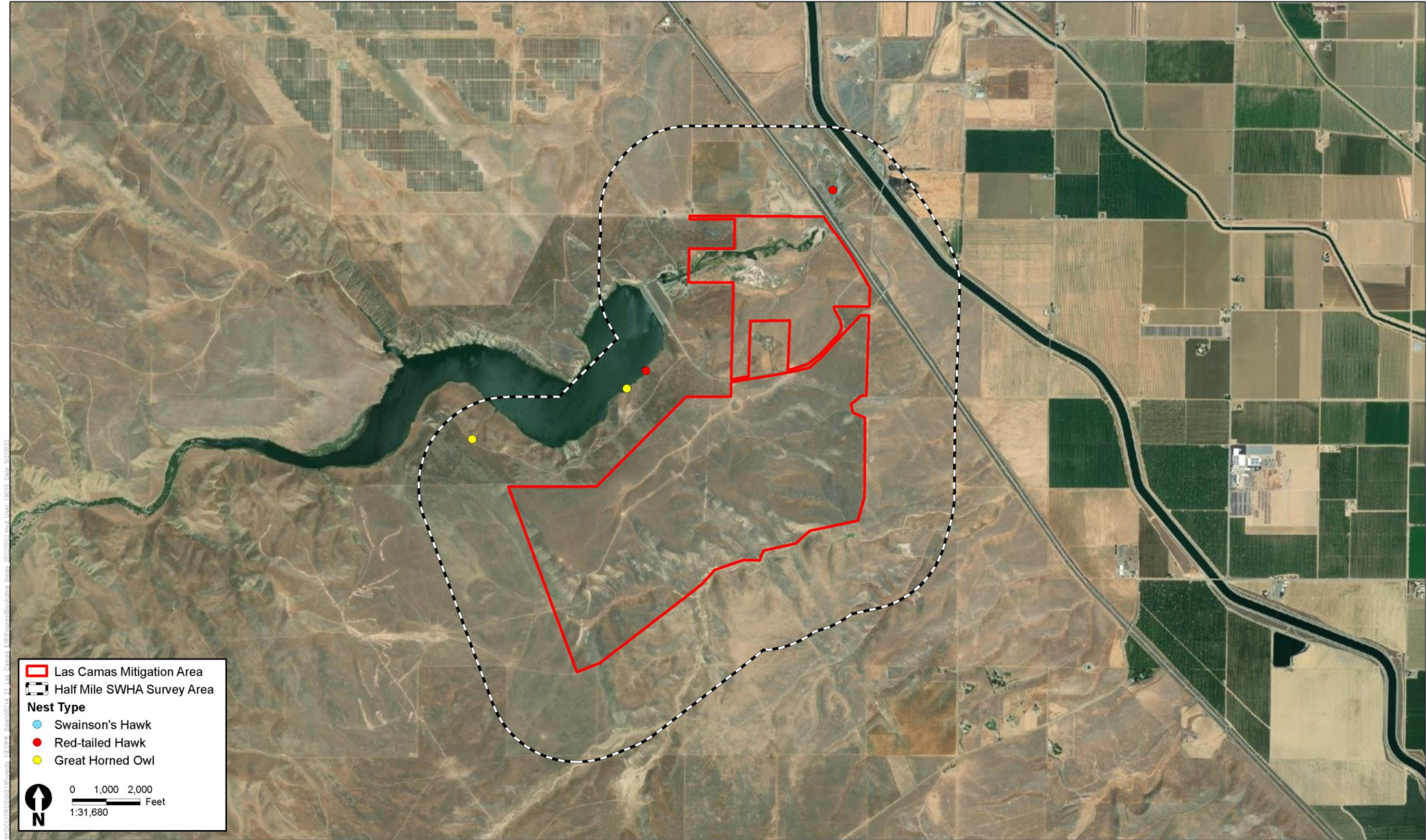


Figure 2
Nesting Bird Survey
for the Las Camas Mitigation Site

The study area provides moderate-quality habitat for northern harrier. Suitable nesting habitat is limited to scattered trees throughout the study area. Annual grassland within the study area is populated with small rodents (e.g., voles and mice) that provide abundant prey for raptors, including northern harrier. The closest CNDDDB record is located approximately 1.7 miles north of the study area at O'Neill Forebay. Other records for this species are located within 5 miles of the study area. Based on these factors, the potential for northern harrier to occur in the study area is moderate.

Western Burrowing Owl

Western burrowing owl is a California species of special concern. Western burrowing owl is a year-round resident in the Central Valley, San Francisco Bay Area, Carrizo Plain, and Imperial Valley. The species occurs primarily in grassland habitats but may also occur in landscapes that are highly altered by human activity. Suitable habitat must contain burrows with relatively short vegetation and minimal amounts of shrubs or taller vegetation. Western burrowing owl may also occur in agricultural areas along roads, canals, ditches, and drains. The owls most commonly nest and roost in California ground squirrel burrows, but may also use burrows dug by other species, as well as culverts, piles of concrete rubble, and pipes. The breeding season is March to August but can begin as early as February. During the breeding season, owls forage near their burrows but have been recorded hunting up to 1.7 miles away. Rodent populations, particularly California vole populations, may greatly influence survival and reproductive success of California burrowing owls (Shuford and Gardali 2008).

Currently, the study area is moderate-quality habitat for burrowing owl due to the general low density of California ground squirrel burrows and high, dense nonnative grasses covering the study area. No burrowing owls or sign of the species (burrows with white wash, feathers, pellets) were observed during habitat assessments. CNDDDB records indicate that two individuals were located in the study area (Figure 3). The burrowing owl observation locations were inspected during the May 2019 field surveys, but no burrows or sign of the species were present.

Loggerhead Shrike

Loggerhead shrike is a California species of special concern. In California, the range of loggerhead shrike extends throughout most of the state except for the heavily forested areas of the coastal slope, Coast Ranges, Klamath and Siskiyou Mountains, Sierra Nevada and southern Cascades, and high elevations of the Transverse Ranges. Loggerhead shrikes breed in shrublands and open woodlands with grass cover and bare ground. They search for prey from tall shrubs, trees, fences, and power lines, and frequently impale their prey on sharp, thorny, or multi-stemmed plants and barbed-wire fences. Loggerhead shrikes forage in open areas with short grasses and forbs or bare ground. Nests are built in trees or shrubs with dense foliage and are usually hidden well (Shuford and Gardali 2008). The nesting period for loggerhead shrikes is March through June (Zeiner et al. 1990a).

Loggerhead shrikes were observed during surveys conducted in May 2019. Nesting habitat is limited to scattered trees in the study area. Locally nesting loggerhead shrikes could forage in grassland habitat throughout the study area. Based on the presence of suitable habitat in the study area and known occupancy, the potential for loggerhead shrikes to occur in the study area is considered to be high.

Tricolored Blackbird

Tricolored blackbird is a California species of special concern. Tricolored blackbird is a highly colonial species that is largely endemic to California. Tricolored blackbird breeding colony sites require open, accessible water; a protected nesting substrate, including either flooded, thorny, or spiny vegetation; and suitable foraging habitat that provides adequate insect prey within a few miles of the nesting colony. Tricolored blackbird breeding colonies occur in freshwater marshes dominated by tules and cattails, in Himalayan blackberries (*Rubus armeniacus*), and in silage and grain fields (Beedy and Hamilton 1997). The breeding season is from late February to early August (Shuford and Gardali 2008). Tricolored blackbird foraging habitats in all seasons include annual grasslands, dry seasonal pools, agricultural fields (such as large tracts of alfalfa with continuous mowing schedules, and recently tilled fields), cattle feedlots, and dairies. Tricolored blackbirds also forage occasionally in riparian scrub habitats and along marsh borders. Weed-free row crops and intensively managed vineyards and orchards are not used as regular foraging sites. Most tricolored blackbirds forage within 3 miles of their colony sites but travel distances of up to 8 miles have been reported (Beedy and Hamilton 1997).

Perennial wetland drainage habitat is lacking in the study area, which is one of the preferred nesting areas for this species. Grasslands throughout the study area provide suitable foraging areas. The closest CNDDDB nesting records for tricolored blackbird are located at O'Neill Forebay, 2.1 miles northwest of the study area (Figure 3). Based on the presence of suitable foraging habitat in the study area and known occupancy in the project vicinity, the potential for tricolored blackbirds to occur in the study area is considered to be moderate.

Western Red Bat

Western red bat is a California species of special concern and is considered a high priority species in California by the Western Bat Working Group (2005). Western red bat occurs throughout California west of the Sierra Nevada and Cascade crest and deserts. The winter range includes western lowlands and coastal regions south of San Francisco. Roosting habitat includes forests and woodlands from sea level up to through mixed conifer forests in the Sierras. Western red bats forage over a wide variety of habitats. Day roost sites are often in edge habitats adjacent to streams, fields, or urban areas. They typically roost alone in the foliage of trees or shrubs (Western Bat Working Group 2005).

The study area is located within the range of the western red bat and provides suitable foraging habitat. The scattered eucalyptus trees found throughout the study area provide suitable roosting habitat. However, there are no CNDDDB records for this species within 5 miles of the study area. Therefore, the potential for western red bat to occur in the study area is considered to be low.

American Badger

American badger is a California species of special concern. American badgers occur throughout the state except in humid coastal forests of northwestern California in Del Norte and Humboldt Counties. American badgers occur in a wide variety of open, arid habitats but most commonly are associated with grasslands, savannas, and mountain meadows. They require sufficient food (burrowing rodents), friable soils, and relatively open, uncultivated ground (Williams 1986). Badgers dig burrows that are used for cover and reproduction (Zeiner et al. 1990b).

Grasslands throughout the study area provide suitable habitat for American badger. California ground squirrels, which are present throughout the site, provide suitable foraging habitat for this species. A potential badger den was located just outside the western border of the study area during May 2019 surveys. The CNDDDB lists six occurrences within 5 miles of the study area (Figure 3). Based on the presence of suitable habitat in the study area and known occupancy in the project vicinity, the potential for badgers to occur in the study area is considered to be high.

San Joaquin Kit Fox

The San Joaquin kit fox is a federally endangered and a state-listed threatened species. The species historically occurred in alkali scrub/shrub and arid grasslands throughout the level terrain of the San Joaquin Valley floor from southern Kern County north to Tracy in San Joaquin County, and up into more gradual slopes of the surrounding foothills and adjoining valleys of the interior Coast Ranges. Kit foxes typically den in relatively flat terrain or in gently sloping hills, washes, drainages, and roadside berms. Occupied habitats are usually associated with loose-textured soils, which facilitate den construction. Shallow soils with close proximity to bedrock, soils with high water tables, and impenetrable hardpan layers are generally avoided. Kit foxes will also modify burrows dug by other animals, such as California ground squirrel (U.S. Fish and Wildlife Service 2010b).

San Joaquin kit fox is primarily nocturnal and its prey consists largely of nocturnal species such as kangaroo rats (*Dipodomys* spp.), pocket mice (*Perognathus* spp.), and white-footed mice (*Peromyscus* spp.) (U.S. Fish and Wildlife Service 2010b). In natural areas, kit fox density and population stability are highest in areas with abundant kangaroo rats (U.S. Fish and Wildlife Service 2010b). In the northern portions of its range, San Joaquin kit fox consumes California ground squirrels, rabbits (*Sylvilagus* spp.), hares (*Lepus* spp.), and insects (U.S. Fish and Wildlife Service 1998, 2010b).

The entire study area is within the historic and known current range of the San Joaquin kit fox. Eighteen CNDDDB records of kit fox are located within 5 miles of the study area.

In 2004, an ICF biologist recorded a natal den in western Merced County, approximately 4 miles west of the project near the intersection of Billy Wright Road and Jasper Sears Road. One adult and two pups were observed. On October 7, 2013, ICF biologists conducted spotlight surveys of the proposed Wright Solar mitigation site, approximately 3 miles south of the study area. The biologists observed one San Joaquin kit fox on each of the evenings surveyed.

From 2005 to 2007, biologists from California State University, Stanislaus' Endangered Species Recovery Program (ESRP) conducted extensive San Joaquin kit fox surveys in western Merced County to determine abundance and distribution. Survey methods included remote camera stations, track stations, spotlight surveys, and opportunistic observations. The ESRP also assessed the habitat suitability of accessible areas in western Merced County and conducted a least-cost path modeling exercise to identify potential movement corridors in western Merced County (Constable et al. 2009). Approximately 2.2 miles south of the study area, the ESRP observed kit foxes on two occasions along Billy Wright Road (Figure 3). The ESRP also made additional kit fox observations in the Panoche Valley during the surveys. Based on the results of the surveys, the ESRP concluded that kit fox populations are not homogeneously distributed throughout western Merced County. Consistent detections in southwestern Merced County (south of SR 152) suggest a resident population may be present. The infrequent and more scattered detections in northwestern Merced County (north of SR 152) suggest that kit foxes may be transient in this area. Based on the data, the area south of Santa Nella (south of SR 152 and west of Interstate 5) supports the most northerly known self-sustaining

kit fox population. Thus, conserving this population is critical to maintaining kit foxes in the western Merced County region and northward (Constable et al. 2009).

Additionally, the ESRP assessed the distribution of suitable habitat for San Joaquin kit fox in the area that was identified as the species' range in the 1998 Recovery Plan (Cypher et al. 2013). The areas in western Merced County with natural vegetation near the study area have been ranked as having medium to high suitability for San Joaquin kit fox. The areas of the study area itself that have been, and still are, dryland farmed were ranked as having low suitability for San Joaquin kit fox.

The ESRP identified that habitat suitability is a significant factor in the distribution and abundance of San Joaquin kit foxes in western Merced County. The areas of western Merced County where kit fox have been and continue to be observed are those with gentle terrain, lower density of herbaceous ground cover, and greater abundance of kangaroo rats. For kit foxes to persist in western Merced County, there must also be good connectivity with core populations of San Joaquin kit foxes in Panoche Valley.

Considering that grain crops provide low-quality habitat, the dry-farmed portions of the study area provide low-quality habitat for San Joaquin kit fox (Cypher et al. 2013). The annual grassland within the study area provides moderate-quality habitat for kit fox when considering the past disturbance from farming activities across most of the study area (past disking activities have reduced prey base).

The study area would also be considered moderate-quality habitat for San Joaquin kit fox due to lack of prey base other than California ground squirrels and presence of thick, tall annual grasses. Kit foxes prey primarily on kangaroo rats, and in the absence of kangaroo rats will typically prey on California ground squirrel or Audubon's cottontail. California ground squirrel is also important to San Joaquin kit fox for denning habitat, because kit foxes frequently widen and modify ground squirrel burrows to create dens. No evidence of kangaroo rats was observed at the study area during the May 2019 surveys, and the areas occupied by California ground squirrel were overall limited.

Non-Special-Status Migratory Birds and Raptors

Ground-nesting migratory birds and raptors have the potential to nest and forage in the study area. Tree- and shrub-nesting habitat in the study area is limited; however, electrical towers may provide atypical nesting habitat for migratory birds and raptors. The breeding season for migratory birds and raptors generally extends from February through August, although nesting periods vary by species. A great horned owl (*Bubo virginianus*) was identified nesting in a eucalyptus tree in the study area during the May 2019 surveys (Figure 4).

Tule Elk

Tule elk (*Cervus canadensis nannodes*) are a high-profile species in California and a CDFW harvest species. This species has been reintroduced by CDFW throughout many portions of its former range after the population of this elk subspecies was almost extirpated from California by the early 1900s. Single or small groups of 2 to 3 females tule elk were observed scattered throughout the study area during the survey, and several young calves were also observed during the survey. Larger groups of tule elk were observed in and around San Luis Reservoir to the north.

Chapter 4

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Appendix A

Representative Photographs



Photograph 1. Facing east, abandoned ditch land cover type (May 2019).



Photograph 2. Facing north, abandoned ditch land cover type (May 2019).



Photograph 3. Facing north, cropland land cover type (May 2019).



Photograph 4. Facing west, nonnative annual grassland land cover type (May 2019).



Photograph 5. Facing south, tree stand land cover type (May 2019).



Photograph 6. Facing north, tree stand land cover type (May 2019).



Photograph 7. Facing east, tree stand land cover type (May 2019).



Photograph 8. Facing south, overview of tree stand land cover type (May 2019).



Photograph 9. Facing east, culvert under Interstate 5, connected to ephemeral drainage land cover type (May 2019).



Photograph 10. Facing southwest, ephemeral drainage land cover type (May 2019).



Photograph 10. Facing east, culvert under ranch road, connected to ephemeral drainage land cover type (May 2019).



Photograph 11. Facing southeast, seasonal pond land cover type (May 2019).