

4.4. BIOLOGICAL RESOURCES

This section includes the following discussion and analysis related to biological resources: existing environmental setting; regulatory context; criteria and methodology for evaluating impacts; and the results of the impact assessment, including identification of potentially significant impacts and corresponding mitigation measures to avoid or substantially lessen such impacts to the extent feasible.

PEIR Scoping Comments

During the PEIR scoping process, the District received two letters containing comments regarding biological resources (see PEIR Scoping Report in Appendix A of this document). The comments that are relevant to this PEIR under CEQA are summarized below.

U.S. Army Corps of Engineers

The comment letter from the Corps of Engineers states that the Corps has jurisdiction within the study area for waters of the United States, including the riverine habitat comprising Panoche, Cantua, and Los Gatos Creeks. The applicant should prepare an aquatic resources delineation and obtain authorization from the Corps prior to starting work on projects that would potentially result in discharges of dredged or fill material into waters of the United States. Every effort should be made to avoid filling waters of the United States. If waters of the United States are to be impacted, evaluation of cultural resources within the defined federal permit area and compliance with the federal Endangered Species Act will be required.

Defenders of Wildlife

The comment letter identifies species of concern and recommends biological surveys, evaluation of impacts and mitigation measures, including impacts to connectivity corridors, potential for “lake effects” on migratory birds caused by reflected polarized light, and cumulative impacts. The comment letter also suggests that the PEIR address the proposed VCIP’s effects on water supplies for endangered fish and wildlife.

California Department of Fish and Wildlife (CDFW)

The comment letter from CDFW states that special-status species must be considered, including the federally endangered and state threatened San Joaquin kit fox, the state threatened Swainson’s hawk, and the state species of special concern burrowing owl. Each project applicant is responsible for ensuring that implementation of their project does not result in violation of the Migratory Bird Treaty Act or relevant Fish and Game Code sections. To evaluate future project-related impacts on nesting birds, CDFW recommends that a qualified biologist conduct an assessment of nesting habitat during biological surveys in support of each project’s CEQA document and then conduct pre-activity surveys for active nests prior to construction, with follow-up monitoring as needed. To address Plan-wide impacts, CDFW recommends that the PEIR include a cumulative impact analysis of all biological resources that may be subject to significant impacts.

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Grasslands Water District (GWD)

After the close of the NOP comment period on the VCIP PEIR, the District received a comment letter from GWD. The letter contained comments on a Draft Supplemental EIR on another project outside the District – the Las Camas Solar Project located near the junction of Interstate 5 (I-5) and State Route (SR) SR-152 in Merced County. GWD submitted the comment letter to the District to convey its concerns regarding potential impacts of VCIP implementation on migrating birds, including the potential effects of nighttime lighting and potential “lake effect” of large solar facilities.

4.4.1. Environmental Setting

Study Methodology

The discussion in this section is based on the biological evaluation report prepared for the proposed VCIP by Live Oak Associates (LOA) in May 2025. The LOA report is contained in Appendix C of this PEIR, and its findings and recommendations are summarized in this section.

Sources of information used in the LOA report included: 1) the *California Natural Diversity Data Base* (CDFW 2024); 2) the *Online Inventory of Rare and Endangered Vascular Plants of California* (California Native Plant Society [CNPS] 2024); and 3) manuals, reports, and references related to plan area and animals of the San Joaquin Valley region. The District’s 2024 Cropland Data Layer, based upon the District’s 2024 Crop Report, was used to generate maps and analysis for the Plan Area. The 2024 Cropland Data Layer represents the best available information regarding potential habitat types within the Plan Area and the Development Focus Areas (DFAs). These data were combined with the United States Department of Agriculture’s [USDA] *Land Cover Database* to generate a land cover map that extended 10 miles from the Plan Area (see Figure 4.4-1). LOA ecologists conducted a field survey of the Plan Area in July 2024 to confirm general habitat conditions on-the-ground as mapped. This reconnaissance survey also identified the principal land uses and the potential for special-status plant and animal species as well as sensitive habitats to occur within the Plan Area.

The level of effort undertaken during LOA’s desktop mapping and field surveys was sufficient to locate and establish the general extent of special-status species habitat that might be present under an existing conditions baseline, but was not sufficient to establish the extent of actual use of onsite habitats by special-status species that may be present.¹ These efforts were sufficient to provide the basis for assessing the significance of potential biological impacts associated with implementation of the proposed VCIP over the 136,000-acre DFAs within the 535,000-acre Plan Area, and to assess the need for more detailed studies at the project-level regarding sensitive biotic resources identified in this programmatic assessment.

¹ An existing conditions baseline is used in these analyses related to biological resources (CEQA Guidelines, section 15125(a)(1).) This is because existing conditions determine whether certain species could foreseeably be present within the DFAs and/or Plan Area. Therefore, unless otherwise specified, the quantitative analyses contained in this section are based on data from 2024. For informational purposes, it is noted that in Section 4.2. *Agriculture and Forestry Resources*, a baseline of recent historical conditions from 2015-2024 is the appropriate baseline to establish fallowed acreage due to fluctuations in agricultural practices based on water supply variability. {AM0010.1}

Regional Biological Setting

Climate

Like most of California, the Plan Area, located within the central San Joaquin Valley, experiences a temperate climate. Warm dry summers are followed by relatively cool moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely rise much above 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. Average annual precipitation within the Plan Area is approximately 7.5 inches, almost 85 percent of which falls between the months of October and March. Nearly all precipitation falls in the form of rain.

Regional Waterways

The Fresno County (County) area of the San Joaquin Valley receives water from the San Joaquin River, Kings River, Delta-Mendota Canal, Fresno Slough, San Luis Canal/California Aqueduct, ephemeral creeks, and groundwater. The principal drainages of the region are the San Joaquin and Kings Rivers. The San Joaquin River is located approximately 1.5 miles east of the Plan Area at its closest point and runs roughly parallel with the northeastern boundary of the Plan Area (between 1.5 and 5 miles from the Plan Area boundary). The Delta-Mendota Canal parallels the San Joaquin River and the northeastern boundary of the Plan Area (from 1 to 3 miles east of the Plan Area). Just north of Mendota is the confluence of the San Joaquin River, Delta-Mendota Canal, and Fresno Slough, which runs parallel to the middle portion of the Plan Area's eastern boundary (between 3 and 5 miles) and conflues with the Kings River at its southeastern end. The Kings River is located three miles from the Plan Area's eastern boundary at its closest point, and it parallels the southeastern Plan Area boundary (between 6 and 15 miles). The Delta-Mendota Canal is completely channelized, and the Fresno Slough is primarily channelized but has some natural habitats. The San Joaquin and Kings rivers historically contained large areas of riparian, wetland, and aquatic ecosystems which supported large populations of diverse native plants and animals. Currently, these rivers support only a fraction of the riparian habitat they once supported and the aquatic habitat has been greatly degraded from agricultural runoff and irregular flows, particularly in the case of Kings River.

Native Habitats and Significant Ecological Areas in the Vicinity of the Plan Area

Native upland biotic habitats of the San Joaquin Valley once consisted of grassland and shrubland, nearly all of which have been converted to farmland or urban use over the last 80 years or more. Native plant and animal species once abundant in the valley have become locally extirpated or have experienced large reductions in their populations. The remaining native habitat in the region is particularly valuable to native wildlife species including special-status species that persist in the region. The lands surrounding the Plan Area generally consist of agricultural land, with natural habitats mainly occurring in the foothills west of I-5.

Major ecological areas near the Plan Area include the San Luis Reservoir with the adjacent Cottonwood Creek Wildlife Area (WA), O'Neill Forebay with the adjacent O'Neill Forebay WA, Pacheco State Park, San Luis Reservoir State Recreation Area (SRA), Los Banos Reservoir, the Grasslands Ecological Area (EA), the Mendota Pool, Fresno Slough, the San Joaquin River, Mendota WA, Alkali Sink Ecological Reserve (ER), Kerman ER, the historic Tulare Lakebed, and Kern National Wildlife Refuge (WRA), along with surrounding duck clubs in Tulare and Kern Counties.

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The San Luis Reservoir is 12,500 surface acres and the adjoining O'Neil Forebay is 2,250 acres. The 700-acre O'Neil Forebay WA is along the northeast edge of the forebay. The 6,300-acre Cottonwood Creek WA is along the northwest and northeast edge of the reservoir. Cottonwood WA has terrestrial habitat with ephemeral streams and a few small ponds. The O'Neil Forebay WA has riparian habitat with four small ponds for wintering waterbirds. The reservoir and wildlife areas are approximately 30 to 40 miles northwest of the Plan Area.

Pacheco State Park (6,890 acres) is along the west and southwest edge of the San Luis Reservoir. The San Luis Reservoir SRA is along the east and southeast edge of the reservoir. The south boundaries of these state lands are approximately 30 miles northwest of the Plan Area. San Luis SRA is over 27,000 acres which includes the reservoir. These state lands include terrestrial habitat with ephemeral streams. Los Banos Reservoir (620 surface acres) is approximately 22 miles northwest of the Plan Area and is part of the state park system. Los Banos Creek flows below the reservoir dam and provides riparian habitat.

The Grasslands EA is comprised of 240,000 acres divided into two districts. The North District is north of State Highway 152 and the South District is south of the highway. The South District southern border is 9 miles northwest of the Plan Area. The Grasslands EA is owned by private duck clubs, the United States (federal refuge system) and the State of California (state wildlife area). This ecological area is primarily managed wetlands for wintering migratory birds and includes extensive riparian zones along the sloughs and San Joaquin River.

The 12,000-acre Mendota WA is along the Plan Area's northeast boundary south of State Highway 180. The wildlife area includes riparian areas and approximately half of the area is managed wetlands for wintering migratory birds. Within the north central area of Mendota WA are a few private duck clubs. The Alkali Sink ER (930 acres) is along the Mendota WA northeast boundary and the Kerman ER (1,800 acres) is approximately four miles east of Alkali Sink ER along State Highway 180. Both ecological reserves are managed for Threatened and Endangered Species such as the San Joaquin kit fox.

The Fresno Slough originates near the Kings River and flows north almost parallel to the Plan Area's eastern boundary and is approximately 3 to 5 miles from the boundary. Fresno Slough flows through the middle of Mendota WA and terminates at the Mendota Pool Dam at its confluence with the San Joaquin River. The Mendota Pool has approximately 1,200 surface acres with surrounding riparian areas. The San Joaquin River originates in the Sierra Nevada east of Fresno, flows to the west and eventually curves to the north on the San Joaquin Valley floor. It meets Fresno Slough at the Mendota Pool Dam and continues to flow through the Grasslands EA and then north to the Delta. The San Joaquin River below Friant Dam has more flows in recent years because of the Spring-run Chinook salmon restoration program.

The northwest shoreline of the historic Tulare Lakebed is approximately 7 miles southeast of the nearest Plan Area boundary. Tulare Lake was once the largest freshwater lake west of the Mississippi River. Two large flood storage areas, South Wilbur and Hacienda Ranch, which are along the southern Tulare Lakebed shoreline. are approximately 22 miles southeast of the Plan Area. Adjacent to these flood basins is Tulare Lake Drainage District Agricultural Evaporation Basins, which also attract waterbirds.

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Kern NWR is approximately 32 miles southeast of the Plan Area. Kern NWR is 16,000 acres, of which approximately one-third to one-half is managed wetlands for wintering migratory birds. Within southwestern Tulare County and in the areas south of Kern NWR there are several small private duck clubs.

The amount of flooded acreage for all the above ecological habitats depends on the particular water year. Low to drought water years provide almost no to very low acreage wetland habitats in the valley. Whereas, in normal, above normal to wet years, extensive areas are flooded throughout the San Joaquin Valley. For example, during 2023, a wet and very snowy year, the Tulare Lakebed flooded for the first time in decades (since the 1980s). During these flood years, wetland habitats attract thousands of waterbirds to the valley and in some years provides habitat across all seasons. During normal to above normal water years the Federal and State managed wetlands receive their full allocation of water supply from the US Bureau of Reclamation pursuant to the Central Valley Project Improvement Act, and can receive additional water if available. This extra water is usually used for wildlife and spring and summer irrigation food crops and provides summer water for small, ponded areas. During most years outside of the private and publicly managed wetland areas, increased amounts of wetland habitat become available in the valley during the winter and spring months after rain events. For example, the ecological reserves near Mendota WA will form small shallow pools which provide water during the winter and spring for waterbirds.

In summary, major ecological habitats that provide water areas for wildlife range from less than three miles to 40 miles from the Plan Area boundaries. Most of these areas are to the northwest, east and southeast of the Plan Area. For a detailed discussion of waterfowl use of these ecological habitats, see “Avian Movement” subsequently in this section.

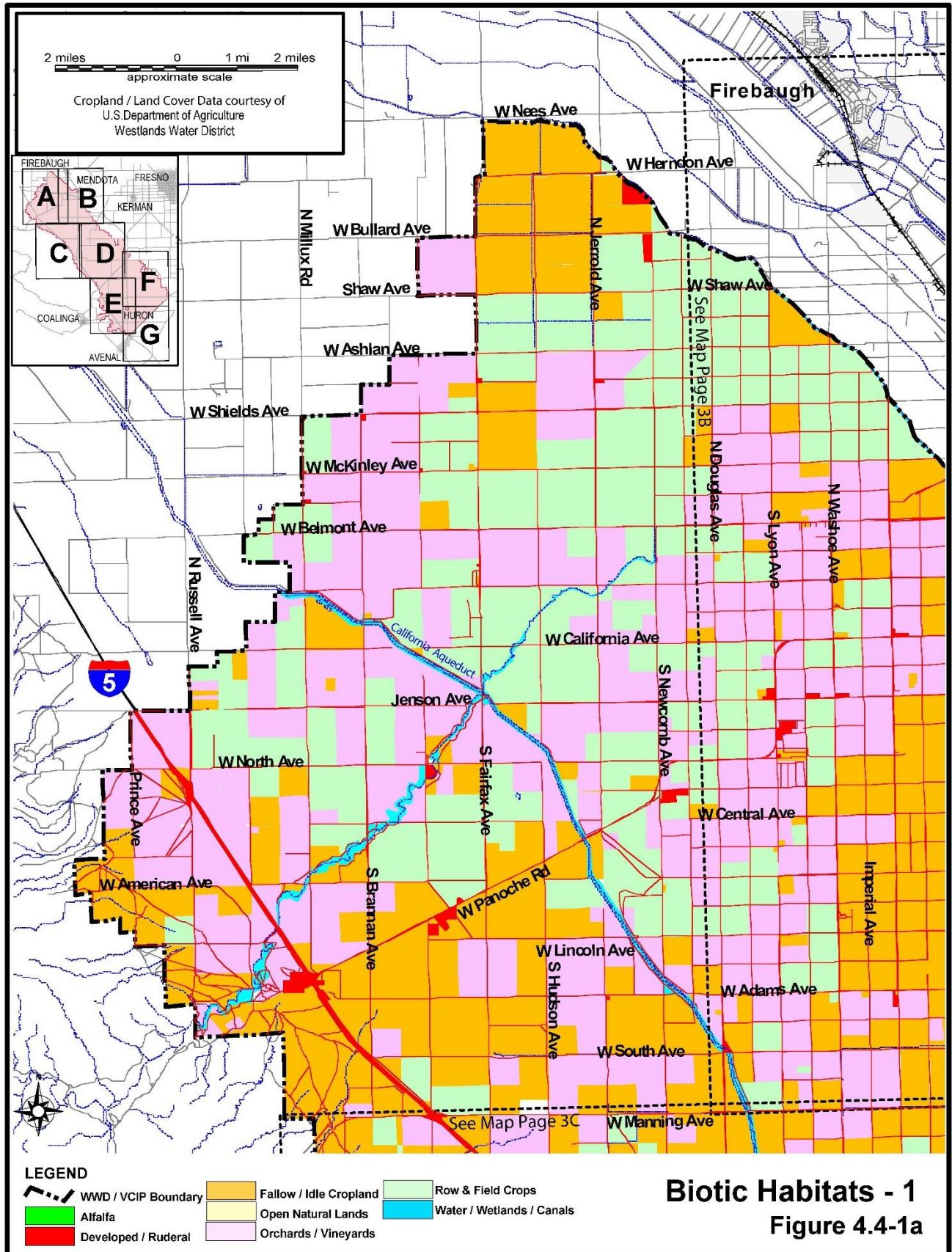
Biotic Habitats within the Plan Area

Eight biotic habitats and land uses occur in the Plan Area, including: alfalfa, fallow/idle croplands, open/natural lands, orchards/vineyards, row and field crops, water/wetlands/riparian woodlands, and roads/developed/ruderal. These habitat types are shown in Figures 4.4-1a-g. It should be noted that the Plan Area supports a number of solitary trees and small clumps of trees scattered throughout. The tree mapping unit was not of sufficient size to include as a separate biotic habitat; however, trees are briefly described under the expanded habitat category “Water/Wetlands/Riparian Woodland” below. These habitat types are described below and the land area covered by each is shown in Table 4.4-1.

Alfalfa

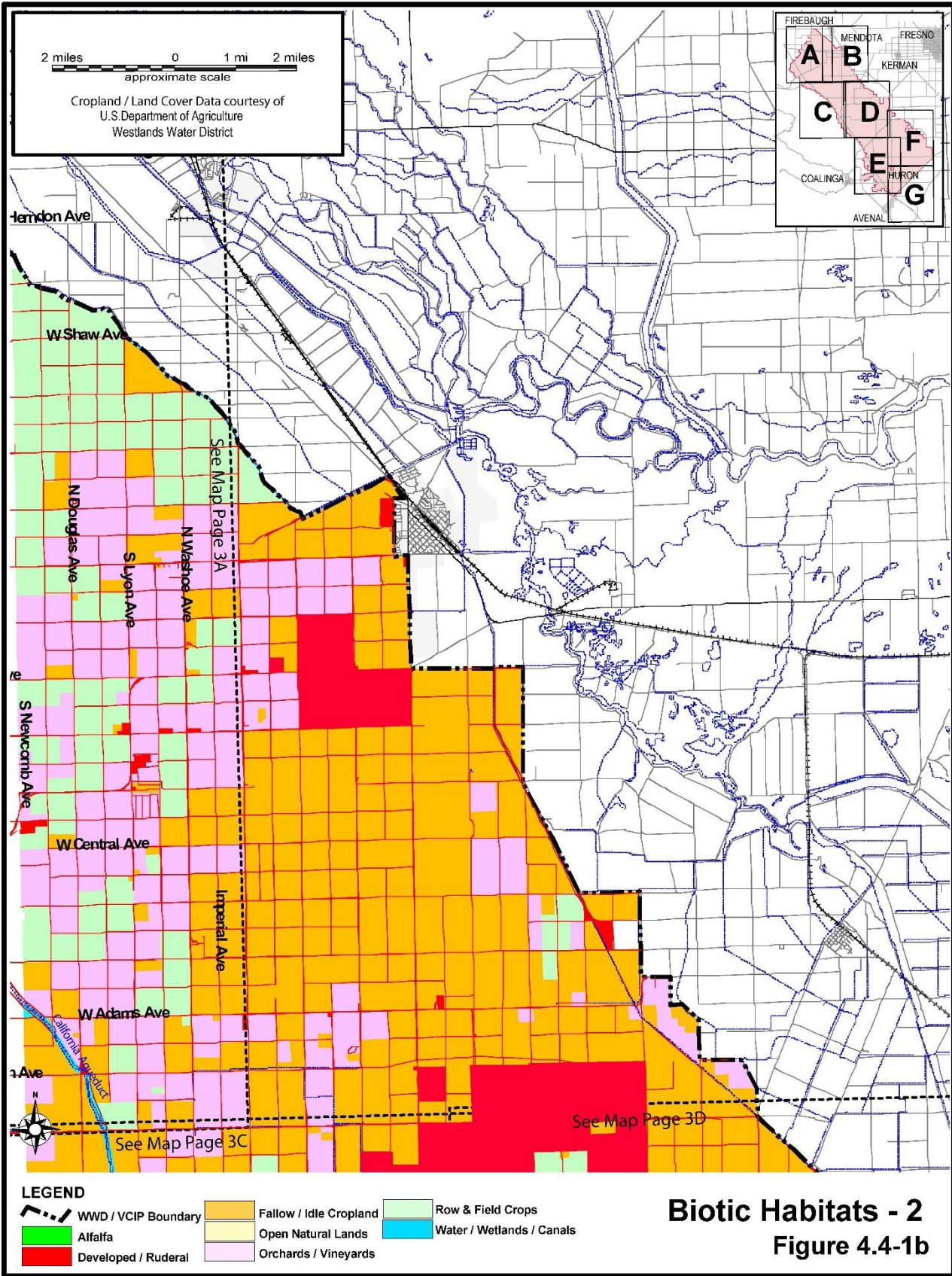
Distinct from row and field crops, lands used specifically to grow alfalfa provide a unique habitat for a number of wildlife species. Plant species found within alfalfa fields are extremely limited, consisting largely of alfalfa (*Medicago sativa*), although a very small portion of a few weedy species such as Russian thistle (*Carduus pinocephalus*) and cheeseweed (*Malva parviflora*) may persist on the margins of these lands. Wildlife species likely to forage in alfalfa fields include various lizard species, turkey vulture (*Cathartes aura*), Swainson’s hawk (*Buteo swainsoni*), northern harrier (*Circus cyaneus*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), California ground squirrel (*Otospermophilus beecheyi*), Botta’s pocket gopher (*Thomomys bottae*), Heermann’s kangaroo rat (*Dipodomys heermanni*), various native deer mice (*Peromyscus* sp.), raccoon (*Procyon lotor*), and coyote (*Canis latrans*).

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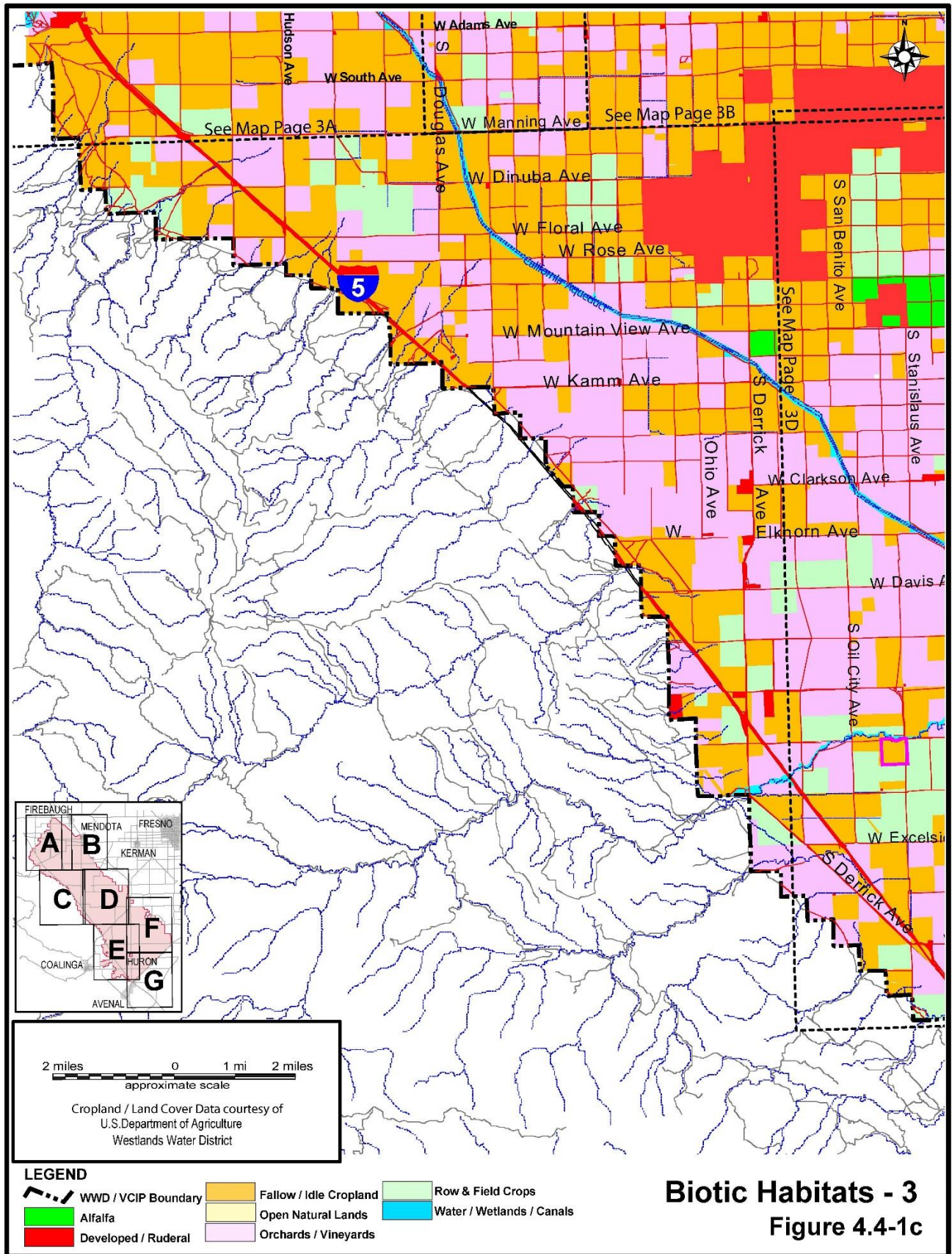


Biotic Habitats - 1
Figure 4.4-1a

Source: Live Oak Associates

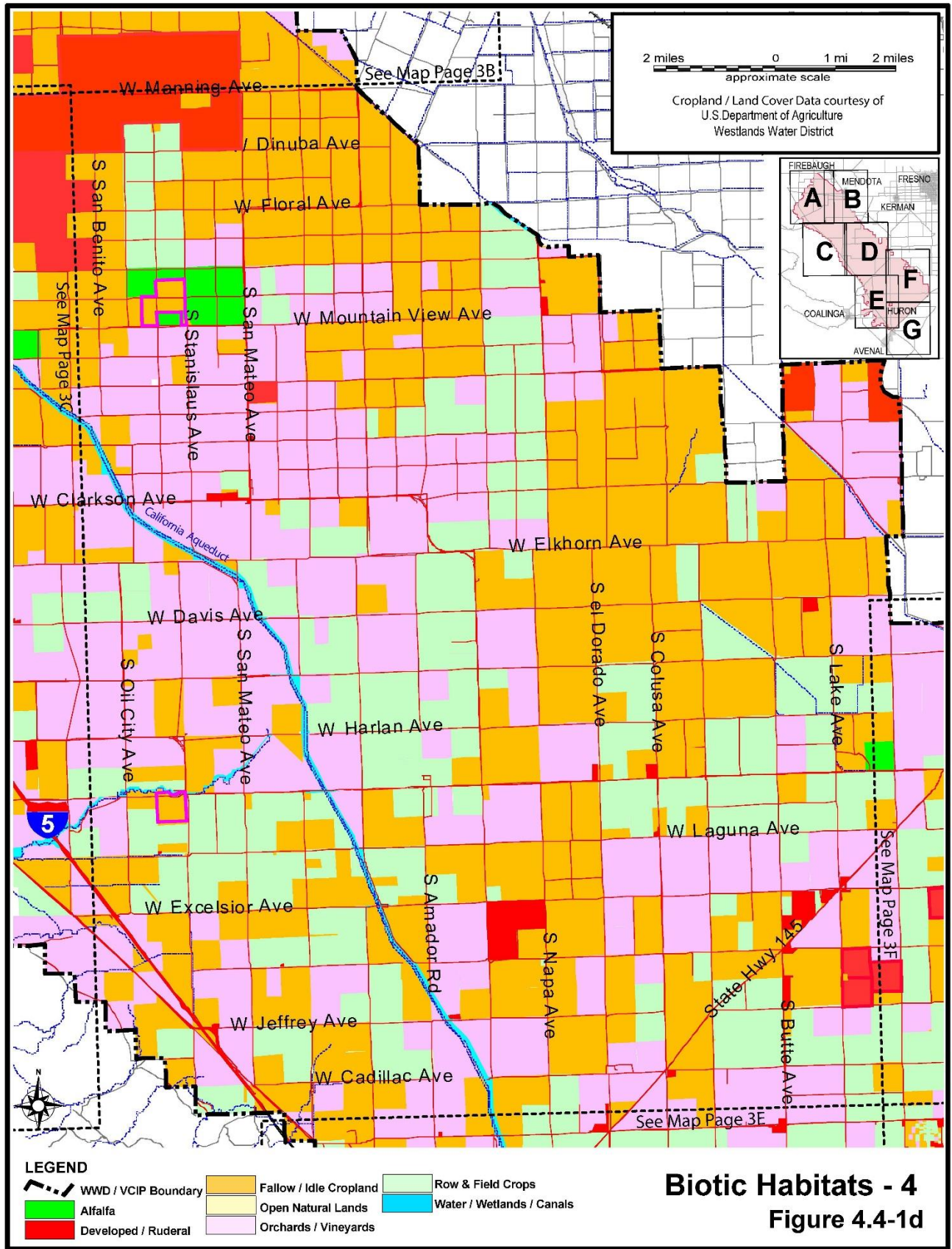


Source: Live Oak Associates



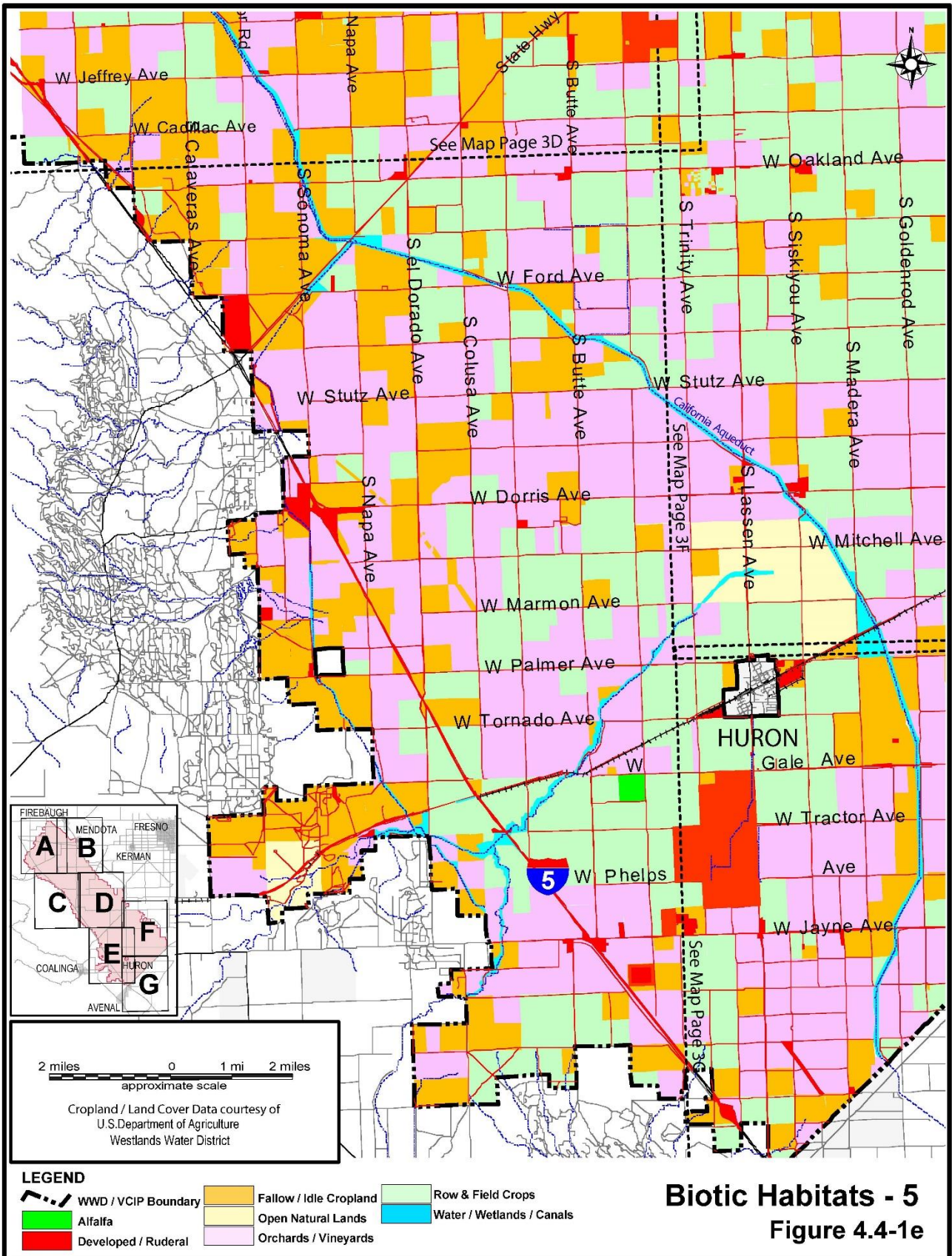
Source: Live Oak Associates

4. Environmental Analysis
 4.4. Biological Resources



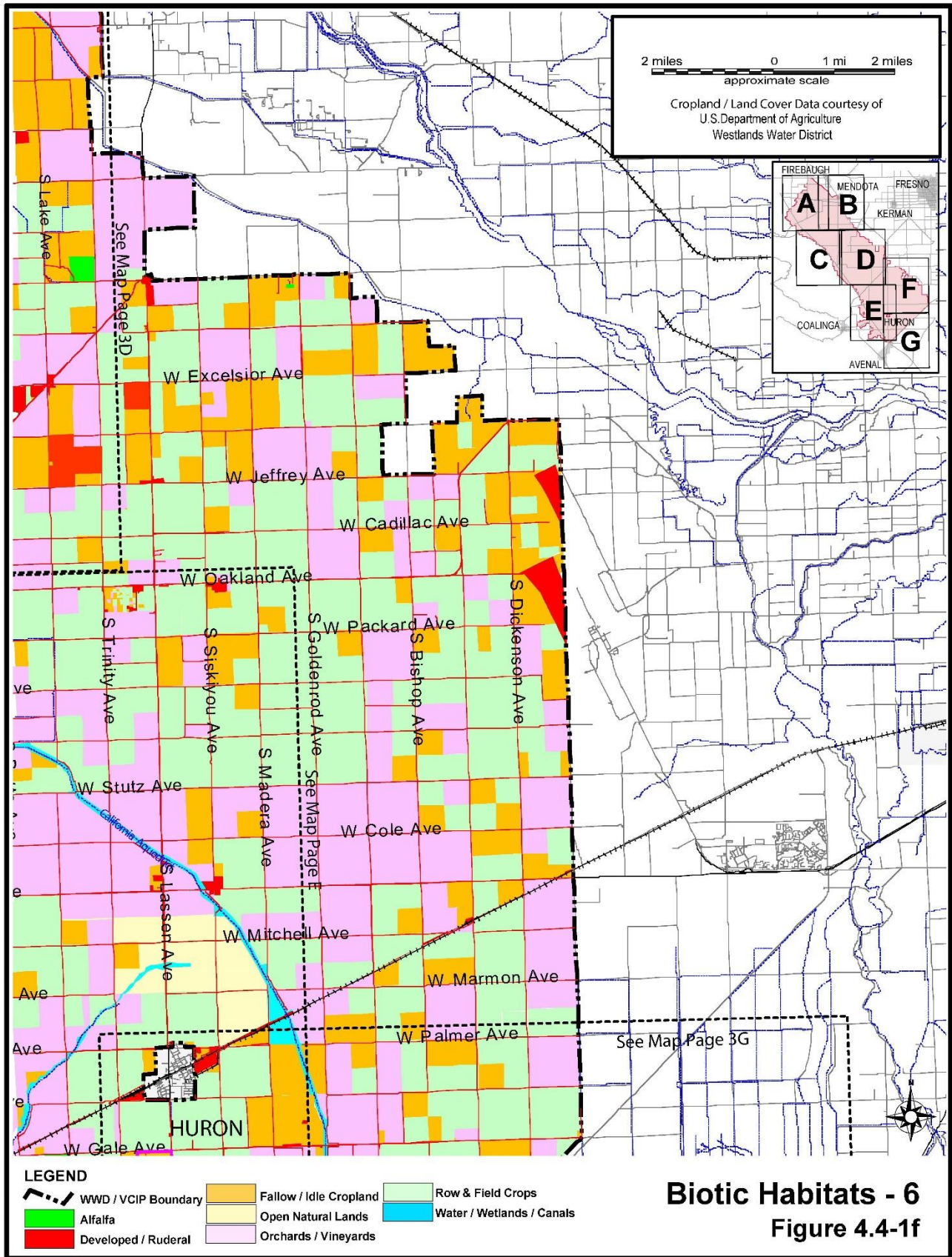
Source: Live Oak Associates

4. Environmental Analysis
 4.4. Biological Resources



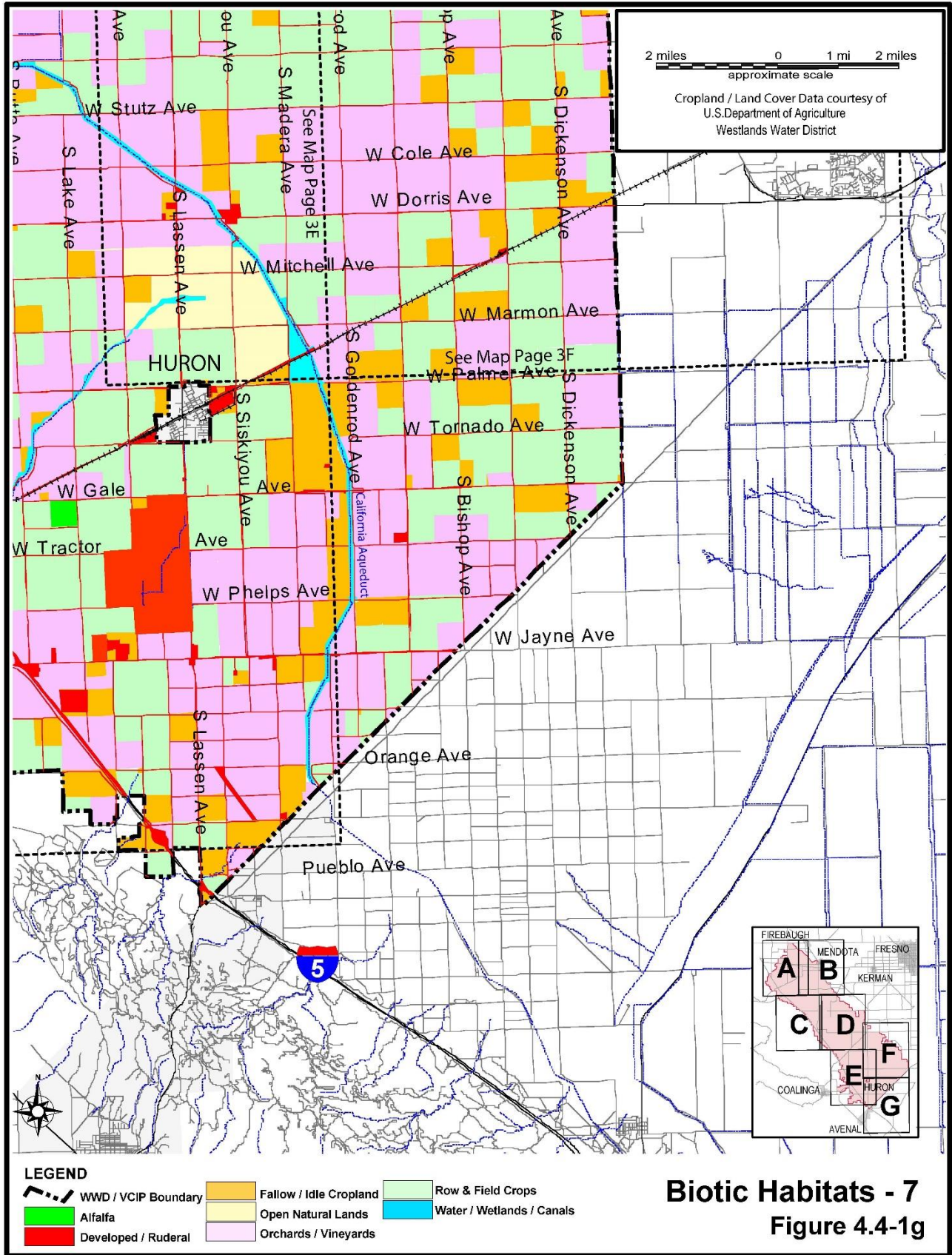
Source: Live Oak Associates

4. Environmental Analysis
 4.4. Biological Resources



Source: Live Oak Associates

4. Environmental Analysis
 4.4. Biological Resources



Lizard and rodent species listed above are also likely to breed in alfalfa fields. Notably, the northern harrier is known to nest within agricultural fields such as alfalfa, and killdeer may nest on the edges of alfalfa fields.

TABLE 4.4-1
HABITAT TYPES WITHIN THE PLAN AREA BY ACREAGE

Habitats	Total acres within DFAs	Remainder within Plan Area	Total within Plan Area
Alfalfa	910	492	1,402
Fallow/Idle Crop	81,357	88,062	169,419
Open/Natural Lands	143	3,476	3,619
Row & Field Crops	28,264	113,867	142,131
Orchards/Vineyards	23,870	162,779	186,649
Water/Wetlands/Riparian Woodland	819	5,385	6,204
Roads/Developed/Ruderal	637	24,939	25,576
TOTAL	136,000	399,000	535,000

*Potential foraging habitat for Swainson's hawk and burrowing owl shown in green.

Source: Live Oak Associates

Fallow/Idle Croplands

Under existing conditions, approximately 32 percent of the Plan Area is made up of fallow or idle croplands, whereas approximately 60 percent of the DFAs consist of fallow or idle croplands. These lands vary in cover from completely barren to well-vegetated. Barren lands are completely devoid of vegetation and consist of dry, silty soils. Due to being heavily managed, these barren lands are unlikely to support core habitat for wildlife species. Vegetated fallow or idle croplands are largely dominated by annual grasses and herbaceous species, likely including slim oat (*Avena barbata*), ripgut brome (*Bromus diandrus*), Russian thistle, jimsonweed (*Datura wrightii*), barnyard grass (*Echinochloa crus-galli*), tropical horseweed (*Erigeron sumatrensis*), hairy leaved sunflower (*Helianthus annuus*), seaside heliotrope (*Heliotropium currasavicum* ssp. *oculatum*), mustard (*Hirschfeldia incana*), cheeseweed, and silverleaf nightshade (*Solanum elaeagnifolium*). The more vegetated fallow and idle crop lands likely support many of the same wildlife species found in alfalfa fields. Lizards, California ground squirrels and other small mammals are likely to forage and breed in these areas. Consequently, raptor species including red-tailed hawks and Swainson's hawks, will forage on fallow and idle croplands, and northern harriers may nest on these lands. Burrowing owls may also nest on fallow and idle croplands. Finally, the same predatory mammalian species known to use alfalfa fields are also likely to pass through and forage in well-vegetated fallow and idle croplands.

Open/Natural Lands

Less than one percent of the Plan Area consists of open and natural lands, which provide refuge for both plants and wildlife, several of which would otherwise be unlikely to survive in the largely agricultural and {AM0010.1}

managed lands of the San Joaquin Valley. These lands consist primarily of open grassland, natural scrub brush habitats and natural riparian corridors. The majority of open and natural lands within the Plan Area occur to the west of I-5, with some remnant open and natural lands occurring on smaller acreages throughout the Plan Area. Plant species likely to occur in these open and natural lands include but are not limited to fiddleneck species (*Amsinckia* sp.), several salt brush species, such as cattle spinach (*Atriplex polycarpa*), common California annual grasses, hairy-leaved sunflower, and tamarisk (*Tamarix parviflora*). Various amphibian and reptile species are likely to breed and subsist in these lands, primarily in the grassland habitats, likely sustaining populations which also use more managed agricultural lands. Several bird species are known to use this habitat type, including northern harriers, red-tailed hawk, burrowing owls, horned lark, California quail (*Callipepla californica*), and others. Bats, while unlikely to roost in the majority of these lands (the exception being woodlands, riparian areas, and other areas supporting trees with cavities or buildings being exceptions), are known to forage in open grassland and scrub land habitats, as well as over riparian areas. A wide variety of other mammalian species also use these lands for foraging and breeding, including California ground squirrel, Botta's pocket gopher, Heermann's kangaroo rat, various species of native California mice (such as those in the genus, *Peromyscus*), black-tailed hare (*Lepus californicus*), raccoon, American badger (*Taxidea taxus*), red fox, and coyote.

Orchard/Vineyard

Approximately 35 percent of the Plan Area consists of orchards and vineyards, with orchards predominating. The orchard trees primarily consist of almond and pistachio trees. For the most part, orchards within the Plan Area are highly maintained with no vegetation observed beneath the orchard trees, although some orchards west of I-5 were observed to support a well-developed understory of vegetation between the rows of trees. Vineyards, which are substantially fewer in number and size than orchards, support herbaceous vegetation in the rows between the vines. Orchards and vineyards of the Plan Area offer limited habitat value to native wildlife species due to the high level of maintenance and general lack of understory vegetation. A number of avian species will occur in these habitats due largely to the variety of forage; however, other taxa are more limited due in large part to regular ground disturbance. For example, amphibian species are not likely to occur in the orchards and vineyards due to lack of vegetative cover and consistent ground disturbance. A limited number of amphibian species may occur in these habitats if they support understory vegetation, and/or are in close proximity to ponds, waters, and wetlands. Common reptiles are likely limited to western fence lizards (*Sceloporus occidentalis*) and common side-blotched lizards (*Uta stansburiana*). Raptors adapted to hunt within the tree canopy such as Cooper's hawks (*Accipiter cooperii*) and sharp-shinned hawks (*Accipiter striatus*) may forage for small birds in the orchards, and northern harriers and American kestrels (*Falco sparverius*) may forage over the vineyards. Avian species frequenting orchards and vineyards to forage or nest include but are not limited to the mourning dove (*Zenaidura macroura*), California scrub jay (*Aphelocoma californica*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), Brewer's blackbird (*Euphagus cyanocephalus*), and house finch (*Haemorhous mexicanus*). A limited number of these medium to small bird species may nest in the orchard trees. Foraging raptors and mammalian predators may occur in the orchards and vineyards of the Plan Area from time to time. Various species of bat may forage over the orchards and vineyards for flying insects. Small mammal species such as California ground squirrels, Botta's pocket gophers, and deer mice may also occur within the orchards and vineyards. Mammalian predators potentially occurring in the orchards and vineyards of the Plan Area are expected to include raccoons, red fox, and coyotes.

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Row and Field Crops

At the time of LOA's July 2024 field survey, the Plan Area contained extensive fields of tomatoes, cotton, and wheat, and other row and field crops. Non-crop vegetation was limited to the field margins and consisted primarily of weedy annual species including but not limited to red brome (*Bromus madritensis*), red stemmed filaree (*Erodium cicutarium*), and cheeseweed. A number of wildlife species could occur in these fields from time to time. Amphibians are expected to be uncommon in these areas due to the lack of breeding habitat, but may occur in crop lands with adjacent ponds, irrigation canals, or other water features. Common reptiles such as the common side-blotched lizard and Pacific gopher snake (*Pituophis catenifer catenifer*) could potentially occur in the fields. Avian species expected to forage in the fields include raptors such as the red-tailed hawk and American kestrel, mourning dove, western kingbird (*Tyrannus verticalis*), American crow, savannah sparrow (*Passerculus sandwichensis*), western meadowlark (*Sturnella neglecta*), and Brewer's blackbird. Small mammals expected to occur in the agricultural fields include Botta's pocket gophers, California voles (*Microtus californicus*), and deer mice. Mammalian predators with the potential to occur in the fields include disturbance-tolerant species such as raccoon and coyote.

Water/Wetlands/Riparian Woodland

The Plan Area contains several different types of water and wetland habitats, including natural riparian corridors, irrigation canals, irrigation ponds, the San Luis Canal/California Aqueduct, and a few naturally occurring vernal pools and wetlands. A vernal pool is a natural pool that fills up seasonally and dries down in the dry season which supports a number of plant and animal species endemic to that unique environment. Vernal pool and ephemeral wetlands are very limited within the Plan Area and are present only in few locations on the eastern margins of the Plan Area. In general, vernal pool landscapes in California have largely been converted to agricultural and urban environment. Species that depend on vernal pools are becoming increasingly rare and many of them have been or are being listed under the California and/or federal Endangered Species Act. Natural riparian corridors occur mainly to the west of I-5 in open/natural lands but also weave through actively farmed and fallow lands within the western portions of the Plan Area. The extent of riparian woodlands within the Plan area was not estimated as this element did not rise to level of the minimum mapping unit (i.e., the smallest area that can be reliably mapped) of the mapping data used for this analysis. Common tree species that may occur within riparian woodlands include but are not limited to Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), willow (*Salix* spp.), blue oak (*Quercus douglasii*), live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*). Characteristic undergrowth plant species may include mugwort (*Artemisia douglasiana*), mulefat (*Baccharis viminea*), wild rose (*Rosa californica*), and blackberry (*Rubus* spp.).

Wildlife species likely to occur in natural riparian corridors include amphibians, reptiles, and bird species common to the Central Valley, as well as raptors such as Swainson's hawks and northern harriers, native mice, bats, and various mammalian species. Irrigation canals are common throughout the Plan Area and vary in the amount of vegetation they support. Many of the canals support wetland plant species, including cattails, tule, and cottonwood trees. Species likely to use canals include Pacific chorus frogs (*Pseudacris regilla*), western toads (*Bufo boreas*), snake species, lizard and turtle species, and a number of birds such as the red-winged blackbird (*Agelaius phoeniceus*).

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A large segment of the San Luis Canal/California Aqueduct (Aqueduct) passes through the Plan Area. This water conveyance structure is concrete lined and devoid of vegetation. At the time of LOA's field survey the Aqueduct held water. Due to the concrete lining and the absence of vegetation, the aqueduct has limited value to native wildlife. The Aqueduct is known to support several fish species: most notably, striped bass (*Morone saxatilis*), as well as various catfish and carp species, among others. Various species of waterfowl are known to use the San Luis Canal/California Aqueduct, such as mallards (*Anas platyrhynchos*), buffleheads (*Bucephala albeola*), lesser scaups (*Aythya affinis*), and ruddy ducks (*Oxyura jamaicensis*). Burrowing owls are likely to form colonies along the outer sides of the Aqueduct, and cliff swallows (*Petrochelidon pyrrhonota*) and barn swallows (*Hirundo rustica*) are expected to forage over the Aqueduct and nest under bridges going over the Aqueduct. Various bat species may also forage over the open water of the Aqueduct, and California ground squirrels and other rodents may burrow along the outer sides of the Aqueduct. Aside from bats and rodents, other mammal species occurring in habitats adjacent to the Aqueduct are expected to use the Aqueduct for movement.

Ruderal/Developed

Ruderal/developed lands are lands regularly disturbed by human activities and/or associated with built environments. This habitat occurs throughout the Plan Area, and includes existing solar farms, residential areas, agricultural and industrial buildings, paved and dirt roads, and road shoulders, and infrastructure associated with the San Luis Canal/California Aqueduct. Except where landscaped planted varieties occur around residential areas, these areas are barren to sparsely vegetated. Where vegetation is present, it generally consists of common weedy grasses and forbs such as farmer's foxtail (*Hordeum murinum* spp. *leporinum*), and short-podded mustard (*Hirschfeldia incana*). Trees associated with these areas consist of non-native ornamental tree species.

The wildlife habitat value of ruderal/developed lands within the Plan Area is relatively low; nonetheless, these lands can support some native wildlife species. Common reptiles such as the western fence lizard (*Sceloporus occidentalis*), common side-blotched lizard, and Pacific gopher snake could potentially use ruderal habitats within the Plan Area. Avian species expected to forage within or pass over ruderal/disturbed areas of the Plan Area include the mourning dove, California scrub jay, killdeer, Brewer's blackbird, American crow, house finch, and house sparrow (*Passer domesticus*). Additionally, burrowing owls may nest along the sides of roads and Swainson's hawks may nest in medium to large trees.

Evidence of burrowing mammal activity on the ruderal/developed lands of the Plan Area is minimal. Small mammals potentially occurring on ruderal/developed lands of the Plan Area include the California ground squirrel, brown rat (*Rattus norvegicus*), Botta's pocket gopher, and house mouse (*Mus musculus*). A variety of native bat species have the potential to forage over ruderal/developed areas of the Plan Area, and some of these bat species may roost in the eaves and siding of residential, agricultural, and industrial buildings. Mammalian predators with the potential to occasionally occur on ruderal/developed lands of the Plan Area include disturbance-tolerant species such as the raccoon, Virginia opossum (*Didelphis virginiana*), and coyote.

Wildlife Movement Corridors

Wildlife movement corridors are areas where regional wildlife populations regularly and predictably move during dispersal or migration. Movement corridors in California are typically associated with {AM0010.1}

valleys, rivers and creeks supporting riparian vegetation, and ridgelines. In the San Joaquin Valley, which lacks many of the more pronounced topographic features found in the surrounding foothills, wildlife will often move across ill-defined undeveloped habitat patches, or regional movement is facilitated along existing linear features such as ditches, canals, farm roads, and creeks. In areas of intense farming, these existing linear features tend to be used disproportionately for movement when compared to the adjacent, intensely farmed lands. While actively farmed fields are not barriers in themselves, they are used less often than the linear features that cut through them.

The intense farming throughout the San Joaquin Valley over the last century has long altered the more traditional regional movement patterns of wildlife. While regionally occurring wildlife does, in fact, move across the broad range of the valley, they do so less effectively than they once did, relying more extensively on various linear features such as canals, ditches and creeks. Regionally, the nearest areas that provide for regional wildlife movement include the natural hills west of I-5 which have not been substantially altered.

The Plan Area consists largely of agricultural fields bisected by the San Luis Canal/California Aqueduct and also includes the lower margins of the natural hills on the western side of I-5. Canals and ditches within the Plan Area can function as movement corridors for the regular home range or dispersal movements of native wildlife, including special-status species.

The primary movement corridors in the Plan Area vicinity include the hills and foothills to the west of I-5, and the riparian corridors along the San Joaquin and Kings rivers and the Delta-Mendota Canal and Fresno Slough to the east of the Plan Area. Additionally, the northern third of the Plan Area serves some function as a wildlife linkage/corridor; in particular, a narrower southwest-northeast wildlife linkage/corridor area across the Plan Area from the region of Three Rocks to just south of the Mendota Wildlife Refuge. Additionally, maps within the USFWS' *Recovery Plan for Upland Species of the San Joaquin Valley* (Recovery Plan) (USFWS 1998) also maps the northern portion of the Plan Area as "Proposed areas where connectivity and linkages should be promoted," and the natural hills west of I-5 are likely used by native wildlife as a corridor along the foothills. Much of the foothill area west of I-5, along the edge of the Plan Area boundary, is mapped as "[a]reas along the valley's edges within which a contiguous band of natural lands and wildlife-compatible farmlands which should be maintained." Areas mapped as "Public Lands: Federal, State & Conservation lands (some lands unsuitable for species addressed in this plan)" also exist west of Interstate 5 along the edge of the Plan Area boundaries (USFWS 1998).

Avian Movement

Waterfowl Movements in the Vicinity of the Plan Area

Waterfowl migration occurs along the Pacific Flyway from as far as the eastern Siberia peninsula and across western North America to the Sacramento and San Joaquin valleys. Direct migration from California to Alaska across the Pacific Ocean also occurs. Migratory waterfowl move through the Central Valley from the Sacramento Valley to the Delta Region, to Suisun Marsh, the San Francisco Bay, the Grasslands Region, Mendota Wildlife Area, the Tulare Lakebed and Kern NWR. A small portion will continue to southern California and Mexico.

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Daily waterfowl movements have been documented primarily between wintering roosting areas to feeding areas. Common habitat use or feeding areas for wintering waterfowl in the Central Valley include but are not limited to: managed wetlands, pasture lands, alfalfa, idle croplands, corn, rice and protected lands (refugia) especially during the waterfowl hunting season. Wintering waterfowl will also use green winter wheat and barley sprout fields to feed. (See the Biological Evaluation in Appendix C of this document for a detailed summary of tracking data for waterfowl.)

Major ecological habitats that provide water areas for migratory waterfowl range from less than three miles to 40 miles from the Plan Area boundaries. The distances that waterfowl move at any given time are within distances between the regional habitat areas and the Plan Area boundaries. In addition, telemetry waterfowl movement studies demonstrate waterfowl use lands within the Plan Area and indicates there is a high probability waterfowl move into other interior areas, especially areas that have grains, alfalfa and irrigated pastures within the Plan Area.

Shorebird Movements in the Vicinity of the Plan Area

Pacific Flyway shorebird migration routes are similar to waterfowl routes described above. Shorebirds also have a major Pacific Ocean coastline migration route from California to Alaska and a larger proportion of shorebirds migrate to wintering grounds in Mexico and South America.

Shorebird habitat preferences include but are not limited to: flooded or irrigated agricultural croplands, rice, short grass pastureland, managed wetlands, ditches, sloughs, streams, farm ponds, reservoirs, sewage ponds and agricultural evaporation basins. Since 1998, the number and acreage of agricultural evaporation basins has decreased due to a change in crop patterns and irrigation techniques.

Major ecological habitats that provide water areas for migratory shorebirds range from less than three miles to 40 miles from the Plan Area boundaries. These shorebird movement distances are within distances between the regional habitat areas and the Plan Area boundaries. In addition, telemetry shorebird movement studies demonstrate shorebirds use lands within the Plan Area and indicate that there is a high probability that shorebirds move into other interior areas within the Plan Area. (See the Biological Evaluation in Appendix C for a detailed summary of tracking data for shorebirds.)

Other Migratory and Residential Avian Species in the San Joaquin Valley

It is estimated that there are 112 migratory landbird species in the Central Valley, including 89 species in the San Joaquin Basin and 91 species in the Tulare Basin. Examples of the most abundant species include, but are not limited to Wilson's warbler (*Cardellina pusilla*), tree swallow (*Tachycineta bicolor*), orange-crowned warblers (*Oreothlypis celata*), Lawrence's goldfinch (*Spinus lawrencei*), marsh wren (*Cistothorus palustris*), and black-throated gray warblers (*Setophaga nigrescens*). The San Joaquin and Mokelumne Rivers provide important habitats for migrant willow flycatchers (*Empidonax traillii*), orange-crowned warblers, yellow warblers (*Setophaga petechia*), and Wilson's Warblers.

Mourning doves are commonly found in open woodlands, grasslands, croplands, deserts croplands, pastures, native grasslands, open chaparral, open hardwood, hardwood-conifer, riparian, and low-elevation conifer habitats. The mourning dove is a resident and migratory bird in California and is very common in the San Joaquin Valley. Doves require a nearby water source and feed on seeds of cereal grains, forbs, and grasses.

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The Central Valley supports more than 90 percent of the breeding tricolored blackbird (*Agelaius tricolor*) populations and more than 99 percent of the global population are found in the state. Most of the largest colonies are in the San Joaquin Valley. Tricolored blackbirds are listed as State Threatened and are primarily a California resident bird, but a small portion of the population migrates to the Central Valley from northern states. Nesting preference is in cattail (*Typha* sp.) and tule (*Scirpus* sp.) stands. Other minor nesting habitats include willows (*Salix* sp.), Himalayan berries (*Rubus discolor*), thistles (*Cirsium* and *Centaurea* spp.), and nettles (*Urtica* sp.). Because of loss of native nesting habitat, Tricolor Blackbirds have moved into silage, alfalfa, and grain fields for nesting. Tricolor feeding areas include native grasslands, irrigated pastures, dry seasonal pools, seasonal wetlands, riparian scrub habitats, open marsh borders, agriculture fields, such as cereal grains and alfalfa which are continuously mowed, rice fields, feedlots and dairies.

The Central Valley is a major breeding area for the state-listed migratory Swainson's hawk (*Buteo swainsoni*). Swainson's hawks migrate up and down the Central Valley and winter in South America. Swainson's hawks preferred nesting trees include valley oaks (*Quercus lobata*), Fremont's cottonwood (*Populus fremontii*), willows (*Salix* spp.), walnut (*Juglans* spp.), sycamore (*Platanus* sp.), eucalyptus (*Eucalyptus* spp.), redwoods (*Sequoia sempervivens*), conifers, and riparian forest zones. Concentrated nesting Swainson's hawks have been observed within the vicinity of Mendota Wildlife Area along the Kings River/Fresno Slough riparian corridor. Swainson's hawks preferred foraging areas include native grasslands, irrigated pasture, alfalfa and harvested grain fields. Large flocks of spring migrating Swainson's hawks have been observed in the San Joaquin Valley following moving agricultural discs after the grain has been harvested, as the heavy equipment flushes out insects and rodents for the hawks to feed on.

Similar to waterfowl and shorebirds, research shows that white-faced Ibis (*Plegadis chihi*) uses the wastewater evaporation basin for NAS Lemoore in Kings County outside the Plan Area, and also two points in the northeast corner of the Plan Area. Other long-legged waders in the San Joaquin Valley include the great egret (*Ardea alba*), snowy egret (*Egretta thula*), cattle egret (*Bubulcus ibis*), black-crowned night heron (*Nycticorax nycticorax*), great blue heron (*Ardea herodias*), and green heron (*Butorides virescens*). Long-legged waders prefer wetlands but will feed in agricultural areas such as irrigated crops (grains, alfalfa, pastures) and irrigation canals. Nesting habitat preferences include dense cattail or tule stands, trees, and wooded riparian zones.

The above-mentioned resident and migratory birds are examples of species that could potentially use lands within the Plan Area. Site environmental reviews of potential VCIP projects would provide a more detailed list of all potential avian species that could be affected by future specific projects within the Plan Area.

Special-Status Plants and Animals

Several species of plants and animals in California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 4.4.2. *Regulatory Context* below, state and federal laws have provided CDFW and the USFWS with mechanisms for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. {AM0010.1}

Others have been designated as candidates for such listing. Still others have been designated as “species of special concern” by CDFW. The CNPS has developed its own set of lists of native plants considered rare, threatened, or endangered, and this listing is sanctioned by CDFW. Collectively, these plants and animals are referred to as “special-status species.”

Several special-status plants and animals occur in the vicinity of the Plan Area. A search of published accounts for all relevant special-status plant and animal species was conducted for the Plan Area using the California Natural Diversity Data Base Rarefind 5 (CDFW 2024). These species, and their potential to occur in the Plan Area, are listed in Table 4.4-2 on the following pages.

**TABLE 4.4-2
SPECIAL-STATUS SPECIES THAT COULD OCCUR IN THE VICINITY OF THE VCIP PLAN AREA**

PLANTS (adapted from <i>Species Listed as Threatened</i>)	CDFW or	2024 and CNPS 2024) <i>Endangered under the State</i>	<i>and/or Federal Endangered Species Act</i>
Species	Status	Habitat	*Occurrence in the Plan Area
California jewel-flower (<i>Caulanthus californicus</i>)	FE, CE, CRPR 1B	<u>Habitat</u> : Chenopod scrub, valley and foothill grassland, pinyon-juniper woodland. <u>Elevation</u> : 65-1860 meters. <u>Blooms</u> : February–May.	Possible. The California jewel-flower was documented in the Plan Area near Huron, CA in 1893, but is considered extirpated from this location due to agriculture and development. The closest recent observations of California jewel-flower are located at least 5.5 miles southwest of the Plan Area in the foothills of the Southern Coastal Range (CDFW 2024). Open/natural lands of the Plan Area west of I-5 provide potentially suitable habitat for this species.
San Joaquin woolly threads (<i>Monolopia congdonii</i>)	FT, CRPR 1B	<u>Habitat</u> : Chenopod scrub, valley and foothill grassland in alkaline or loamy plains, and in sandy soils. <u>Elevation</u> : 55-840 meters. <u>Blooms</u> : February-May.	Present. Over 100 individuals of this species were documented within open/natural lands in the southwestern end of the Plan Area associated with Los Gatos Creek in 2016 (CDFW 2024). All open/natural lands of the Plan Area provide potential habitat for this species.
PLANTS (adapted from CDFW <i>Species Listed by CNPS</i>)	2024 and	CNPS2024)	
Species	Status	Habitat	*Occurrence in the Plan Area
Lost Hills Crownscale (<i>Atriplex coronata vallicola</i>)	CRPR 1B	<u>Habitat</u> : Occurs in powdery, alkaline, and vernal moist soils within chenopod scrub, valley and foothill grassland; usually in wetlands and vernal pool habitat and often associated with <i>Frankenia</i> , <i>Atriplex</i> spp., and <i>Distichlis</i> . <u>Elevation</u> : 45-885 meters <u>Blooms</u> : April to September	Possible. The Lost Hills crownscale has been documented as recently as 2024 (CDFW) one and a half miles outside the Plan Area within the lower foothills of the Coast Range. Potentially suitable habitat for this species is present in both open/natural lands of the Plan Area with alkaline soils and water/wetlands with alkaline soils.

*See end of table for explanation of Occurrence Designations and Status Codes.

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TABLE 4.4-2 (CONT'D)

SPECIAL-STATUS SPECIES THAT COULD OCCUR IN THE VCIP PLAN AREA AND VICINITY

PLANTS (adapted from CDFW 2024 and CNPS2024) <i>Species Listed by CNPS</i>			
Species	Status	Habitat	*Occurrence in the Plan Area
Hall's tarplant (<i>Deinandra halliana</i>)	CRPR 1B	<u>Habitat</u> : Occurs in cismontane woodland, chenopod scrub, and valley and foothill grassland. Occurs in a variety of soils, including clay, sand, and alkaline soils. <u>Elevation</u> : 155-975 meters <u>Blooms</u> : April to May	Present. This species was documented in the western portion of the Plan Area in 1988 along a creek and is presumed extant (currently existing) in that location (CDFW 2024). Potentially suitable habitat for this species occurs in open/natural lands of the Plan Area.
Recurved larkspur (<i>Delphinium recurvatum</i>)	CRPR 1B	<u>Habitat</u> : Occurs in alkaline soils of valley saltbush or valley chenopod scrub, valley and foothill grassland, and cismontane woodland. <u>Elevation</u> : 3-790 meters <u>Blooms</u> : March to June	Possible. This species has been historically documented within what is now agricultural land on the Plan Area near Five Points (CDFW 2024). Open/natural lands of the Plan Area with alkaline soils provide potential habitat for this species.
Hoover's eriastrum (<i>Eriastrum hooveri</i>)	CRPR 4	<u>Habitat</u> : Occurs in chenopod scrub, valley and foothill grassland, and pinyon and juniper woodlands. Found on sparsely vegetated alkaline alluvial fans. Also found in the Temblor Range on sandy soils. <u>Elevation</u> : 50-915 meters <u>Blooms</u> : March-July	Possible. Although Hoover's eriastrum has not been documented within the Plan Area, it was observed in 2024 approximately 0.37 miles west of the Plan Area (CDFW 2024). Potentially suitable habitat for this species is present in open/natural lands and water/wetlands within the Plan Area.
Alkali-sink goldfields (<i>Lasthenia chrysantha</i>)	CRPR 1B	<u>Habitat</u> : Occurs in vernal pools. <u>Elevation</u> : 0-200 meters <u>Blooms</u> : February-April	Present. This species was documented within the southern section of the Plan Area in 1992 along a river terrace west of I-5, where it is presumed extant (CDFW 2024). In 2004, alkali-sink goldfields were documented approximately 2.75 miles east of the Plan Area in the Alkali sink Ecological Reserve (CDFW 2024). Open/natural lands of the Plan Area containing vernal pools or other seasonal wetland features provide potentially suitable habitat for this species.
Munz's tidy-tips (<i>Layia munzii</i>)	CRPR 1B	<u>Habitat</u> : Occurs in chenopod scrub, and valley and foothill grassland. Occurs on hillsides in white-grey alkaline clay soils, with grasses and chenopod scrub associates. <u>Elevation</u> : 45-765 meters <u>Blooms</u> : March-April	Possible. This species has been historically documented at several locations within the Plan Area at locations which no longer appear to support suitable habitat for this species (CDFW 2024). Open/natural lands of the Plan Area containing alkaline clay soils provide potentially suitable habitat for this species.

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TABLE 4.4-2 (CONT'D)

SPECIAL-STATUS SPECIES THAT COULD OCCUR IN THE VCIP PLAN AREA AND VICINITY

PLANTS (adapted from CDFW 2024 and CNPS2024) <i>Species Listed by CNPS</i>			
Species	Status	Habitat	*Occurrence in the Plan Area
Panoche pepper-grass (<i>Lepidium jaredii</i> ssp. <i>Album</i>)	CRPR 1B	<u>Habitat</u> : Occurs in valley and foothill grasslands, often in alluvial fans and washes. Found on white or grey clay lenses on steep slopes, in clay and gypsum-rich soils. <u>Elevation</u> : 65-1005 meters <u>Blooms</u> : February-June	Present. This species has been documented in wetland and grassland habitats within the northern end of the Plan Area as recently as 2015 between I-5 and the California Aqueduct and is presumed extant in this location (CDFW 2024). Open/natural lands and natural water/wetlands of the Plan Area provide potentially suitable habitat for this species.
Showy golden madia (<i>Madia radiata</i>)	CRPR 1B	<u>Habitat</u> : Occurs in valley and foothill grassland, and cismontane woodland. Mostly found on adobe clay, in grassland or among shrubs. <u>Elevation</u> : 75-1220 meters <u>Blooms</u> : March-May	Present. A historical occurrence of showy golden madia was documented in the Plan Area in a stream bed near I-5 in 1988 where it is presumed extant. This species has been observed approximately 1.6 miles from the Plan Area as recently as 2016 in the foothills of the Southern Coastal Range (Calflora 2024). Potentially suitable habitat for showy golden madia is present only in open/natural lands and water/wetlands on the western side of the Plan, primarily west of I-5.
Indian Valley bush-mallow (<i>Malacothamnus aboriginum</i>)	CNPS 1B	<u>Habitat</u> : Occurs on granitic outcrops and sandy bare soil, often in disturbed or burned areas in cismontane woodland, and chaparral. <u>Elevation</u> : 150-1130 meters <u>Blooms</u> : April-October	Present. This species was documented within the Plan Area south of the Highway 33 and I-5 intersection along a creek in 1998 and is presumed extant in this location (CDFW 2024). Potentially suitable habitat for Indian Valley bush-mallow is present in open/natural lands and water/wetlands on the western edge of the Plan Area as well as ruderal/developed lands.

ANIMALS (adapted from CDFW 2024 and CNPS 2024) <i>Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act</i>			
Species	Status	Habitat	*Occurrence in the Plan area
Longhorn fairy shrimp (<i>Branchinecta longiantenna</i>)	FE	Occurs in seasonal wetlands and vernal pools of California.	Possible. Longhorn fairy shrimp were documented within the Plan Area as recently as 2009 in vernal pools within alkali sinks and California annual grassland on the eastern edge of the Plan Area, south of Highway 180 and east of Highway 33 (CDFW 2024). Potentially suitable habitat for longhorn fairy shrimp in the form of vernal pools is present in the Plan Area.

*See end of table for explanation of Occurrence Designations and Status Codes.

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TABLE 4.4-2 (CONT'D)
SPECIAL-STATUS SPECIES THAT COULD OCCUR IN THE VCIP PLAN AREA AND VICINITY

ANIMALS (adapted from Species Listed as Threatened)	CDFW or	2024 and CNPS 2024) Endangered under the State	and/or Federal Endangered Species Act
Species	Status	Habitat	*Occurrence in the Plan Area
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Lives in mature elderberry shrubs of California’s Central Valley and Sierra Foothills.	Absent. The USFWS does not consider Fresno County as currently being within this species’ range.
Crotch’s bumble bee (<i>Bombus crotchii</i>)	CC	In California, in open grassland and scrub habitats of the southern two-thirds of California. Historically in, but largely extirpated from, the Central Valley. Flight period for queens is late February to late October peaking in April and July. Flight period for males and workers is March through September peaking in early July. Constructs nests underground in animal burrows. Overwintering sites are likely in soft soils or in debris or leaf litter.	Possible. Crotch’s bumblebee was last observed within the Plan Area in 1971 near the City of Huron, CA (CDFW 2024). Potentially suitable habitat for foraging and nesting is present in open/natural lands and could occur in fallow/idle cropland.
California tiger salamander (<i>Ambystoma californiense</i>)	FT, CT	Breeds in vernal pools and stock ponds of central California; adults aestivate in grassland habitats adjacent to the breeding sites.	Absent. No historical or current records of this species are known within the region. Intensively cultivated lands provide unsuitable habitat for this species.
Western spadefoot toad (<i>Spea hammondi</i>)	CSC, FC	Primarily occurs in grasslands, but also occurs in valley and foothill hardwood woodlands. Requires vernal pools or other temporary wetlands for breeding.	Present. This species has been documented in the Plan Area as recently as 2011 in a retention basin in the north-central portion of the Plan Area, within the Levis quadrangle. Five occurrences of Western spadefoot toad were also documented within the south-central portion of the Plan Area, near the City of Huron, between the years of 2001 to 2003 (CDFW 2024). Temporary wetlands required for breeding are present in the Plan Area, including retention basins and irrigation ponds. Terrestrial habitat required for estivation (dormancy during hot and dry season) is present in non-agricultural fields and orchards.

*See end of table for explanation of Occurrence Designations and Status Codes.

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TABLE 4.4-2 (CONT'D)
SPECIAL-STATUS SPECIES THAT COULD OCCUR IN THE VCIP PLAN AREA AND VICINITY

ANIMALS (adapted from Species Listed as Threatened)	CDFW or	2024 and CNPS 2024) Endangered under the State	and/or Federal Endangered Species Act
Species	Status	Habitat	*Occurrence in the Plan Area
Giant garter snake (<i>Thamnophis gigas</i>)	FT, CT	Habitat requirements consist of (1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for cover and refuge from flood waters during the snake's dormant season in the winter.	Unlikely. Giant garter snake eDNA was detected in 2016 or 2017 near the Plan Area in the Mendota Dam quadrangle (the most southern known range of this species) (CDFW 2024). Potentially suitable habitats for this species are limited to suitable streams and canals in the Mendota Dam quadrangle outside the Plan Area.
Northwestern pond turtle (<i>Actinemys marmorata</i>)	FC	Intermittent and permanent waterways including streams, marshes, rivers, ponds and lakes.	Possible. The northwestern pond turtle has not been documented within the Plan Area. However, this species was documented approximately 3 miles east of the Plan Area in the Fresno Slough with tule and cattails in 2001 (CDFW 2024). Marginal habitat, in the form of canals and associated ponds exist within the Plan Area. These areas could provide marginal habitat for estivation and breeding.
Temblor legless lizard (<i>Anniella alexanderae</i>)	CC	The Temblor legless lizard (previously called silvery legless lizard) occurs mostly underground in warm moist areas with loose soil and substrate and is known only from two sites west of Highway 33 at the base of the Temblor Range between McKittrick and Taft in Kern County.	Absent. The Plan Area is outside of the known range of the Temblor legless lizard.

*See end of table for explanation of Occurrence Designations and Status Codes.

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TABLE 4.4-2 (CONT'D)
SPECIAL-STATUS SPECIES THAT COULD OCCUR IN THE VCIP PLAN AREA AND VICINITY

ANIMALS (adapted from <i>Species Listed as Threatened</i>)	CDFW or	2024 and CNPS 2024) <i>Endangered under the State</i>	<i>and/or Federal Endangered Species Act</i>
Species	Status	Habitat	*Occurrence in the Plan Area
Blunt-nosed leopard lizard (<i>Gambelia silus</i>)	FE, CE, CP	Frequents grasslands, alkali meadows and chenopod scrub of the San Joaquin Valley from Merced south to Kern County.	Possible/Unlikely. The blunt-nosed leopard lizard (BNLL) was last documented in the vicinity of the Plan Area in 1993 in areas west of I-5, including the Panoche Hills and the Pleasant Valley Ecological Preserve in habitats including riparian corridors, valley annual grasslands, and saltbush scrub with grasses. Outside of the Plan Area, the BNLL was last documented in disturbed non-native grassland less than a quarter mile west of the Plan Area in 2008 approximately 3 miles east of the intersection of Lost Hills Road and West Firestone Avenue (CDFW 2024). Potentially suitable habitat for this species is limited in the Plan Area, with the only potentially suitable habitat occurring in open/natural lands. The BNLL is unlikely to occur east of I-5 where habitats required by the blunt-nosed leopard lizard have been highly disturbed or eliminated as a result of agricultural activities, mainly regular discing.
Swainson's hawk (<i>Buteo swainsoni</i>)	CT	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	Present. Swainson's hawks were observed foraging over agricultural fields of the Plan Area during the 2024 survey. Foraging and nesting habitat is available throughout the Plan Area. Riparian habitat and lone trees suitable for nesting occur throughout the Plan Area.
Burrowing owl (<i>Athene cunicularia</i>)	CC, CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	Present. There are 17 documented records of burrowing owls within the Plan Area, with the most recent from 2016 (CDFW 2024). Foraging and nesting habitat in the form of ground squirrel burrows, other burrows, and culverts exists in the Plan Area. Burrowing owls will nest in fallow/idle cropland, open/natural lands, along banks of any canals, irrigation ditches, or streams, and the margins of farm access roads. Ground squirrel burrows were observed along canals and the California Aqueduct during the 2024 field survey. Burrowing owls will forage throughout the Plan Area in alfalfa or other hay and row crops but are less likely to nest in those areas.

*See end of table for explanation of Occurrence Designations and Status Codes.

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TABLE 4.4-2 (CONT'D)
SPECIAL-STATUS SPECIES THAT COULD OCCUR IN THE VCIP PLAN AREA AND VICINITY

ANIMALS (adapted from Species Listed as Threatened)	CDFW or	2024 and CNPS 2024) Endangered under the State	and/or Federal Endangered Species Act
Species	Status	Habitat	*Occurrence in the Plan Area
Tricolored blackbird (<i>Agelaius tricolor</i>)	CSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets (wheat fields and Himalayan blackberry). Forages in grassland and cropland habitats.	Possible. The most recently documented occurrence of the tricolored blackbird within the Plan Area was in 1997 in the northwestern portion of the Plan Area where 1,000 non-nesting birds were observed. In 1994, 200-600 presumed nesting birds were observed among cattails in the northwestern portion of the Plan Area. The most recent occurrence within a five-mile buffer of the Plan Area was documented in 2014 approximately 4.7 miles southwest of the Plan Area in a small pond with cottonwoods and has been a known breeding site since 1992 (CDFW 2024). Therefore, potentially suitable foraging and minimal breeding habitat occurs within the Plan Area, with breeding habitat being limited to wheat fields, cattails, tules, and other thick vegetation appropriate for the species.
San Joaquin antelope squirrel (<i>Ammospermophilus nelsoni</i>)	CT	Frequents open shrublands and annual grassland habitats in central and western San Joaquin Valley and nearby Inner Coast Ranges to the west of the valley.	Possible. The most recently documented occurrence of San Joaquin antelope squirrel within the Plan Area was in 1944 approximately nine miles east of Coalinga, and the most recent documented occurrence within a five-mile radius of the Plan Area was in 2017 approximately 1.73 miles west of Plan Area on east side of the Ciervo Hills (CDFW 2024). Habitats required by San Joaquin antelope squirrel are highly restricted in Plan Area. Potentially suitable habitats occur in open/natural lands west of I-5 and may also occur east of I-5 in open/natural lands.
Giant kangaroo rat (<i>Dipodomys ingens</i>)	FE, CE	Inhabits grasslands on gentle slopes generally less than 10°, with friable, sandy-loam soils.	Possible/Unlikely. The most recently documented occurrences of the giant kangaroo rat within the Plan Area as in 1992 west of I-5 where colonies were observed at the base of the foothills of the Inner Coastal Range over several miles. The most recently documented occurrence within a five-mile radius of the Plan Area occurred approximately 2.5 miles west of the Plan Area, on the north end of the Tumey Hills (CDFW 2024). Habitat required by giant kangaroo rats is marginal within the Plan Area. This species is most likely to occur in open/natural lands west of I-5. Habitat for the giant kangaroo rat is unlikely to occur in the open/natural lands east of I-5 within the Plan Area.

*See end of table for explanation of Occurrence Designations and Status Codes.

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TABLE 4.4-2 (CONT'D)
SPECIAL-STATUS SPECIES THAT COULD OCCUR IN THE VCIP PLAN AREA AND VICINITY

ANIMALS (adapted from <i>Species Listed as Threatened</i>)	CDFW or	2024 and CNPS 2024) <i>Endangered under the State</i>	<i>and/or Federal Endangered Species Act</i>
Species	Status	Habitat	*Occurrence in the Plan Area
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE, CT	Frequents desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats. Utilizes enlarged (4 to 10 inches in diameter) ground squirrel burrows as denning habitat.	Possible. There have been few to no recorded observations of the San Joaquin kit fox in the last 25 to 30 years within the Plan Area. The most recent documented observation within the Plan Area occurred in 1997 in the northern portion of the Plan Area and west of the California Aqueduct. This individual was observed foraging in a canal near a recently cultivated field and agricultural lands. Outside of the Plan Area, but within a five-mile radius, four individuals and a den were documented approximately 4.5 miles west of the Plan Area in the Coalinga quadrangle in 2002 (CDFW 2024). The San Joaquin kit fox may occasionally forage on or disperse through the Plan Area. However, denning habitat within the Plan Area is limited and restricted to open/natural lands and fallow/idle croplands due to the common use of intensive farming practices in the region.
Fresno kangaroo rat (<i>Dipodomys nitratoides exilis</i>)	FE, CE	Inhabits grassland on gentle slopes generally less than 10°, with friable, sandy-loam soils.	Absent. This species has not been documented within the Plan Area. The most recent occurrence of the Fresno kangaroo rat within a five-mile radius of the Plan Area was in 2003 approximately 3.87 miles east of the Plan Area in the Alkali Sink Ecological Reserve (CDFW 2024). Habitats required by this species are absent from the Plan Area due to intensive agricultural developments, urbanization, and transportation infrastructure.
Tipton kangaroo rat (<i>Dipodomys nitratoides nitratoides</i>)	FE, CE	Inhabits arid land with grassland or salt scrub on level or near-level terrain on the San Joaquin Valley floor with alluvial fan and floodplain soils.	Absent. The most recently documented occurrence of the Tipton kangaroo rat in the vicinity of the Plan Area was in 2008, approximately four miles east of Lemoore Station in alkali scrub habitat in Kings County (CDFW 2024). This species only occurs east of the CA Aqueduct. Suitable habitat within the species range does not occur in the Plan Area.
Ringtail (<i>Bassariscus astutus</i>)	CP	Riparian and heavily wooded habitats near water.	Absent. Habitat for this species is absent from the Plan Area.

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TABLE 4.4-2 (CONT'D)

SPECIAL-STATUS SPECIES THAT COULD OCCUR IN THE WSP VICINITY

ANIMALS (adapted from CDFW 2024 and CNPS 2024) <i>Species of Special Concern</i>			
Species	Status	Habitat	*Occurrence in the Plan area
San Joaquin coachwhip (<i>Masticophis flagellum ruddocki</i>)	CSC	Chenopod scrub Valley & foothill grassland; Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and oviposition sites.	Possible. Marginally suitable grassland habitat for the San Joaquin coachwhip is present in open/natural lands within the Plan Area.
California glossy snake (<i>Arizona elegans occidentalis</i>)	CSC	Occurs in arid areas with grassland, scrub, chaparral, and rocky washes. This species is nocturnal and spends the day in burrows.	Possible. Potentially suitable habitat for the California glossy snake is present in the Plan Area in both open/natural lands and fallow/idle croplands with wild grassland habitat.
Northern harrier (<i>Circus cyaneus</i>)	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.	Present. Northern harriers were observed foraging over agricultural fields of the Plan Area during the 2024 survey. This species is known to nest and roost on the ground in grasslands and agricultural fields, and may occur within the Plan Area in alfalfa, fallow/idle croplands, row crops such as wheat, and open/natural lands.
Mountain plover (<i>Charadrius montanus</i>)	CSC	Forages in short grasslands and freshly plowed fields of the Central Valley.	Possible. The mountain plover has not been observed within the Plan Area. However, 60 wintering mountain plovers were documented in a barren fallow field surrounded by agricultural land within five miles of the northern end of the Plan Area in 2004 (CDFW 2024). The Plan Area provides suitable winter foraging habitat for the mountain plover.
Short-eared owl (<i>Asio flammeus</i>)	CSC	Occur in wide open spaces including marshes, open shrublands, grassland, prairie, and agricultural field habitats, and need dense ground cover to conceal nests.	Possible. This species was last observed within the Plan Area between I-5 and the California Aqueduct in 1993. Two separate observations, each of a separate pair of adults, possibly nesting, occurred in cultivated fields of tall nonnative grassland (CDFW 2024). Short-eared owls may use the Plan Area for foraging, and possibly also for nesting.
Long-eared owl (<i>Asio otus</i>)	CSC	Occur on edge habitats including in clumps of trees or edges of open forests that are adjacent to grasslands, shrublands, wetlands, marshes, and farmlands. Need stick nests built by other birds in trees.	Possible. The most recent recorded observation of the long-eared owl within the Plan Area occurred in 2005 when an adult, possibly breeding, was observed in a grove of tall tamarisks west of I-5 near Phelps Avenue (CDFW 2024). Long-eared owls forage on the Plan Area and nest in trees along open fields.

*See end of table for explanation of Occurrence Designations and Status Codes.

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TABLE 4.4-2 (CONT'D)
SPECIAL-STATUS SPECIES THAT COULD OCCUR IN THE WSP VICINITY

ANIMALS (adapted from CDFW 2024 and CNPS 2024) <i>Species of Special Concern</i>			
Species	Status	Habitat	*Occurrence in the Plan area
Loggerhead shrike (<i>Lanius ludovicianus</i>)	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. Nests in tall shrubs and dense trees. Forages in grasslands, marshes, and ruderal habitats. Can often be found in cropland.	Present. Loggerhead shrikes were observed during the 2024 survey. Foraging and nesting habitat occurs in the Plan Area.
Le Conte's thrasher (<i>Toxostoma lecontei</i>)	CSC	Occurs in open desert scrub, alkali desert scrub, desert succulent scrub, and desert washes and flats habitats with saltbush. Needs tall robust saltbushes for nesting.	Unlikely. There is minimally suitable habitat for this species in the Plan Area.
Yellow-headed blackbird (<i>Xanthocephalus xanthocephalus</i>)	CSC	Occurs in freshwater marshes with cattails, tule, and bulrush during the summer and open, cultivated fields and pastures in the winter.	Possible. The yellow-headed blackbird was documented just south of the Plan Area in Kings County in 2016, in marsh vegetation along a large canal surrounded by active and fallow agricultural fields. This yellow-headed blackbird colony extended for one to two miles along the canal (CDFW 2024). Freshwater habitat is present in the Plan Area, providing foraging and possible breeding habitat for this species.
Pallid bat (<i>Antrozous pallidus</i>)	CSC	Occurs in grasslands, chaparral, woodlands, and forests; most common in dry rocky open areas providing roosting opportunities. Roost sites include caves, mines, rock crevices, and large cavities of trees.	Possible. There are no records for pallid bats within the Plan Area. However, this species is known to occasionally forage in agricultural fields. The pallid bat may roost in various human-made structures within the ruderal/developed lands of the Plan Area, as well as in cavities of mature oak trees and other potential tree cavities and structures which are present within the some of the habitats of the Plan Area.
Western mastiff bat (<i>Eumops perotis ssp. californicus</i>)	CSC	Frequents open, semi-arid to arid habitats, including conifer, and deciduous woodlands, coastal scrub, grasslands, palm oasis, chaparral and urban. Requires tall locations for roosting in cliff faces and high buildings.	Possible. The western mastiff bat may forage in the Plan Area, but suitable roosting habitat is absent from the Plan Area.

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TABLE 4.4-2 (CONT'D)
SPECIAL-STATUS SPECIES THAT COULD OCCUR IN THE WSP VICINITY

ANIMALS (adapted from <i>Species of Special Concern</i>)		CDFW	2024 and CNPS 2024)
Species	Status	Habitat	*Occurrence in the Plan area
Short-nosed kangaroo rat (<i>Dipodomys nitratoids brevinasus</i>)	CSC	Occurs in lighter, powdery soils such as the sandy bottoms and banks of arroyos and other sandy areas with slightly to highly saline soils on gently sloping and rolling low hill-tops with shrubs.	Possible/Unlikely. The short-nosed kangaroo rat was last seen in the Plan Area in 1999 on the west side of I-5 in nonnative grassland with scattered salt brush scrub (<i>Atriplex</i> sp.) along the edge of a creek where one adult male was caught and released. The most recent observation outside of the Plan Area but within a five-mile buffer, was seen just 0.39 miles south of the far western edge of the Plan Area in a willow and scrub community on the terraces of a creek surrounded by grassland and pasture, where three short-nosed kangaroo rats were salvage-trapped due to planned pipeline excavation. Habitats required by short-nosed kangaroo rats are present in the Plan Area and surrounding agricultural lands. Short-nosed kangaroo rats occur on the west side of the California Aqueduct.
Tulare grasshopper mouse (<i>Onychomys torridus</i>)	CSC	Arid shrubland communities in hot, arid grassland and scrub desert associations. These include blue oak woodlands at 450 meters (1476 feet); upper Sonoran subshrub scrub community; alkali sink and mesquite associations on the valley floor; and grasslands associations on the sloping margins of the San Joaquin Valley and Carrizo Plain region.	Unlikely. The most recent observation of the Tulare grasshopper mouse within the Plan Area occurred in 2019, along the western edge of Interstate-5 in salt brush scrub with sandy soils. Suitable shrubland habitat is marginal within the Plan Area.
American badger (<i>Taxidea taxus</i>)	CSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils.	Possible. The most recent occurrence of American badger within the Plan Area was in 2005 on the western edge of the Plan Area along a creek in allscale saltbrush (<i>Atriplex polycarpa</i>) and California annual grassland habitat alliances where one badger was photographed. Outside of the Plan Area but within a five-mile buffer, the American badger was most recently recorded approximately 4.5 miles northeast of the central eastern edge of the Plan Area in annual grasslands surrounded by agricultural land, where multiple badgers and dens were observed. Suitable habitat for the American badger is present in the Plan Area in open/natural lands and fallow/idle croplands.

*See end of table for explanation of Occurrence Designations and Status Codes.

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***Explanation of Occurrence Designations and Status Codes**

Present: Species observed within the plan area at time of field surveys or during recent past.

Likely: Species not observed within the plan area, but it may reasonably be expected to occur there on a regular basis.

Possible: Species not observed within the plan area, but it could occur there from time to time.

Unlikely: Species not observed within the plan area, and would not be expected to occur there except, perhaps, as a transient.

Absent: Species not observed within the plan area, and precluded from occurring there because habitat requirements not met.

***Explanation of Occurrence Designations and Status Codes (Continued)**

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CR	California Rare
FC	Federal Candidate	CP	California Fully Protected
		CSC	California Species of Special Concern

CNPS California Native Plant Society Listing

- 1A Plants Presumed Extinct in California
- 1B Plants Rare, Threatened, or Endangered in California and elsewhere
- 2 Plants Rare, Threatened, or Endangered in California, but more common elsewhere
- 3 Plants about which more information is needed – a review list
- 4 Plants of limited distribution – a watch list

Endangered, Threatened, or Special-Status Animal Species Meriting Further Discussion

The species below are species that either: 1) have protected status as a Candidate species under the California Endangered Species Act while CDFW decides whether the petitioned listings may be warranted, and are therefore somewhat new to their inclusion in the threatened/ endangered discussion; or 2) they have special considerations, such as large ranges or they are a regionally important species.

Crotch's Bumble Bee

Federal Listing Status: None; *State Listing Status:* Candidate as Endangered under California Endangered Species Act. While this species is being evaluated for listing under the federal Endangered Species Act, it is treated as a federally Threatened species.

Legal status. The Xerces Society, Center for Biological Diversity and Center for Food Safety petitioned the California Fish and Game Commission to list the Crotch's bumble bee as Endangered under the California Endangered Species Act (CESA). The Commission voted to advance it to candidacy in 2019. The California Court of Appeal upheld the Commission's 2019 decision, and the California Supreme

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Court declined to review the case. On September 30, 2022, the Commission reinstated the Crotch's bumble bee as a candidate under CESA, meaning they receive the same legal protection afforded to endangered or threatened species (CDFW 2022).

Life history and ecology. In California, this species inhabits open grassland and scrub habitats of the southern two-thirds of California. It has been historically found in, but is now largely extirpated from, the Central Valley. Flight period for queens is late February to late October peaking in April and July; flight period for males and workers is March through September peaking in early July. This species constructs nests underground in animal burrows. Overwintering sites are likely in soft soils or in debris or leaf litter.

Potential to occur within the Plan Area. Crotch's bumblebee was last observed within the Plan Area in 1971 near the City of Huron (CDFW 2024). Potentially suitable habitat for foraging and nesting is present in open/natural lands and could occur in fallow/idle cropland.

Northwestern Pond Turtle

Federal Listing Status: Proposed Threatened; *State Listing Status:* Species of Special Concern. While this species is being evaluated for listing, it is treated as a federally Threatened species.

Life History and Ecology. The northwestern pond turtle is the only native freshwater turtle in California and normally associates with permanent or nearly permanent aquatic habitats, including streams, lakes, and ponds. Historically, this species occurred in Pacific Coast drainages from Washington to Mexico. This species occurs in aquatic habitats with: 1) basking sites such as rocks and logs; 2) dense stands of submergent or emergent vegetation; 3) abundant aquatic invertebrate resources; 4) suitable nearby nesting sites; and 5) the lack of native and exotic predators. This species can move along streams up to 3.1 miles in a short period of time, and they can tolerate at least seven days without water.

Potential to Occur within the Plan Area. Although the northwestern pond turtle has not been documented within the Plan Area, it has been documented approximately three miles east of the Plan Area in the Fresno Slough with tule and cattails in 2001. As such, there is a potential for northwestern pond turtle to occur in portions of the Plan Area containing perennial or near perennial waters, including canals and ponds.

Blunt-Nosed Leopard Lizard

Federal Listing Status: Endangered; *State Listing Status:* Endangered; California Protected.

In addition to being listed as state and federally endangered, the blunt-nosed leopard lizard (BNLL) is one of fewer than 40 species that has a "fully protected" status through provisions of the California State Fish & Game Code. The CDFW cannot issue a "take" permit for fully protected species, and most projects with fully protected species are required to completely avoid direct "take" of the species. However, pursuant to SB 147, effective July 10, 2023, an exception was passed for wind and solar projects, which allows CDFW to issue a "take" permit for fully protected species through December 31, 2033. (Fish & Game Code, section 2081.15(b)(4)-(5)). In this instance, "take" refers to direct harm, injury, or killing of an individual, not to habitat modifications (Fish & Game Code, section 86; *cf.* federal ESA as discussed below).

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Life History and Ecology. The blunt-nosed leopard lizard is a large, long-lived lizard with short, blunt snout and pale crossbars on its back and tail. It inhabits sparsely vegetated plains, alkali flats, low foothills, grasslands, canyon floors, large river washes, and arroyos. These opportunistic foragers feed primarily on insects, particularly grasshoppers, crickets, moths, and other lizards, and occasionally plant material.

The species was originally found throughout the San Joaquin Valley and adjacent foothills, from San Joaquin County south to eastern San Luis Obispo County. Its distribution has been reduced by conversion of habitat to cropland. The blunt-nosed leopard lizard now occurs in scattered locations in the valley and in the eastern portions of the Coast Ranges, including the Antelope and Carrizo Plains and Cuyama Valley.

Potential to Occur within the Plan Area. There are a total of 11 records of the blunt-nosed leopard lizard occurring within the Plan Area with the last documented records from 1993 in areas west of I-5, including the Panoche Hills and the Pleasant Valley Ecological Preserve. Multiple historical and museum records also exist in the Plan Area with all but two records being west of I-5 in habitats including riparian corridors, valley annual grasslands, and saltbush scrub with grasses. Outside of the Plan Area but in the vicinity of the Plan Area, the BNLL was last documented in disturbed non-native grassland less than a quarter mile west of the Plan Area in 2008 approximately 3 miles east of the intersection of Lost Hills Road and West Firestone Avenue.

Given the decades of ground disturbance that has occurred in the Plan Area from agricultural use, the Plan Area provides no habitat in cultivated fields and provides extremely marginal habitat in fallowed areas of the Plan Area east of I-5. Therefore, it would be extremely unlikely that BNLL would occur within the Plan Area, except within potentially suitable habitat in open/natural lands west of I-5.

Swainson's Hawk

Federal Listing Status: None; *State Listing Status:* Threatened.

The Swainson's hawk is designated as a California Threatened species. The loss of agricultural lands (i.e., foraging habitat) to urban development and additional threats such as riverbank protection projects have contributed to its decline.

Life History and Ecology. Swainson's hawks are large, broad-winged, broad-tailed hawks. Male and female Swainson's hawks have similar body types, with a length generally between 17 and 22 inches and a wingspan between 47 and 57 inches. They weigh up to 2.5 pounds.

Swainson's hawks have a high degree of mate and territorial fidelity. They arrive at their nesting sites in March or April, and build a nest which is likely to be a three- to four-foot diameter stick nest constructed in a tree, and can take up to two weeks to complete. In the Central Valley, Swainson's hawks typically nest in large trees in or peripherally to riparian systems adjacent to suitable foraging habitats. Other suitable nest sites include lone trees, groves of trees such as oaks, other trees in agricultural fields, and mature roadside trees. The female will lay and incubate two to four eggs for approximately 28 to 35 days. The male helps with incubation when the female leaves the nest to feed. The young hatch sometime between March and July and do not leave the nest until some 4 to 6 weeks later. Swainson's

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hawks forage in large, open fields with abundant prey, including grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands.

Potential to Occur within the Plan Area. Swainson's hawks are known to forage within the Plan Area and surrounding region. The trees along the San Joaquin River, Delta-Mendota Canal, Fresno Slough, Kings River just outside the Plan Area as well as other riparian habitat, other groupings of trees, and lone trees throughout the Plan Area and vicinity of the Plan Area provide potentially suitable nesting habitat for the Swainson's hawk. Swainson's hawks were observed foraging over agricultural fields of the Plan Area during LOA's 2024 survey. Foraging and nesting habitat is available throughout the Plan Area. Riparian habitat and lone trees suitable for nesting occur throughout the Plan Area and the fallow and agricultural lands within the Plan Area provide suitable foraging habitat.

In summary, Swainson's hawks are present within the Plan Area and likely forage within the Plan Area throughout the months of March through September and may possibly nest in trees within and outside the Plan Area.

Burrowing Owl

Federal Listing Status: None; *State Listing Status:* Candidate Species for listing as State Endangered or State Threatened.

On October 9, 2024, the burrowing owl was designated as a Candidate Species for state listing as threatened or endangered. This designation was based on the species' declining population within the state over the past 40 years, and until such time that the Fish and Game Commission reaches a final decision, the species is treated as listed by the state. The population decline is mainly due to habitat destruction resulting from development and agricultural practices (CDFW 2024a, 2024b).

Life History and Ecology. The burrowing owl is a small, long-legged bird with an average height of 9.5 inches, an average wingspan of 23 inches, and average weight of 5.25 ounces. Burrowing owls are unique in that they are the only owl that regularly lives and breeds in underground nests. In California, these birds typically occur in the Central and Imperial Valleys, primarily utilizing ground squirrel burrows (or the burrows of other animals, e.g., badgers, prairie dogs and kangaroo rats) found in grasslands, open shrub lands, deserts, and, to a lesser extent, grazed and agricultural lands. Burrowing owls in San Joaquin Valley are typically found at elevations below 250 feet and exhibit strong site fidelity. Pairs have been known to return to the same area year after year, and sometimes utilize the same burrow as the previous year. Burrowing owls are colonially nesting raptors, and colony size is indicative of habitat quality. It is not uncommon to find burrowing owls in developed and cultivated areas where California ground squirrels are active.

Burrowing owls feed on various small mammals including deer mice, voles, and rats. They also prey on various invertebrates including crickets, beetles, grasshoppers, spiders, centipedes, scorpions and crayfish. Peak hunting periods occur around dusk and dawn.

Potential to Occur within the Plan Area. There are 17 documented records of burrowing owls within the Plan Area, with the most recent from 2016. Foraging and nesting habitat in the form of ground squirrel burrows, other burrows, and culverts exist in the Plan Area. Ground squirrel burrows were observed along canals and the California Aqueduct during LOA's 2024 field survey. Burrowing owls will forage

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throughout the Plan Area in alfalfa or other hay and row crops but are less likely to nest in those areas. The Plan Area provides suitable habitat for this species in the form of California ground squirrel burrows and other burrows and culverts present in fallow/idle cropland, open/natural lands, along the banks of any canals, irrigation ditches, or streams, and the margins of farm access roads.

San Joaquin Antelope Squirrel

Federal Listing Status: None; *State Listing Status:* Threatened.

The San Joaquin Antelope Squirrel (SJAS) is listed as Threatened under CESA. The species does not have its own recovery plan but is included in the Recovery Plan of Upland Species of San Joaquin Valley, California (USFWS 1998).

Life history and ecology. The SJAS is one of five subspecies in the genus *Ammospermophilus*. This genus is generally confined to desert and arid steppe habitats and open shrubland communities in the southwest United States and portions of Mexico. Adults weigh between 130 and 170 grams. They have a fusiform shape typical of ground dwelling squirrels. They are buffy tan, have a light stripe on their sides, and have lighter fur on the ventor. They are much smaller than the California ground squirrel, and have a shorter, less bushy, flatter tail.

SJAS are found in arid annual grassland and shrublands and are numerous in areas with sparse to moderate cover of shrubs including saltbush, ephedra (*Ephedra* sp.), bladderpod (*Isomeris arborea*), golden bushes (*Isocoma* sp.), matchweed and others. SJAS are present but tend to sparsely inhabit shrubless areas. SJAS use shrubs and burrows to escape predators and escape the heat of the sun. They may for this reason be somewhat dependent on kangaroo rats whose burrows they may enlarge and takeover. The range of the giant kangaroo rat overlaps extensively with the SJAS, but microhabitats may differ. SJAS are also associated with friable (crumbly texture) soils.

SJAS breed in late winter and early spring. Young do not breed in the first year. Gestation is 26 days, and there are six to 11 embryos. Young are born in March and April and emerge from the burrow after 30 days. The young are weaned as early as late April to late May. These squirrels are generally omnivorous eating green vegetation, fungi, insects (primarily grasshoppers), and seeds (including filaree, brome, ephedra, and saltbush). SJAS are diurnal.

Potential to occur within the Plan Area. The most recently documented occurrence of the SJAS within the Plan Area was in 1944 approximately nine miles east of Coalinga, and the most recent documented occurrence within a five-mile radius of the Plan Area was in 2017 approximately 1.73 miles west of the Plan Area on the east side of the Ciervo Hills. Habitats required by the SJAS are highly restricted in the Plan Area. Potentially suitable habitats occur in open/natural lands west of I-5 and may also occur east of I-5 in open/natural lands. The Plan Area east of I-5 has been largely heavily managed for agricultural uses for decades with a limited amount of open/natural lands. Agricultural lands are not generally suitable for the SJAS.

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San Joaquin Kit Fox

Federal Listing Status: Endangered; *State Listing Status:* Threatened.

By the time the U.S. Fish and Wildlife Service listed it as an Endangered species under the Federal Endangered Species Act in 1967, the San Joaquin kit fox had been extirpated from much of its historic range. In 1971, the State of California listed the kit fox as a Threatened species, and in 1998 the USFWS adopted a final recovery plan area for the San Joaquin kit fox. Critical habitat has not been established for the San Joaquin kit fox.

Life History and Ecology. The San Joaquin kit fox, the smallest North American member of the dog family (Canidae), historically occupied the dry plains of the San Joaquin Valley, from San Joaquin County to southern Kern County. Local surveys, research projects, and incidental sightings indicate that kit foxes currently occupy available habitat on the San Joaquin Valley floor and in the surrounding foothills.

Kit foxes prefer habitats of open or low vegetation with loose soils. In the northern portion of their range, they occupy grazed grasslands and, to a lesser extent, valley oak woodlands. In the southern and central portion of the San Joaquin Valley, kit foxes are found in valley sink scrub, valley saltbrush scrub, upper Sonoran subshrub scrub, and annual grassland. Kit foxes may also be found in grazed grasslands, urban settings, and in areas adjacent to tilled or fallow fields.

Kit fox diets vary geographically, seasonally, and annually. In the central portion of their range, which includes lands around the Plan Area, known prey includes white-footed mice, insects, California ground squirrels, black-tailed hares, San Joaquin antelope squirrels, kangaroo rats, desert cottontails, and ground-nesting birds.

The kit fox requires underground dens to raise pups, regulate body temperature, and avoid predators and other adverse environmental conditions. In the central portion of their range, they usually occupy burrows excavated by small mammals, such as ground squirrels. Denning habitat consists of ground squirrel complexes in which some burrows have been enlarged to 4 to 6 inches in diameter for the length of approximately 2 feet.

Potential to Occur within the Plan Area. There have been little to no recorded observations of the San Joaquin kit fox in the last 25 to 30 years within the Plan Area. The most recent documented observation within the Plan Area occurred in 1997 in the northern portion of the Plan Area and west of the California Aqueduct. This individual was observed foraging in a canal near a recently cultivated field and agricultural lands. Outside of the Plan Area, but within a five-mile radius, four individuals and a den were documented approximately 4.5 miles west of the Plan Area in the Coalinga quadrangle in 2002. The San Joaquin kit fox may occasionally forage on or disperse through the Plan Area. However, denning habitat within the Plan Area is limited and restricted to open/natural lands and fallow/idle croplands due to the common use of intensive farming practices in the region. The majority of the Plan Area has been heavily managed for agricultural uses for decades. Agricultural lands are not generally suitable for the San Joaquin kit fox. Having been modified for agricultural use, the Plan Area provides a limited prey base especially in the cultivated fields and, therefore, constitutes poor foraging habitat for kit fox. Open/natural lands and fallow idle croplands within the Plan Area offer marginal foraging habitat.

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Jurisdictional Waters

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the California Regional Water Quality Control Board (RWQCB). See Section 4.4.2. *Regulatory Context* below for detailed discussion of these agencies' roles and responsibilities.

Hydrologic features in the Plan Area include the San Luis Canal/California Aqueduct, canals and some ephemeral drainages that are expected to be dry nearly the entire year. The Plan Area also likely supports a few vernal pools and seasonal wetlands along its eastern boundary. The San Luis Canal/California Aqueduct is considered unlikely to be jurisdictional by the USACE.

Ephemeral drainages are not likely to meet the criteria to be jurisdictional by the USACE, RWQCB and CDFW. However, specifics and contexts are important and whether any of these agencies would exert jurisdiction over such a feature can only be ascertained by conferring with each agency.

Vernal pools and seasonal wetlands on the other hand, while likely meeting the criteria of the USACE will only be considered jurisdictional if they have a continuous surface connection with a body of water that is itself a "water of the United States". The RWQCB will likely consider these features as waters of the state. Section 1602 of the Fish and Game Code provides CDFW jurisdiction over the bed, channel, or bank of any river, stream, or lake. Thus, CDFW lacks jurisdiction over vernal pools or seasonal wetlands as these features lack the requisite characteristics of bed and bank.

4.4.2. Regulatory Context

The following is an overview of the principal statutes, regulations, plans and programs related to biological resources that may apply to the VCIP.

Federal and State Regulations

Threatened and Endangered Species

State and federal "endangered species" legislation has provided the CDFW and USFWS with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the CNPS are collectively referred to as "species of special-status." Permits may be required from CDFW and/or USFWS if activities associated with a proposed project will result in the "take" of a listed species. "Take" is defined by the State of California as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, section 86). "Take" is more broadly defined by the federal Endangered Species Act to include "harm," which may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns (16 United States Code (U.S.C.), section {AM0010.1}

1532(19); 50 Code of Federal Regulations (CFR), section 17.3). In addition, CDFW and USFWS are responsible agencies under CEQA. Both agencies review CEQA documents to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

In the 1960s, pre-dating the federal and state endangered species acts (ESA and CESA), the California Fish and Game Commission designated several species as fully protected. Subject to certain exceptions, these fully protected species may not be taken or possessed at any time (e.g., Fish and Game Code, sections 3511 [fully protected birds], 4700 [fully protected mammals], 5050 [fully protected reptiles and amphibians]). Unless one of these exceptions applies, fully protected status does not allow for incidental take of species due to otherwise lawful activities. Relevant to the proposed VCIP, in 2023, Senate Bill 147, amended the fully protected species statutes, creating a permitting process (i.e., that follows the conservation standard of the Natural Community Conservation Plan (NCCP) Act) for the take of fully protected species for certain projects including the maintenance, or improvements of the State Water Project, transportation projects, wind projects and solar photovoltaic projects.

Migratory Birds

Most bird species are also protected by state and federal law. The federal Migratory Bird Treaty Act (MBTA) (16 U.S.C., section 703) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. In 2019, the California Legislature passed Assembly Bill (AB) 454, which clarifies native bird protection and increases protections where California law previously deferred to federal law.

Birds of Prey

Birds of prey are also protected in California under provisions of the Fish and Game Code, section 3503.5, which states that it is “unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “taking” by CDFW.

Additionally, the Bald and Golden Eagle Protection Act (16 U.S.C., sections 668-668d) prohibits anyone from taking bald or golden eagles, including their parts, nests, or eggs, unless authorized under a federal permit. The act prohibits any disturbance that directly affects an eagle or an active eagle nest as well as any disturbance caused by humans around a previously used nest site during a time when eagles are not present such that it agitates or bothers an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

Safe Harbor Agreement

A Safe Harbor Agreement is a voluntary agreement between private or other non-federal property owners and the USFWS or the National Oceanic and Atmospheric Administration (NOAA), with the goal for non-federal property owners to contribute to the recovery of endangered or threatened species

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under the ESA. If the landowners contribute as promised, the USFWS or NOAA will not require any additional or different management activities by the participants without their consent (USFWS 2025).

Examples of conservation benefits include:

- maintenance, restoration, or enhancement of existing habitats;
- reduced habitat fragmentation; increases in habitat connectivity;
- stabilized or increased numbers or distribution;
- the creation of buffers for protected areas; and
- opportunities to test and develop new habitat management techniques.

Jurisdictional Waters and Wetlands

Federal

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into “navigable waters” (33 U.S.C., section 1344), defined in the CWA as “the waters of the United States, including the territorial seas” (33 U.S.C., section 1362(7)). The CWA does not supply a definition for waters of the U.S., and that has been the subject of considerable debate since the CWA’s passage in 1972. A variety of regulatory definitions have been promulgated by the two federal agencies responsible for implementing the CWA, the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE). These definitions have been interpreted, and in some cases, invalidated, by federal courts.

Waters of the U.S. are currently defined by the EPA and USACE’s joint 2023 Revised Definition of ‘Waters of the U.S.’ Rule (2023 WOTUS Rule)(Fed. Reg. 2023), with certain interpretive modifications imposed by the U.S. Supreme Court’s May 25, 2023 decision in the case of *Sackett v. Environmental Protection Agency*. Under the current definition, these waters include:

- Waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.
- The territorial seas.
- Interstate waters, including interstate wetlands.
- Impoundments of waters otherwise defined as waters of the United States under the definition.
- Tributaries to other waters of the U.S. that are relatively permanent, standing or continuously flowing bodies of water.
- Wetlands adjacent to other waters of the U.S. that have a continuous surface connection to those waters.

The 2023 WOTUS Rule also defines several exclusions from the definition of waters of the U.S., many of which are longstanding exclusions from earlier regulatory regimes. These generally include:

- Waste treatment systems.
- Prior converted cropland.
- Ditches excavated wholly in and draining only dry land that do not carry a relatively permanent flow of water.
- Certain artificial features, e.g., irrigation basins, swimming pools, borrow pits, and artificially irrigated areas.
- Swales and erosional features characterized by low volume, infrequent, or short duration flow.

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All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values.

State of California

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board (SWRCB) has regulatory authority to protect the water quality of all surface water and groundwater in the State of California (“waters of the State”). Nine Regional Water Quality Control Boards (RWQCBs) oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into waters of the State through the issuance of various permits and orders. Discharges into waters of the State that are also waters of the U.S. require a section 401 (CWA) Water Quality Certification from the RWQCB as a prerequisite to obtaining a section 404 CWA permit. Discharges into waters of the State that are not also waters of the U.S. require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of sections 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically provides that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

Habitat Conservation Plans (HCPs) and Natural Community Conservation Plans (NCCPs)

The federal Endangered Species Act mandates protection of threatened and endangered species and their habitat on federal and private land by prohibiting “take” of listed species through direct harm to individuals or habitat destruction. To balance species protection with private landowner development interests, Congress amended section 10(a)(1)(B) of the Endangered Species Act in 1982 to allow non-federal entities to obtain an incidental take permit (ITP) for otherwise lawful projects that might result in the take of an endangered or threatened species (16 U.S.C., section 1539(a)(1)(B)). To receive an ITP, the applicant must satisfy certain requirements, including the design and implementation of a Habitat Conservation Plan (HCP) that will minimize and mitigate harm to the impacted species during the proposed project (16 U.S.C., section 1539(a)(2)(A)).

The State of California’s Natural Community Conservation Planning Act (NCCP Act), enacted in 1991, and now codified as Fish and Game Code section 2800 et seq., authorizes the Department of Fish and Wildlife to establish a program that takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity (see Fish & Game Code, sections 2801, 2820). The NCCP program is a cooperative effort involving numerous private and public partners. An NCCP identifies and provides for the regional or area-wide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity (Fish & Game Code, section 2820(a)(5)). The NCCP Act, while not intended to supersede the requirements of the federal and state Endangered Species Acts, is intended to allow for comprehensive, regional multi-species planning in a manner which satisfies the requirements of these endangered species laws (CDFW 2025).

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Recovery Plan area for Upland Species of the San Joaquin Valley

The *Recovery Plan area for Upland Species of the San Joaquin Valley* (Recovery Plan) developed by the U.S. Fish and Wildlife Service covers 34 species of plant and animals that occur in the San Joaquin Valley (USFWS 1998). The majority of these species occur in arid grasslands and scrublands of the San Joaquin Valley and the adjacent foothills and valleys. The plan includes information on recovery criteria, habitat protection, umbrella and keystone species, monitoring and research program, adaptive management, and economic and social considerations.

The Recovery Plan shows the northern portion of the Plan Area being mapped as “Proposed areas where connectivity and linkages should be promoted,” and the natural hills west of I-5 are likely used by native wildlife as a corridor along the foothills. Much of the foothill area west of Interstate 5, just outside the Plan Area boundary, is mapped as “[a]reas along the valley’s edges within which a contiguous band of natural lands and wildlife-compatible farmlands which should be maintained.”

The western edge of the Plan Area is adjacent to the Ciervo-Panoche Natural Area, which the Recovery Plan defines as “natural lands along the western edge of the Valley and in the contiguous foothills and coastal range, from the Panoche Hills and Valley, Fresno and San Benito Counties, south to Anticline Ridge near Coalinga, Fresno County.” The Ciervo-Panoche Natural Area encompasses an area of approximately one-half million acres in the Coastal Ranges immediately west of the Plan Area. Within this Natural Area, the goals of the Recovery Plan are to protect the natural lands to facilitate the recovery of specific species and to maintain and enhance existing movement corridors as well as connecting other natural lands within the recovery area.

Fresno County

Fresno County General Plan

The Fresno County General Plan (Fresno County 2024b) contains the following goals and policies related to biological resources that may be relevant to the VCIP:

Open Space and Conservation Element

D. Wetland and Riparian Areas

GOAL OS-D To conserve the function and values of wetland communities and related riparian areas throughout Fresno County while allowing compatible uses where appropriate. Protection of these resource functions will positively affect aesthetics, water quality, floodplain management, ecological function, and recreation/tourism.

Policy OS-D.1 **No-Net-Loss Wetlands Policy**
The County shall support the “no-net-loss” wetlands policies of the US Army Corps of Engineers, the US Fish and Wildlife Service, and the California Department of Fish and Wildlife. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.

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Policy OS-D.2 Wetland Loss Mitigation

The County shall require new development to fully mitigate wetland loss for function and value in regulated wetlands to achieve "no-net-loss" through any combination of avoidance, minimization, or compensation. The County shall support mitigation banking programs that provide the opportunity to mitigate impacts to rare, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas.

Policy OS-D.3 Adjacent Wetland Protection

The County shall require development to be designed in such a manner that pollutants and siltation do not significantly degrade the area, value, or function of wetlands. The County shall require new developments to implement the use of Best Management Practices (BMPs) to aid in this effort.

Policy OS-D.4 Riparian Protection Zones

The County shall require riparian protection zones around natural watercourses and shall recognize that these areas provide highly valuable wildlife habitat. Riparian protection zones shall include the bed and bank of both low- and high-flow channels and associated riparian vegetation, the band of riparian vegetation outside the high-flow channel, and buffers of 100 feet in width as measured from the top of the bank of unvegetated channels and 50 feet in width as measured from the outer edge of the dripline of riparian vegetation.

Policy OS-D.5 Upland Habitat Protection

The County shall strive to identify and conserve remaining upland habitat areas adjacent to wetland and riparian areas that are critical to the feeding, hibernation, or nesting of wildlife species associated with these wetland and riparian areas.

E. Fish and Wildlife Habitat

GOAL OS-E To help protect, restore, and enhance habitats in Fresno County that support fish and wildlife species so that populations are maintained at viable levels.

Policy OS-E.1 Avoid Habitat Loss

The County shall support efforts to avoid the "net" loss of important wildlife habitat where practicable. In cases where habitat loss cannot be avoided, the County shall impose adequate mitigation for the loss of wildlife habitat that is critical to supporting special-status species and/or other valuable or unique wildlife resources. Mitigation shall be at sufficient ratios to replace the function and value of the habitat that was removed or degraded. Mitigation may be achieved through any combination of creation, restoration, conservation easements, and/or mitigation banking. Conservation easements should include provisions for maintenance and management in perpetuity. The County shall recommend coordination with the US Fish and Wildlife Service and the California Department of Fish and Wildlife to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.

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Important habitat and habitat components include nesting, breeding, and foraging areas, important spawning grounds, migratory routes, migratory stopover areas, oak woodlands, vernal pools, wildlife movement corridors, and other unique wildlife habitats (e.g., alkali scrub) critical to protecting and sustaining wildlife populations.

Policy OS-E.2**Construction Buffers**

The County shall require adequate buffer zones between construction activities and significant wildlife resources, including both onsite habitats that are purposely avoided and significant habitats that are adjacent to the project site, in order to avoid the degradation and disruption of critical life cycle activities such as breeding and feeding. The width of the buffer zone should vary depending on the location, species, etc. A final determination shall be made based on informal consultation with the US Fish and Wildlife Service and/or the California Department of Fish and Wildlife.

Policy OS-E.3**Wildlife Habitat Protection**

The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the value of the habitat for wildlife is maintained.

Policy OS-E.8**Pest Control**

The County shall promote effective methods of pest (e.g., ground squirrel) control on croplands bordering sensitive habitat that do not place special-status species at risk, such as the San Joaquin kit fox.

Policy OS-E.9**Biological Resource Evaluation**

Prior to approval of discretionary development permits, the County shall require, as part of any required environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based on field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant resources and/or special-status plants or animals. Such evaluation will consider the potential for significant impact on these resources and will either identify feasible mitigation measures or indicate why mitigation is not feasible.

Policy OS-E.17**Endangered Species Habitat**

The County should preserve, to the maximum possible extent, areas defined as habitats for rare or endangered animal and plant species in a natural state consistent with State and Federal endangered species laws.

Policy OS-E.19**Nesting Birds**

For development projects on sites where tree or vegetation/habitat removal is necessary and where the existence of sensitive species and/or bird species protected by California Fish and Game Wildlife Code Sections 3503 and 3503.5 and 305.33503.5 and Migratory Bird Treaty Act has been determined by a

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qualified biologist, surveys for nesting birds shall be conducted within 14 days prior to project activities by a qualified biologist for all construction sites where activities occurring during nesting bird season (February 1 through September 15). The surveys shall include the entire disturbance area plus at least a 500-foot buffer around the project site.

If active nests are located, all construction work shall be conducted outside a buffer zone from the nest to be determined by the qualified biologist. The buffer shall be a minimum of 250 feet for non-raptor bird species and at least 500 feet for raptor species, unless determined otherwise by the qualified biologist. Buffer distances for bird nests shall be site-specific and an appropriate distance, as determined by a qualified biologist. The buffer distances shall be specified to protect the bird's normal behavior thereby preventing nesting failure or abandonment. The buffer distance recommendation shall be developed after field investigations that evaluate the bird(s) apparent distress in the presence of people or equipment at various distances. Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards project personnel, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority to order the cessation of all nearby project activities if the nesting birds exhibit abnormal behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established.

Larger buffers may be required depending upon the status of the nest and the construction activities occurring in the vicinity of the nest. The buffer area(s) shall be closed to all construction personnel and equipment until the adults and young are no longer reliant on the nest site. A qualified biologist shall confirm that breeding/nesting is completed, and young have fledged the nest prior to removal of the buffer. The biologist shall submit a report of these preconstruction nesting bird surveys to the County to document compliance within 30 days of its completion.

F. Vegetation

GOAL OS-F To preserve and protect the valuable vegetation resources of Fresno County.

Policy OS-F.1 Terrain and Vegetation Preservation
The County shall encourage landowners and developers to preserve the integrity of existing terrain and natural vegetation in visually-sensitive areas such as hillsides and ridges, and along important transportation corridors, consistent with fire hazard and property line clearing requirements.

Policy OS-F.3 Significant Natural Vegetation Areas
The County shall support the preservation of significant areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.

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Policy OS-F.4 Landmark Trees

The County shall ensure that landmark trees are preserved and protected whenever possible.

Policy OS-F.5 Rare, Threatened, and Endangered Species

The County shall establish procedures for identifying and preserving rare, threatened, and endangered plant species that may be adversely affected by public or private development projects. As part of this process, the County shall require, as part of the environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based on field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant plant resources and/or special-status plant species. Such evaluation shall consider the potential for significant impact on these resources and shall either identify feasible mitigation measures or indicate why mitigation is not feasible.

Fresno County Code

The Fresno County Code of Ordinances (County Code) (Fresno County 2024c) contains the following provisions related to the protection of trees and biological resources. Section 13.12.040 requires tree permits for removal of any trees within county roadways that have been declared to be scenic drives by the Board of Supervisors. Section 17.20.020(A)(5) provides that a proposed tentative or final map may be rejected if “the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially unavoidably injure fish or wildlife or their habitat.” The County Code includes no other specific provisions or requirements related to the protection of trees or biological resources that may be applicable to the VCIP.

4.4.3. Environmental Impact Analysis

METHODOLOGY

Evaluation of potential impacts related to biological resources was based on the biological evaluation report prepared for the VCIP by LOA in May 2025. The LOA report is incorporated into this PEIR by reference, as provided under CEQA Guidelines section 15150. The LOA report is contained in Appendix C of this PEIR.

Sources of information used in the LOA’s analysis included: 1) the *California Natural Diversity Data Base* (CDFG 2024); 2) the *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2024); and 3) manuals, reports, and references related to plan area and animals of the San Joaquin Valley region. The USDA’s *Land Cover Database* was applied to create habitat mapping of the Plan Area (see Figure 3). LOA ecologists conducted a field survey of the Plan Area in July 2024 to confirm general habitat conditions on-the-ground as mapped from the USDA land cover database. This reconnaissance survey also identified the principal land uses and the potential for special-status plant and animal species as well as sensitive habitats to occur within the Plan Area.

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SIGNIFICANCE CRITERIA

Based on Appendix G of the state CEQA Guidelines, implementation of the proposed VCIP would be considered to result in a significant impact related to biological resources if it would:

- a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.4.3.1. DIRECT AND INDIRECT EFFECTS

Introduction

Implementation of the proposed VCIP would allow multiple individual solar generation, energy storage, and infrastructure facilities within the Plan Area. The potential solar and energy storage projects would be developed within specific areas of the Plan Area known as DFAs. The DFAs would comprise a total of approximately 136,000 acres within the approximately 535,000-acre Plan Area. Most of the habitats in the Plan Area are unsuitable for those special-status plant and animal species that occur regionally. Nonetheless, potentially suitable habitats do occur in scattered locations throughout the Plan Area. This PEIR provides guidance at a programmatic level regarding the potential occurrence of protected species as indicated by their affinity for the specific habitat types identified and mapped for the Plan Area.

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Impact BIO-1. Impacts to Special-Status Plants

Implementation of the VCIP Energy Resource and Infrastructure Plans could have a potentially substantial adverse impact on 11 special-status plant species that may be present within the Plan Area. (*Less-than-Significant Impact with Mitigation*)

Eleven special-status plant species have some potential to occur within the Plan Area. These species and their corresponding habitats are summarized in Table 4.4-3 below. (For detailed summaries, see Table 4.4-2 in Section 4.4.1. *Environmental Setting*.)

Table 4.4-3**Special-Status Plant Species which may occur within the Plan Area by Habitat Type**

Species	Alfalfa	Fallow/Idle Croplands	Open/Natural Lands	Orchard/Vineyard	Row and Field Crops	Water/Wetlands/ Riparian Woodland	Woodlands	Ruderal/Developed	Other Qualifiers
California jewelflower (<i>Caulanthus californicus</i>)			X						West of I-5
San Joaquin woollythreads (<i>Monolopia congdonii</i>)			X						
Lost Hills Crownscale (<i>Atriplex coronata vallicola</i>)			X			X			Alkaline soils
Hall's tarplant (<i>Deinandra halliana</i>)			X						
Recurved larkspur (<i>Delphinium recurvatum</i>)			X						Alkaline soils
Hoover's eriastrum (<i>Eriastrum hooveri</i>)			X			X			
Alkali-sink goldfields (<i>Lasthenia chrysantha</i>)			X			X			Vernal pools or other seasonal wetlands
Munz's tidy-tips (<i>Layia munzii</i>)			X						Alkaline clay soils
Panoche pepper-grass (<i>Lepidium jaredii ssp. album</i>)			X			X			
Showy golden madia (<i>Madia radiata</i>)			X			X			
Indian Valley bush-mallow (<i>Malacothamnus aboriginu</i>)			X			X		X	

Source: Live Oak Associates

As shown in Table 4.4-3, special-status plant species are not expected to occur over the majority of the Plan Area, with most species occurring in open/natural lands and water/wetlands habitats except for the Indian Valley bush-mallow which may also occur in ruderal/developed habitats. Individuals and populations of rare plants could be damaged or destroyed if any of the plant species noted in Table 4.4-3 occur in areas proposed to be developed or disturbed. Therefore, the implementation of VCIP energy and infrastructure projects could result in potentially *significant impacts* to special-status plants. With implementation of Mitigation Measure (MM) BIO-1, potential impacts to special-status plants would be avoided or substantially reduced to *less than significant*.

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Mitigation Measure BIO-1: Protection of Special-Status Plant Species:

To avoid potentially significant impacts to special-status plant species due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a) **Initial Biological Site Survey and Land Cover Mapping:** Prior to site-specific project approval and any ground disturbance, a qualified biologist shall be retained to conduct an initial biological site survey and prepare land cover maps that delineate the habitat types present on the project site. Based on the habitat types found to be present on the project site, the biologist shall identify the specific species of protected plants, if any, that shall be subject to pre-construction surveys to be conducted prior to ground-disturbing activities for the project.
- b) **Pre-construction Surveys:** If potentially suitable habitats are detected on an individual project site during initial site surveys and land cover mapping, and prior to the initial ground disturbance for the project, a qualified biologist shall conduct a protocol-level rare plant survey following CDFW's 2018 *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* or the most recent CDFW guidelines. The survey shall target all suitable habitats of the project site that would be subject to project-related ground disturbance, and shall be conducted during appropriate times of year, when local populations of the target species are in bloom and readily identifiable. If suitable habitats are found to be absent, or if special-status plant species are found to be absent from the site, no further action is required.
- c) **Avoidance:** If individuals or populations of the target plant species are identified in planned disturbance areas, project design shall be modified, to the extent feasible, to avoid the plants. A qualified biologist shall identify an appropriate buffer around the plants, and no construction or other project-related activities shall be permitted within the area demarcated for the special-status plant species.
- d) **Relocation/Salvage:** If it is not feasible to avoid individuals or populations of rare plant species observed on a project site, the affected populations shall be salvaged in accordance with a plan prepared by a qualified biologist and approved by CDFW that shall include contingencies for an unsuccessful salvage effort. Salvage methods may include seed collection and dispersal, and/or topsoil collection and redispersal, as appropriate to the species. The replacement planting and/or relocation area(s) shall be located on portions of the project site that support suitable habitat and soils for the affected species and that will not be subject to project-related ground disturbance. A replacement planting area shall occupy the same area (no net-loss of area) of the new population. A relocation area shall occupy a larger area than the original area (net-gain of area). Replacement planting and relocation areas shall be monitored for a period of five years to ensure successful establishment. Although annual plants' success in any single year depends on climatic conditions year-to-year, on average, replacement and/or relocation shall be implemented to achieve no net loss through replacement plantings that occupy the same area (no net-loss of area) of the new population, and relocation areas that occupy a larger area than the original area (net-gain of area). In addition, if federally protected rare plants are present on the site, the project proponent may be required to consult with the USFWS if there is a federal nexus for the individual project.

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Significance After Mitigation: Less-than-significant impact. Project-level application of the above mitigation measures during construction and decommissioning of the proposed VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to special-status plant species to *less than significant*.

Impact BIO-2. Impacts to Special-Status Animals

Implementation of the VCIP Energy Resource and Infrastructure Plans could have a potentially substantial adverse impact on special-status animal species that may utilize the Plan Area as breeding and/or foraging habitat. (*Less-than-Significant Impact with Mitigation*)

Of the 32 special-status animal species listed in Table 4.4-2 that potentially occur in the region, eight species would be absent or unlikely to occur within the Plan Area due to unsuitable habitat conditions or because the Plan Area is outside the species' range. These include the valley elderberry longhorn beetle, California tiger salamander, giant garter snake, Temblor legless lizard, Le Conte's thrasher, Fresno kangaroo rat, Tipton kangaroo rat, and ringtail. Development of individual projects within the Plan Area would have no effect on loss of habitat for these species because there is little or no likelihood that they are present. Therefore, the potential impact upon regional populations of these species would be *less than significant*.

Ten species that may regularly or occasionally utilize the Plan Area only for foraging include San Joaquin coachwhip, California glossy snake, northern harrier, mountain plover, short-eared owls, long-eared owl, loggerhead shrike, tricolored blackbird, yellow-headed blackbird, and Tulare grasshopper mouse. The Plan Area does not provide breeding habitat or regionally important foraging habitat for these species. Considerable habitat suitable for migratory movements and winter foraging would continue to be available for these species on other lands within the region following development of the proposed VCIP energy and infrastructure projects. Therefore, development of potential projects under the proposed VCIP would result in a *less-than-significant* impact to these species.

An additional 14 special-status animal species listed in Table 4.4-2 potentially occur frequently as regular foragers and may be residents to the area. These include the longhorn fairy shrimp, Crotch's bumble bee, western spadefoot, northwestern pond turtle, blunt-nosed leopard lizard, Swainson's hawk, burrowing owl, giant kangaroo rat, short-nosed kangaroo rat, San Joaquin antelope squirrel, pallid bat, California mastiff bat, American badger, and San Joaquin kit fox. The Plan Area does not provide regionally important foraging habitat for most of these species, except for the potential to impact foraging habitat for the Swainson's hawk and burrowing owl, which are addressed under Impacts BIO-8 and BIO-9, respectively. Considerable habitat suitable for migratory movements and winter foraging would continue to be available for the other noted species on other lands within the region following development of VCIP energy and infrastructure projects. Therefore, development of potential projects under the proposed VCIP would result in a *less-than-significant impact* on these species' foraging habitat.

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Although implementation of the proposed VCIP would not have potentially adverse effects on foraging habitat for 13 of the species mentioned above, the breeding habitat and individual members of these species would be subject to potentially substantial impacts from VCIP projects. The potential for a VCIP project to result in injury or mortality to an individual of a special-status animal species would represent a *significant impact*. With implementation of MM BIO-2, the potential impact would be avoided or substantially reduced to *less than significant*.

Mitigation Measure BIO-2: Protection of Special-Status Animal Species

To avoid potentially significant impacts to special-status animal species due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a) **Initial Biological Site Surveys and Land Cover Mapping:** Prior to site-specific project approval and any ground disturbance, a qualified biologist shall be retained to conduct an initial biological site survey and prepare land cover maps that delineate the habitat types present on the project site. Based on the habitat types found to be present on the project site, the biologist shall identify the specific species of protected animals, if any, that shall be subject to pre-construction surveys to be conducted prior to ground-disturbing activities for the project, as specified for each species in Mitigation Measures BIO-3 through BIO-13.
- b) **Minimization Measures:** If individuals of any special-status animal species that are considered to occur rarely to occasionally within the Plan Area are found to be present on a project site prior to or during project construction, the animal(s) shall be allowed to move off-site independently. Alternatively, a qualified biologist may assist the individual(s) with moving off the project site.

Significance After Mitigation: *Less-than-significant impact.* Project-level application of the above mitigation measures during construction and decommissioning of the proposed VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to special-status animal species to *less than significant*.

In addition to direct injury or mortality impacts to special-status animal species, these and other species would also be subject to noise and vibration during construction, operation, and decommissioning. However, if effects associated with construction disturbance would have a substantial adverse effect on these species, individuals of the species would move or be relocated away from the noise source, as discussed in MM BIO-2b. The effects of construction disturbance would be largely temporary since the completed facilities would still provide opportunities for regionally occurring wildlife to forage, breed, and pass through the site.

Noise and vibration from construction would potentially disrupt breeding behavior. To provide projections from breeding disturbance, MMs 3.3.4 through 3.3.14 establish setback distances or buffers from breeding sites which are intended to minimize the effects of disturbance including noise and vibration.

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Impact BIO-3. Disturbance to Active Raptor and Migratory Bird Nests

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in disturbance to active nests of raptors and migratory birds. (*Less-than-Significant Impact with Mitigation*)

In addition to the Swainson's hawk and burrowing owl (which are discussed in turn below under Impacts BIO-4 and BIO-5), several other raptor species such as the northern harrier, red-tailed hawk, bald eagle, golden eagle, short-eared owl, and long-eared owl are known to forage near the Plan Area or could potentially do so. Additionally, the Plan Area provides nesting habitat for several migratory bird species, including, but not limited to, the common raven, house finch, and Brewer's blackbird. Other migratory birds that could occur in the Plan Area include the white-faced ibis, mountain plover, short-eared owl, long-eared owl, Loggerhead shrike, California horned lark, tricolored blackbird, and yellow-headed blackbird, among others. Nearly all native bird species are protected by the federal Migratory Bird Treaty Act. The Aqueduct habitat, as well as habitat around ephemeral drainages, power towers/poles, trees, shrubs, and open ground on and adjacent to the Plan Area, provide potential nesting habitat for these species. If birds were to nest in these areas in the future prior to construction, such project-related activities could result in the abandonment of active nests or direct mortality to these birds. Construction activities that adversely affect the nesting success of raptors or migratory birds or result in mortality of individual birds would violate state and federal laws and would be considered a significant impact under CEQA. With implementation of MM BIO-3, the potential impact would be avoided or substantially reduced to *less than significant*.

[See Impact BIO-15 for discussion of hazards to avian species from collision and electrocution.]

Mitigation Measure BIO-3: Protection of Raptor and Migratory Bird Nests

To minimize disturbance to any active raptor and other bird nests due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a) **Pre-Construction Surveys for Active Nests.** If tree removal, site preparation, grading, construction, or decommissioning is planned to occur within the breeding period (i.e., between February 1 and August 31), a qualified biologist shall be retained to conduct pre-construction surveys for active nests of migratory birds within 10 days of the onset of these activities. If construction or decommissioning activity is planned to commence outside the breeding period, no pre-construction surveys are required for nesting birds and raptors.
- b) **Exclusion Zones for Active Nests.** If any active nests are discovered in or near the planned construction zones on or adjacent to the project site, the qualified biologist shall monitor identified nests to establish a behavioral baseline. Once work commences, the qualified biologist should monitor all nests to detect any behavioral changes because of the project. If behavioral changes are observed, stop the work causing that change and consult with the California Department of Fish and Wildlife for additional avoidance and minimization measures.
- c) **Establish Exclusion Zones.** Alternatively, should any active nests be discovered in or near planned construction zones, the qualified biologist shall establish an appropriate construction-

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free buffer (exclusion zone) around the nest depending on the species of bird, activity level of the area, and terrain. This exclusion zone shall be identified on the ground with flagging or fencing and shall be maintained until the qualified biologist has determined that the young have fledged.

- d) **Tailgate Training for Workers.** All construction and operations workers on the project site shall be trained by a qualified biologist. The tailgate (on-site) training shall include a description of the Migratory Bird Treaty Act, instructions on what to do if an active nest is located, and the importance of capping pipes and pipe-like structures standing upright to avoid birds falling into the pipes and getting stuck.
- e) **Capping of Hollow Poles and Posts.** Should any vertical tubes, such as solar mount poles, chain link fencing poles, or any other hollow tubes or poles be utilized on the project site, the poles shall be capped immediately after installation to prevent entrapment of birds.

Significance After Mitigation: **Less-than-significant impact.** Project-level application of the above mitigation measures during construction and decommissioning of the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to nesting raptors and migratory bird species to *less than significant*.

Impact BIO-4. Impacts to Longhorn Fairy Shrimp

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in potentially substantial adverse impacts to longhorn fairy shrimp, a federally listed endangered species. (Less-than-Significant Impact with Mitigation)

The longhorn fairy shrimp, a federally listed endangered species, is a small freshwater shrimp which lives in vernal pools and seasonal wetlands. The shrimp's eggs lay dormant in the dry pools during the summer and hatch when winter rains fill the pools. A vernal pool is a natural pool that fills up seasonally and dries down in the dry season which supports a number of plant and animal species endemic to that unique environment. Vernal pools typically must hold water for two months for this fairy shrimp species to complete its lifecycle. Within the Plan Area and its vicinity, vernal pool landscapes have almost entirely been converted to agriculture. Agricultural activities, such as tilling, permanently damage the thick but highly sensitive clay layer that prevents the water in each vernal pool from percolating into the underlying groundwater. The loss of this clay layer results in the permanent loss of vernal pools. As the Plan Area has been highly modified through historical and current agricultural operations, the Plan Area generally lacks vernal pools. Vernal pools and seasonal wetlands are very limited within the Plan Area, and are present only in a few locations on the eastern margins of the Plan Area. As such, the potential for the occurrence of the longhorn fairy shrimp is limited within the Plan Area. Any impact to vernal pools or seasonal wetlands supporting longhorn fairy shrimp would constitute a significant impact to the species. With implementation of MM BIO-4, the potential impact would be avoided or substantially reduced to *less-than-significant*.

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Mitigation Measure BIO-4: Protection of Longhorn Fairy Shrimp

To minimize potentially significant impacts to longhorn fairy shrimp due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a) **Habitat Survey.** Conduct initial biological survey and habitat mapping for the project as set forth in Mitigation Measure BIO-1a. If the initial biological survey on the project site determines that vernal pools or seasonal wetlands are present on the site, the project proponent may either assume presence of the longhorn fairy shrimp, or conduct protocol surveys as specified in Mitigation Measure BIO-4b. Protocol surveys for longhorn fairy shrimp are not required if the initial biological survey determines suitable habitats are absent from the project site.
- b) **Species-Specific Surveys.** If suitable habitats are present on the project site protocol surveys during normal rainfall years, consisting of either (1) surveys in two wet seasons, or (2) one wet season and one dry season survey are required to demonstrate the species is absent from an individual project site. Wet-season sampling entails the sampling of all pools at 10-day intervals after the pools have filled with water. Ten to 12 sampling visits are generally required during a winter of average rainfall, depending on rainfall patterns, with the results reported to the USFWS. The USFWS can reject negative findings from any wet season survey if conditions are below normal in rainfall or if the rainfall pattern was highly skewed (e.g., all falling within a very short period). Dry season surveying involves collecting soil from the bottoms of on-site vernal pools, examining the soil for potential longhorn fairy shrimp eggs, and, if any potential longhorn fairy shrimp eggs are identified, rearing shrimp from these eggs to determine if they are longhorn fairy shrimp. The USFWS will consider listed vernal pool species to be absent from a site if two wet season surveys are negative, or if a dry season survey combined with a subsequent wet season survey in a normal year are negative. If protocol surveys do not detect presence of longhorn fairy shrimp on the project site, no mitigation is required.

If longhorn fairy shrimp are observed early in the survey period and the USFWS agrees that continuing the surveys after shrimp have been found is unnecessary, then further surveys would not be required, and all vernal pool habitat on the site shall be considered inhabited by this species.

Alternatively, the entire survey effort could be foregone and the presence of this species on the site may be presumed with the understanding that doing so would require mitigation measures for the take of this species.

- c) **Obtain "Take" Authorization.** Direct and possibly indirect disturbance to vernal pools of the site would be considered a "take" of this federally listed species if this species is detected or if presence is assumed by the project proponent. The "take" of this species would require the project proponent obtain take authorization from the USFWS under Section 7 of the federal Endangered Species Act (ESA) (applicable if there is federal nexus, such as the requirement for Section 404 permit under the federal Clean Water Act for fill of a jurisdictional wetland) or Section 10 (if no federal nexus). If the project has a federal nexus, then a Section 7 consultation process must be initiated by the USACE (the applicable federal permitting

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agency) prior to the issuance of the Section 404 permit. Once the consultation process has formally begun, the USFWS has 135 days to issue either a Biological Opinion (BO), which would authorize the take of a listed species incidental to the implementation of a lawful project, or a jeopardy opinion (which is rare) which would determine that the “take” of the listed species would jeopardize the continued existence of the species. If there is no federal nexus, the project proponent would need to obtain take authorization under Section 10 of the ESA, which is a process administered by the USFWS Endangered Species Branch in Sacramento.

- d) **Typical Mitigation Measures.** Take authorization would require avoidance and minimization measures, as well as compensatory mitigation measures which would reduce the magnitude of the “take” of this species. Current mitigation standards of the USFWS for this species consist of the following: 1) a 250-foot buffer around avoided pools in which fairy shrimp occur; 2) the preservation of existing fairy shrimp habitat at a 2:1 ratio; and 3) the creation of new shrimp habitat at a 1:1 ratio. The preservation requirement can be met by purchasing preservation credits from an agency approved mitigation bank and the creation requirement can be met by purchasing vernal pool creation credits from either the applicable in-lieu fee program or a USACE approved mitigation bank.

Indirect impacts to preserved vernal pool habitat can generally be avoided if a development-free buffer of 250 feet is provided around preserved pools. A buffer of this size may not be sufficient if the planned development is within the watershed of the pool such that runoff drains from developed areas of the project site into the vernal pool or deprives the vernal pool of natural runoff water.

Significance After Mitigation: *Less-than-significant impact.* Project-level application of the above mitigation measures during construction and decommissioning of the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to longhorn fairy shrimp to *less than significant*.

Impact BIO-5. Impacts to Crotch’s Bumble Bee

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in potentially substantial adverse impacts to Crotch’s bumble bee, a candidate species for state listing as threatened or endangered. (*Less-than-Significant Impact with Mitigation*)

Potentially suitable habitat for foraging and nesting for the Crotch’s bumble bee is present in open/natural lands and could occur in fallow/idle cropland within the Plan Area. The remainder of the Plan Area does not contain suitable habitat for this species. Grading and disturbance to areas occupied by the Crotch’s bumble bee would constitute a potentially significant impact to this species. With implementation of MM BIO-5, the potential impact would be avoided or substantially reduced to *less than significant*.

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Mitigation Measure BIO-5: Protection of the Crotch's Bumble Bee

To minimize impacts to the Crotch's bumble bee due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a) **Habitat Assessment.** Conduct initial biological survey and habitat mapping for the project as set forth in Mitigation Measure BIO-1a. If the initial biological survey on the project site determines that there is no potential for Crotch's bumble bee to occur on the site, no additional surveys are required. If there is potential for the species to occur on the site, conduct pre-construction surveys as specified in Mitigation Measure BIO-5b.
- b) **Preconstruction Surveys.** A qualified biologist shall conduct pre-construction surveys during the three stages of Crotch's bumble bee flight period with a methodology approved by CDFW, as provided in CDFW's 2023 *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* or its most recent guidance document. This survey shall be conducted during the season prior to the start of work (i.e., if work is scheduled to start in the late summer, surveys may be conducted that same year; if work is scheduled to start in winter or early spring, the surveys shall occur during the year before the year construction is scheduled). If Crotch's bumble bees are observed on the site, intensive surveys shall be required as specified in Mitigation Measure BIO-5c.
- c) **Intensive Surveys and Take Avoidance.** If Crotch's bumble bees are observed on the site, intensive surveys to locate underground nests shall be conducted. If an underground nest is located, individuals at the nest shall be photographed to confirm species. If the underground nest is confirmed to be occupied by Crotch's bumble bees, the nest shall be flagged and a 25-foot exclusion zone established around the nest. An avoidance plan shall be developed in consultation with CDFW prior to any project work and/or vegetation removal or other ground disturbance within the 25-foot exclusion zone.
- d) **Compensation.** If Crotch's bumble bee is found to be present on-site and if take avoidance is not feasible, then a mitigation plan that provides for on- or off-site compensation shall be prepared and implemented. The mitigation plan shall provide for a minimum of a 1:1 replacement ratio of suitable habitat, at an onsite or offsite location. The plan shall define measures to restore and/or enhance existing habitat, management strategies to maintain the conservation value of the habitat in perpetuity, and a funding source for the ongoing management of the mitigation site.

If the Crotch's bumble bee is permanently listed as threatened or endangered prior to the time of project development, the project proponent will be required to obtain an Incidental Take Permit from CDFW under the California Endangered Species Act (CESA). If the California Fish and Game Commission decides to not list the Crotch's bumble bee under the CESA, then implementation of Mitigation Measures BIO-5b through BIO-5d would not be required.

Significance After Mitigation: **Less-than-significant impact.** Project-level application of the above mitigation measures during construction and decommissioning of the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to the Crotch's bumble bee to *less than significant*.

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Impact BIO-6. Impacts to Western Spadefoot Toad and Northwestern Pond Turtle

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in potentially substantial adverse impacts to western spadefoot toad and northwestern pond turtle. (*Less-than-Significant Impact with Mitigation*)

These two species occur in and around water features. The western spadefoot toad has the potential to occur within vernal pools, ephemeral drainages, irrigation ponds, and retention basins within the Plan Area. The northwestern pond turtle has the potential to occur within irrigation ponds, retention basins, and canals and may nest near these features within the Plan Area. Project construction activities could cause harm or injury to these species if an individual of these species is present on a project site or moves onto the site prior to ground disturbing activities. This would be considered a potentially *significant impact*. With implementation of MM BIO-6, the potential impact would be avoided or substantially reduced to *less than significant*.

Mitigation Measure BIO-6: Protection of the Western Spadefoot Toad and Northwestern Pond Turtle

To reduce the likelihood of mortality to the western spadefoot and northwestern pond turtle due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a) **Habitat Assessment**. Conduct initial biological survey and habitat mapping for each project as set forth in Mitigation Measure BIO-1a. If the initial biological survey on the project site determines that there is no suitable breeding habitat for western spadefoot toad (i.e., vernal pools or ephemeral pools, including some ponded water which holds water for at least two weeks to one month), no species-specific surveys for the western spadefoot are required. If suitable breeding habitat for western spadefoot is present on the project site, then in addition to Mitigation Measure BIO-6c, the project proponent shall either implement Mitigation Measure BIO-6b (elective surveys) or BIO-6d (assumed presence).

If suitable habitat for the northwestern pond turtle is present on the project site, then Mitigation Measure BIO-6c would be required to be implemented.

- b) **Elective Species-Specific Surveys**. Instead of assuming the presence of western spadefoot pursuant to Mitigation Measure BIO-6d, the project proponent may retain a qualified biologist to survey the project site for the presence of suitable habitat for western spadefoot during the appropriate times in March, April, and May in an at least average rain year when any western spadefoot would be above ground and observable. If western spadefoot toads are identified at or near wetland features, those features shall have exclusion zones established, as specified in MM BIO-6d, prior to ground disturbing activity associated with the project, as specified in Mitigation Measure BIO-6c.
- c) **Preconstruction Surveys**. During the course of the construction surveys for other species, a qualified biologist shall also determine the presence or absence of western spadefoot toads and suitable breeding habitat for this species (i.e., vernal pools or ephemeral pools, including some ponded water which holds water for at least two weeks to one month) prior to the start

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of ground disturbing activities. The absence of western spadefoot can only be confirmed through the species-specific surveys described in MM BIO-6b. Thus, if only pre-construction surveys for other species are conducted for western spadefoot, then the presence of western spadefoot shall be assumed pursuant to MM BIO-6d.

Pre-construction surveys for the northwestern pond turtle shall also be conducted during this time. If construction is scheduled to begin during northwestern pond turtle nesting season (late May through mid-July), a qualified biologist shall conduct a survey within the project site for nests within 1,000 feet of any suitable water feature. If a northwestern turtle nest is observed, a construction-free buffer shall be established by the qualified biologist around the nest until young have hatched and moved from the nest. If spadefoot or northwestern pond turtle individuals of these species are found to be present on a project site prior to or during project construction, they shall be allowed to move off-site independently. Alternatively, a qualified biologist may assist the individual(s) with moving off the project site.

- d) **Avoidance and Monitoring.** If a northwestern pond turtle is identified during pre-construction surveys within any area subject to project impacts, the turtle shall be avoided until it has moved out of the work area on its own or relocated by the qualified biologist.

If potential breeding habitat for western spadefoot is identified during preconstruction surveys within or immediately adjacent to an area subject to project impacts, and species-specific surveys described in MM BIO-6b have not been conducted, then presence of the western spadefoot on the site shall be assumed. A project activity-buffer of 860 feet (262 meters) from those breeding pools shall be established, as this is the maximum distance spadefoot toads have been recorded away from their breeding pool. This distance is necessary, as spadefoot toads dig straight down and leave no trace on the surface of where they are located, and they spend most of their lives underground—without an indication of where they are buried; therefore, a conservative buffer must be established. Buffers shall remain until absence can be confirmed through appropriate surveys as specified in MM BIO-6b.

- e) **Compensation.** If impacts to western spadefoot toads are anticipated, mitigation shall consist of either: 1) preservation of suitable on- or off-site land at a minimum of a 1:1 impact-to-mitigation ratio of lost habitat acreage to compensatory habitat acreage which can support the various lifecycles of the western spadefoot; or 2) purchase of credits equivalent to the lost habitat at an appropriate mitigation bank. As this species is currently a federal candidate species which is anticipated to be listed under the ESA, the project proponent may seek a Biological Opinion for this species in anticipation of it being listed. Once the species is federally listed under the ESA, a Biological Opinion would be required for any impacts to the western spadefoot.

Significance After Mitigation: *Less-than-significant impact.* Project-level application of the above mitigation measures during construction and decommissioning of the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to the western spadefoot toads and northwestern pond turtles to *less than significant*.

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Impact BIO-7. Impacts to Blunt-Nosed Leopard Lizard

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in potentially substantial adverse impacts to the blunt-nosed leopard lizard, a federal and state listed endangered species. (*Less-than-Significant Impact with Mitigation*)

The open/natural lands west of I-5 may support potentially suitable habitat for the blunt-nosed leopard lizard if they contain rodent burrows and other burrows and dens. Individual project activities could cause harm or injury to a blunt-nosed leopard lizard, should one move onto a project site prior to ground disturbing activities. This would be considered a potentially *significant impact*. With implementation of MM BIO-7, the potential impact would be avoided or substantially reduced to *less-than-significant*.

Mitigation Measure BIO-7: Protection of the Blunt-Nose Leopard Lizard

To avoid mortality of the blunt-nosed leopard lizard due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a) **Species-Specific Surveys.** Species-specific surveys for blunt-nosed leopard lizard are required for projects planned within open/natural lands located west of I-5. Protocol-level surveys in suitable habitat for the blunt-nosed leopard lizard by qualified biologists shall be completed following CDFW's *Revised Approved Survey Methodology for the Blunt-nosed Leopard Lizard* (2019) or its most recent guidelines to determine the presence or absence of blunt-nosed leopard lizard prior to the start of ground disturbing activities. This protocol requires a minimum of two surveyors and includes 12 days of adult surveys between April 15 and July 15 with a maximum of four survey days per week and eight survey days within any 30-day period; at least one survey session should be conducted for four consecutive days. Additionally, five juvenile surveys are required between August 15-September 30, with at least two survey days between August 15-30 and at least two survey days between September 15-30. If the surveys detect the presence of blunt-nosed leopard lizards on the project site, then avoidance and compensation measures are required, as specified in MM BIO-7b. If the surveys fail to detect blunt-nosed leopard lizards on the project site, then no further action is required.
- b) **Avoidance and Compensation.** If a blunt-nosed leopard lizard is identified during surveys within or immediately adjacent to an area subject to ground disturbing activities, the project should be redesigned to avoid the area where blunt-nosed leopard lizards occur. If the project cannot avoid occupied habitat, the project proponent shall obtain a take permit and follow avoidance, minimization and possibly compensation measures specified in the permit. A take permit from the USFWS (likely under Section 10 of ESA) and ITP from CDFW (2081 Application under CESA) would likely be required. The project proponent would be required to develop procedures to avoid and minimize take, while compensating for lost habitat at a minimum of a 3:1 (compensation-to-impact) ratio. This compensation could occur either on- or off-site and would need to preserve lands via a conservation easement or some other legal instrument which protects and manages the land in perpetuity. The project proponent would be required to identify the area for preservation, develop a Long-Term Management Plan (LTMP) that

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maintains the conservation value of the land, and provide adequate funding based on the strategies of the LTMP.

Significance After Mitigation: Less-than-significant impact. Project-level application of the above mitigation measures to the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to the blunt-nosed leopard lizard to *less than significant*.

Impact BIO-8. Impacts to Swainson's Hawks

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in potentially substantial adverse impacts to the Swainson's hawk, a state listed threatened species. (*Less-than-Significant Impact with Mitigation*)

Nesting Habitat

Swainson's hawks typically nest in large trees in or peripheral to riparian systems adjacent to suitable foraging habitats. Other suitable nest sites include lone trees, groves of trees such as oaks, other trees in agricultural fields, and mature roadside trees. Suitable nesting trees may occur on or near planned project sites within the Plan Area. Construction activities in the vicinity of nest trees could result in the abandonment of active Swainson's hawk nests or direct mortality to these birds. Given their protected status, project activities that adversely affect their nesting success or result in mortality of individual birds would be considered a *significant impact* under CEQA. With implementation of MM BIO-8, the potential impact to nesting Swainson's hawks would be avoided or substantially reduced to *less than significant*.

Foraging Habitat

Swainson's hawks forage throughout the Plan Area, particularly in alfalfa and row and field crops as well as fallowed/idle cropland habitats. As shown in Table 4.4-1, there is a total of approximately 329,823 acres of suitable foraging habitat for Swainson's hawks in the Plan Area under existing conditions. Full buildout of the VCIP would reduce this area by approximately 110,918 acres. The remaining 218,905 acres represent the retention of 66 percent of suitable habitat within the Plan Area after full buildout of the VCIP. The 34 percent reduction in suitable foraging habitat for Swainson's hawk within the Plan Area is not considered a significant impact since abundant and accessible foraging habitat would remain in the Plan Area and surrounding lands after VCIP buildout. Therefore, the impact of VCIP implementation on Swainson's hawk foraging habitat would be *less than significant*.

Cumulative Impacts to Foraging Habitat

The biological evaluation by LOA included an analysis of whether the cumulative impacts to Swainson's hawk foraging habitat resulting from VCIP implementation along with development of other pending, approved, and completed projects (Cumulative Projects) in the vicinity would represent a significant loss of foraging habitat. The following discussion summarizes the detailed discussion of study methodology, analysis, and findings contained in Appendix A of LOA's biological report, which is contained in Appendix C of this PEIR.

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LOA performed a regional analysis of foraging habitat availability and Swainson’s hawk abundance using methodologies developed by Jim Estep, a wildlife biologist who has monitored Swainson’s hawk populations and conducted research on Swainson’s hawk for over 35 years. These methodologies are industry-standard for performing cumulative impact studies regarding Swainson’s hawk, as demonstrated by their use in a numerous CEQA analyses for solar projects within Yolo, Sacramento, Fresno, and Kings Counties. As such, using this widely accepted methodology is appropriate to analyze cumulative impacts related to the Swainson’s hawk associated with the proposed VCIP. The analysis included in this PEIR follows the strategies developed by Estep.

The LOA analysis first estimated the number of nest sites within the Plan Area and nearby lands within a 10-mile radius of the external Plan Area boundaries (aka Cumulative Study Area). Based on previous studies conducted in the region, LOA estimated that there are currently 131 Swainson’s hawk territories within the Cumulative Study Area. LOA then mapped and categorized all the lands within the Cumulative Study Area by land use cover type, and calculated the total acreage of land use cover types that are considered suitable as foraging habitat for Swainson’s hawk. The analysis determined that there are 1,081,389 acres of suitable foraging habitat in the study area prior to development of the VCIP and the cumulative projects. Based on the required foraging territory for the Swainson’s hawks in the study area, it was determined that 625,394 acres of foraging habitat in the study area are required to support the 131 pairs of Swainson’s hawks estimated to utilize the study area. The VCIP and cumulative projects would result in the removal of 129,896 acres of foraging habitat. Thus, the surplus habitat remaining after subtracting foraging requirements for existing Swainson’s hawks and habitat lost to development was calculated to be 326,099 acres. Table 4.4-4 contains a summary of LOA’s detailed habitat calculations.

**TABLE 4.4-4
CUMULATIVE SWAINSON’S HAWK FORAGING HABITAT CALCULATIONS – SUMMARY**

	Foraging Habitat	Acres	Percent
a	Pre-development foraging habitat in study area	1,081,389	
b	Unadjusted foraging habitat required to support 131 SWHA pairs	893,420	
c	Adjusted foraging habitat required to support 131 SWHA pairs (adjusted for 30% range overlap)	625,394	
d	Surplus SWHA foraging habitat (a-c)	455,995	-
e	Loss of foraging habitat due to VCIP implementation	110,674	-
f	Loss of foraging habitat due to other cumulative development in study area	19,222	-
g	Cumulative loss of foraging habitat from VCIP and non-VCIP cumulative development (e+f)	129,896	
h	Remaining available foraging habitat following VCIP and non-VCIP cumulative development (a-g)	951,493	88.0
i	Remaining available surplus SWHA foraging habitat following all VCIP and cumulative development (d-g)	326,099	71.5%

Source: Live Oak Associates 2025

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To determine if the cumulative loss of foraging habitat represented a significant cumulative impact, LOA followed the commonly used methodologies developed by Jim Estep (Estep 2011), a wildlife biologist who has monitored Swainson's hawk populations and conducted research on the Swainson's hawk for over 35 years. Estep considers a loss of 30 percent or more of surplus foraging habitat "significant" under CEQA because, based upon his extensive research, this level of loss could reduce the distribution and abundance of an existing Swainson's hawk population and/or prevent that population from expanding. Finding Estep's significance threshold applicable and supported by substantial evidence, LOA applied the threshold where a reduction of surplus habitat to *less than 70 percent* relative to pre-project conditions would represent a cumulatively significant impact.

As shown in Table 4.4-4, it was calculated that the cumulative projects would reduce the total surplus foraging habitat in the study area to 326,099 acres. This remaining acreage of surplus foraging area represents 71.5 percent of the pre-project total of 455,995 acres of surplus foraging habitat. Since the remaining surplus foraging acreage is greater than 70 percent of the pre-project surplus foraging acreage in the study area, the cumulative impact to the Swainson's hawk foraging acreage in the study area was determined to be *less than significant*.

It is also worth noting that: 1) Swainson's hawks have been observed foraging within solar facilities, indicating that these facilities provide some foraging value and that these lands are therefore not completely removed from available foraging habitat in practice; and 2) upon decommissioning of the VCIP facilities, much of the land repurposed for clean energy production under VCIP over the short-term will be restored to a condition suitable for agriculture, thus increasing the acreage of available foraging habitat. Therefore, the estimate of 71.5 percent of surplus foraging habitat that would remain under cumulative development conditions is considered a conservative (low) estimate for both short-term and long-term conditions.

Mitigation Measure BIO-8: Protection of Swainson's Hawks

To reduce the potential impacts to Swainson's hawks due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a. **Pre-construction Surveys for Swainson's Hawk.** During the nesting season prior to the construction on the project site within a half mile of a potential nest tree, preconstruction surveys shall be conducted within the construction zones and adjacent lands to identify any nesting pairs of Swainson's hawks. These surveys shall conform to the guidelines of CDFW as presented in *RECOMMENDED TIMING AND METHODOLOGY FOR SWAINSON'S HAWK NESTING SURVEYS IN CALIFORNIA'S CENTRAL VALLEY*, Swainson's Hawk Technical Advisory Committee, May 31, 2000 and any updates to these guidelines. Pre-construction surveys are not required for construction zones located farther than a half mile from a potential nest tree.
- b. **Nest Avoidance Measures.** If an active nest is found within one-half mile of a planned construction zone, a qualified biologist shall establish a suitable construction-free buffer around the nest. The biologist shall establish the buffer based on topography, nature of construction work, distance to the nest tree, and individual behavior of the nesting pair and young, if they are present. This buffer shall be identified on the ground with flagging or fencing and shall be maintained until the biologist has determined the young have fledged.

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If it is necessary to undertake construction work within the established buffer, a qualified biologist familiar with the active nest should establish a record of “regular” behavior of the nesting pair, and then establish an exclusion zone based on the tolerance of the nesting pair to construction activity in the vicinity of the nest. The qualified biologist shall conduct monitoring of the nest whenever work is planned to occur within the buffer. If a change in behavior from the previously observed “regular” behavior occurs, the qualified biologist shall increase the size of the exclusion zone or reestablish the original standard buffer.

- c. **Mitigation for Loss of Breeding Habitat.** If it is determined that a Swainson’s hawk nest tree(s) is located on or near the individual project site (within 0.5 mile) and was used by a nesting pair within the previous 5 years, the qualified biologist shall coordinate with the project proponent to determine whether the nest tree(s) is planned to be directly impacted (removed) or if the nest tree is planned to be preserved such that potential impacts to the nesting Swainson’s hawks would only occur during nesting season.

If the nest tree(s) is not planned to be permanently impacted, the project shall include establishment of a permanent buffer zone(s) of adequate size around nest tree location(s). The buffer zone shall require adequate management for the life of the project to ensure the buffer area remains suitable for Swainson’s hawks. Annual monitoring of the suitability of management activities may be required by CDFW.

If the project will impact a nest tree, avoidance and minimization measures shall be implemented during the nesting season, as specified in MM BIO-3b and MM BIO-3c above, and an off-site conservation easement shall be required as described below. If removal of a nest tree is planned to occur within the nesting season prior to active nesting, a temporary nest structure shall be established within 0.5 mile of the tree to be removed and shall remain in place throughout the nesting season.

The potential impact to nest trees shall be compensated for through a conservation easement or through purchase of credits at a conservation bank for Swainson’s hawk breeding habitat (nest trees and associated foraging habitat). The conservation easement shall be established at a 1:1 ratio for foraging/breeding habitat preservation. The easement shall include habitats determined to be suitable for foraging and/or breeding year-round and seasonal use. The easement must include a tree of suitable nesting type and size as well as additional plantings for new potential nest trees.

- d. **Tailgate Training for Workers.** Construction workers on all VCIP projects shall attend a tailgate training session conducted by a qualified biologist. The training shall include a description of the species, a brief summary of its biology and minimization measures and instructions on what to do if a Swainson’s hawk is observed on or near the construction site.

Significance After Mitigation: *Less-than-significant impact.* Project-level application of the above mitigation measures to the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to Swainson’s hawk nesting to *less than significant*.

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Impact BIO-9. Impacts to Burrowing Owls

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in the loss of foraging and breeding habitat for burrowing owls, a candidate species for state listing as threatened or endangered. (*Less-than-Significant Impacts with Mitigation*)

Suitable habitats for the burrowing owl include fallow/idle cropland, open/natural lands, along banks of any canals, irrigation ditches, or streams, and margins of farm access roads. Nesting habitat consists mainly of small mammal burrows and culverts and associated nearby foraging habitats within the above habitat types. The development of VCIP projects could result in the loss of foraging and breeding habitat for burrowing owls. As shown in Table 4.4-1, there is a total of approximately 293,520 acres of suitable foraging habitat for burrowing owls in the Plan Area under existing conditions. Full buildout of the VCIP would reduce this area by approximately 97,947 acres. The remaining 195,573 acres represent the retention of 67 percent of suitable habitat within the Plan Area after full buildout of the VCIP. The highest quality habitat for burrowing owls in the Plan Area, open/natural lands and canals (within the waters/wetlands habitat type), are planned to be avoided or have limited impacts, as these are the two smallest habitat types within the Plan Area. For any burrowing owls occurring elsewhere within the Plan Area, both breeding and foraging habitat could be lost; however, there is abundant suitable breeding and foraging habitat on agricultural lands to the west of the Plan Area and the entire Plan Area will not be developed, and thus lands would be retained which are not planned for solar or other development in the foreseeable future. Therefore, the impacts from VCIP implementation on burrowing owl habitat would be *less than significant* on a Plan-wide basis. However, in the case of some VCIP projects, it is possible that sufficient foraging habitat on adjacent or nearby lands would not be available either because they do not contain suitable habitat, or because they are already developed. Since the habitat requirements for a burrowing owl pair are 200 acres of suitable foraging habitat within two miles of the nest site, it is possible that situations may arise where this habitat requirement cannot be met. In such cases, the loss of habitat would represent a *significant impact*. With implementation of MM BIO-9, the potential impact would be avoided or substantially reduced to *less than significant*.

Ground disturbance from project construction may also result in the mortality of burrowing owls, as they are known to retreat into their burrows ahead of approaching grading activity. These small raptors are protected under the federal Migratory Bird Treaty Act and the California Fish and Game Code. Thus, the mortality of individual burrowing owls would constitute a *significant impact*. With implementation of MM BIO-9, the potential impact would be avoided or substantially reduced to *less than significant*.

Mitigation Measure BIO-9: Protection of Burrowing Owls

To avoid or substantially reduce the potential impact to burrowing owls due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a) **Pre-Construction Surveys for Burrowing Owl.** Pre-construction surveys for burrowing owls shall be conducted by a qualified biologist no more than 14 days in advance of the on-set of ground-disturbing activity at the project site. These surveys shall be conducted according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) or the most recent CDFW guidelines. The surveys shall cover all areas of suitable burrowing owl habitat within the project site.

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- b) **Avoidance of Active Burrowing Owl Nests During Breeding Season.** If pre-construction surveys are undertaken during the breeding season (February through August) and active nest burrows are located within or near construction or decommissioning zones, a construction-free buffer of 250 feet shall be established around all active owl nests. These buffer zones shall be enclosed with temporary fencing, and construction equipment and workers shall not be allowed to enter the enclosed setback areas. The buffer zones shall remain in place for the duration of the breeding season.
- c) **Avoidance of Occupied Burrows During Non-Breeding Season, and Passive Relocation of Burrowing Owls.** During the non-breeding season (September through January), any burrows occupied by resident owls in areas planned for construction or decommissioning disturbance shall be protected by a construction-free buffer with a radius of 150-250 feet around each burrow, with the required buffer distance to be determined in each case by a qualified biologist. Passive relocation of resident owls is not recommended by CDFW where it can be avoided. Given recent change in the burrowing owl's status to a state candidate species for listing, an ITP would likely be required to conduct passive relocation.
- d) **Mitigation for Loss of Burrowing Owl Habitat.** If it is determined that burrowing owl nest(s) are located on or near the individual project site, the qualified biologist shall coordinate with the project proponent to determine whether these nest(s) are to be impacted or if they are planned to be avoided. If the on-site or nearby nests are to remain in place, the biologist shall determine whether sufficient foraging habitat will be available on adjacent or nearby lands after project completion, and if so, no further mitigation is required. (Approximately 200 acres of year-round foraging habitat within about 2 miles of the burrowing owl burrow is required to support a burrowing owl pair.) If it is determined that insufficient nearby foraging habitat would be available after project completion, the biologist shall determine the amount of off-site (or on-site) foraging habitat that would be required to sustain the burrowing owl pair. The potential impact to foraging habitat shall be either avoided through implementation of measure #1 below (onsite buffer zone), or compensated through implementation of measure #2 (conservation easement), or measure #3 (long-term agreement on adjacent lands), as set forth below:
- 1) Establishment on the project site of a permanent buffer zone(s) of adequate size around current burrowing owl locations, such that the total acreage of onsite (potentially combined with adjacent offsite) habitat is sufficient to support the resident burrowing owls. These buffer zones shall require adequate management for the life of the project to ensure the buffer area remains suitable for burrowing owls. Annual monitoring of management activities may be required by CDFW; or
 - 2) Establishment of an off-site conservation easement for foraging/breeding habitat preservation, with the lands covered by the easement containing sufficient acreage to support the impacted burrowing owls. The easement shall include habitats determined to be suitable for foraging and/or breeding year-round and seasonal use; or
 - 3) Short or long-term compensation for foraging habitat by providing farmers on adjacent lands incentives to plant particular crops known to be suitable foraging habitat for

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burrowing owls (i.e., winter wheat, alfalfa, etc.) and to enact a farmer burrowing owl safety program where farmers are trained in how to reduce burrowing owl mortalities on their lands and farm roads.

- e) **Tailgate Training for Workers.** Construction workers on all VCIP projects shall attend a tailgate training session conducted by a qualified biologist. The training shall include a description of the species, a brief summary of its biology and minimization measures and instructions on what to do if a burrowing owl is observed on or near the construction site.

Significance After Mitigation: **Less-than-significant impact.** Project-level application of the above mitigation measures to the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to burrowing owls to *less than significant*.

Impact BIO-10. Impacts to Pallid Bat, Western Mastiff Bat, and other Bat Species

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in potentially substantial adverse impacts to the pallid bat and western mastiff bat, both state species of special concern, and other bat species. (*Less-than-Significant Impact with Mitigation*)

These and other bat species may forage over the Plan Area, and roosting habitat may occur on individual project sites in the form of trees or buildings/structures. Loss of roosting or foraging habitat for bats is not considered significant since such habitat is abundantly available regionally. Activities that may result in harm or mortality to roosting bats or a maternity colony would constitute a potentially *significant impact*. With implementation of MM BIO-10, the potential impact would be avoided or substantially reduced to *less-than-significant*.

Mitigation Measure BIO-10: Protection of Bat Species

To avoid harm or mortality to bats due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a) **Initial Surveys.** The initial biological surveys required for the project under project MM BIO-1 shall identify if trees or buildings are on the project site. If no trees or buildings are present on the site, no further surveys or mitigation for bats is required. If trees or buildings are present on the project site, the following measures would apply.
- b) **Daytime Habitat Assessment/Humane Eviction.** A daytime bat assessment/survey shall be conducted prior to removal of any intact trees or buildings on the project site. If a non-breeding bat colony is observed, the individuals shall be humanely evicted via two-step removal process under the direction of a qualified biologist to ensure that no harm or “take” would occur to any bats as a result of building or intact tree removal activities.
- c) **Minimization.** If a maternity colony is detected, then a construction-free buffer zone shall be established around the applicable building or tree and remain in place until the nursery is no

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longer active. Removal of the building or tree should be conducted between March 1 and April 15 or between August 15 and October 15 to avoid interfering with an active nursery.

Significance After Mitigation: **Less-than-significant impact.** Project-level application of the above mitigation measures to the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to bats to *less than significant*.

Impact BIO-11. Impacts to Burrowing Mammals Including the San Joaquin Antelope Squirrel (SJAS), Short-Nosed Kangaroo Rat, and Giant Kangaroo Rat

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in potentially substantial adverse impacts to protected burrowing mammal species. (*Less-than-Significant Impact with Mitigation*)

The SJAS could occur in open/natural lands within the Plan Area, while the short-nosed kangaroo rat and giant kangaroo rat would only occur in this habitat in the areas of the Plan Area located west of I-5. If these species occur on a VCIP project site, construction activities could cause harm or mortality to these species. This would be considered a potentially *significant impact*. With implementation of MM BIO-11, the potential impact would be avoided or substantially reduced to *less than significant*.

Mitigation Measure BIO-11: Protection of Protected Burrowing Mammal Species

To avoid harm or mortality to protected burrowing mammal species due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a) **Preliminary Surveys/Actions.** Preliminary daytime surveys shall be conducted to identify SJAS during their active season (April 1-September 30) in daylight hours between 20 and 30 degrees Celsius (68-86 degrees Fahrenheit). During these surveys, if kangaroo rat burrows are identified, live trapping by a qualified biologist may be required to ascertain presence or absence of the giant and short-nosed kangaroo rats, since both species can occupy kangaroo rat burrows. If preliminary surveys identify the project as supporting potentially suitable habitat for any of these species, the qualified biologist shall identify avoidable burrows within a particular work area. Any avoidable burrows shall be avoided as discussed below. Should preliminary surveys identify that there are unavoidable burrows within a particular work area, protocol-level surveys for the SJAS, giant kangaroo rat, and short-nosed kangaroo rat shall be conducted before starting construction activities in that work area.
- b) **Pre-construction Surveys.** During the preconstruction surveys for other species, if burrows are identified that were not previously identified during the preliminary surveys, a qualified biologist shall flag burrows within the project site and any off-highway access driveways for the project, and any other work areas within the open/natural lands. If preliminary surveys and pre-construction surveys fail to detect burrows, then no further action is required.

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- c) **Avoidance and Compensation.** If burrows are identified during preconstruction surveys within or immediately adjacent to an area subject to project activity, a disturbance-free buffer zone of at least 10 meters shall be established for each burrow. If active burrows cannot be avoided, it may be necessary to obtain an ITP, under which suitable habitat may be required to be preserved either on- or off-site.

Significance After Mitigation: *Less-than-significant impact.* Project-level application of the above mitigation measures to the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to protected burrowing mammal species to *less than significant*.

Impact BIO-12. Impacts to San Joaquin Kit Fox

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in potentially substantial adverse impacts to the San Joaquin kit fox (SJKF), a federally listed endangered species. (*Less-than-Significant Impact with Mitigation*)

Open/natural lands constitute the core habitat for the SJKF, although they may also occur in fallow/idle cropland, and may periodically move through the Plan Area. As such, the entire Plan Area has potential for occurrence of SJKF. The majority of the Plan Area has been highly modified for and due to agricultural use, while lands adjacent to the west of the Plan Area have retained their natural habitat quality. Therefore, SJKFs may occur within the open/natural lands and fallow/idle croplands and may occasionally forage within or disperse through the rest of the Plan Area. As such, VCIP implementation could have a potentially *significant impact* upon the SJKF. With implementation of MM BIO-12, the potential impact would be avoided or substantially reduced to *less than significant*.

Mitigation Measure BIO-12: Protection of San Joaquin Kit Fox

To avoid harm or mortality to San Joaquin kit fox due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a) **Pre-Construction Surveys for Kit Fox.** Pre-construction surveys for the SJKF shall be conducted by a qualified biologist no less than 14 days and no more than 30 days prior to the beginning of ground disturbance, construction or decommissioning activities, or any other activities likely to impact the SJKF. These surveys shall be conducted in accordance with the “*U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior To or During Ground Disturbance*” (USFWS 2011) which are set forth in full in Table 4.4-4 or the most recent USFWS guidelines. The primary objective of these recommendations is to identify kit fox habitat features (e.g., potential dens and refugia) on the project site and evaluate their use by kit foxes. If an active kit fox den is detected within or immediately adjacent to the area of work, the USFWS shall be contacted immediately to determine the best course of action.

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- b) **Kit Fox Avoidance Measures.** Should kit fox be found to be using the project site during pre-construction surveys, the project shall avoid the habitat occupied by kit fox and the Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW shall be notified.
- c) **Tailgate Training for Workers.** All workers on the project shall attend a tailgate training session conducted by a qualified biologist. The training shall include a description of the species, a brief summary of their biology, and minimization measures and instructions on what to do if a SJKF is observed on the project site.
- d) **Minimization of Potential Disturbance to Kit Fox.** Whether or not kit foxes are found to be present, all permanent and temporary construction activities, decommissioning activities, and other types of project-related activities shall be carried out in a manner that minimizes potential disturbance to kit foxes. This shall be accomplished through implementation of the protection measures set forth in USFWS's standard recommendations provided above and set forth in full in Table 4.4-4.
- e) **Mortality Reporting.** The Sacramento Field Office of the USFWS and the Fresno Field Office of CDFW shall be notified in writing within three working days in case of the accidental death or injury to a SJKF during project-related activities. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and any other pertinent information.
- f) **Minimization.** If active dens are identified during pre-activity surveys within or immediately adjacent to an area subject to project activity, a disturbance-free buffer zone of at least 300 feet shall be established around the active den. This buffer shall be maintained until the young have moved on from the den. Once the den has been confirmed to be inactive by a qualified biologist, it shall be excavated, then collapsed. If active burrows cannot be avoided, an ITP may be required.
- g) **Wildlife-friendly Fencing.** The perimeter fencing surrounding each phase of the project shall consist of wildlife-friendly or permeable fencing that allows SJKF and other wildlife to move through the site unimpeded. The bottom of the perimeter fencing shall be 5 to 7 inches above the ground, as measured from the top of the ground to the lowest point of the fence. The bottom of the fence edges shall be knuckled (wrapped back to form a smooth edge) to allow wildlife to pass through safely. The fencing shall not be electrified.

Significance After Mitigation: **Less-than-significant impact.** Project-level application of the above mitigation measures to the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to San Joaquin kit fox to *less than significant*.

[Should kit fox be observed within an individual project site, the applicant may wish to contact the USFWS for implementation of a Safe Harbor Agreement. If allowed, this agreement will allow the applicant "assurances that additional land use restrictions as a result of their voluntary conservation actions would not be imposed by the USFWS" (USFWS 1998).]

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Table 4.4-4

U.S. FISH AND WILDLIFE SERVICE STANDARDIZED RECOMMENDATIONS FOR PROTECTION OF THE ENDANGERED SAN JOAQUIN KIT FOX PRIOR TO OR DURING GROUND DISTURBANCE

CONSTRUCTION AND ON-GOING OPERATIONAL REQUIREMENTS

1. Project-related vehicles should observe a daytime speed limit of 20-mph throughout the site in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. Night-time construction should be minimized to the extent possible. However, if it does occur, then the speed limit should be reduced to 10-mph. Off-road traffic outside of designated project areas should be prohibited.
2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2-feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the Service and the California Department of Fish and Wildlife (CDFW) shall be contacted as noted under measure 13 referenced below.
3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or project site.
5. No firearms shall be allowed on the project site. (This prohibition does not apply to law enforcement personnel such as Sheriff's Deputies or the Fire Marshal.)
6. No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.
7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the USFWS. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to kit fox. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the USFWS.
8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the USFWS. (Continued on next page.)

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Table 4.4-4 (Cont'd)

**U.S. FISH AND WILDLIFE SERVICE STANDARDIZED RECOMMENDATIONS
FOR PROTECTION OF THE ENDANGERED SAN JOAQUIN KIT FOX PRIOR TO OR DURING GROUND DISTURBANCE
CONSTRUCTION AND ON-GOING OPERATIONAL REQUIREMENTS**

9. An employee education program should be conducted for any project that has anticipated impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and/or agency personnel involved in the project. The program should include the following: A description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the previously referenced people and anyone else who may enter the project site.
10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc., should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the USFWS, California Department of Fish and Wildlife (CDFW), and revegetation experts.
11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for guidance.
12. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFW immediately in the case of a dead, injured or entrapped kit fox. The CDFW contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or Mr. Paul Hoffman, the wildlife biologist, at (530) 934-9309. The USFWS should be contacted at the numbers below.
13. The Sacramento Fish and Wildlife Office and CDFW shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309.
14. New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the Service at the address below.
15. Any project-related information required by the Service or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at:

Endangered Species Division
2800 Cottage Way, Suite W2605
Sacramento, California 95825-1846
(916) 414-6620 or (916) 414-6600

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Impact BIO-13. Impacts to American Badgers

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in potentially adverse impacts to the American badger, a California Species of Special Concern. (*Less-than-Significant Impact with Mitigation*)

The American badger has been previously recorded within the Plan Area and may occur in open/natural lands and fallow/idle croplands, and may periodically move through the Plan Area. As such, implementation of proposed VCIP projects could have a potentially *significant impact* upon the American badger. Implementation of MM BIO-13 would avoid or substantially reduce this potential impact to *less than significant*.

Mitigation Measure BIO-13. Protection of American Badger

To avoid harm or mortality to American badger due to VCIP implementation, the following mitigation measures are applicable at the project-specific level:

- a. **Pre-construction Surveys for American Badger.** During the course of pre-construction surveys prescribed for other species, a qualified biologist shall also determine the presence or absence of badgers prior to the start of each individual project. If badgers are found to be absent, a report shall be written to the project proponent so stating and no other mitigations for the protection of badgers would be required.
- b. **Avoidance of Active Badger Dens and Monitoring.** If an active badger den is identified during pre-construction surveys within or immediately adjacent to an area subject to construction or decommissioning, a construction-free buffer of up to 300 feet shall be established around the den. Once the qualified biologist has determined that badgers have vacated the burrow, the burrow shall be collapsed or excavated, and ground disturbance can proceed. Should the burrow be determined to be a natal or reproductive den, and because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor shall be present onsite during construction activities in the vicinity of the burrows to ensure the buffer is adequate to avoid direct impact to individuals or natal/reproductive den abandonment. The monitor shall be required to be present onsite until it is determined that young are of an independent age and construction or decommissioning activities would not harm individual badgers. Once the den has been confirmed to be inactive by the qualified biologist, it may be excavated, then collapsed.
- c. **Tailgate Training for Workers.** Construction workers on all VCIP projects shall attend a tailgate training session conducted by a qualified biologist. The training shall include a description of the species, a brief summary of their biology, and minimization measures and instructions on what to do if an American badger is observed on the project site.

Significance After Mitigation: *Less-than-significant impact.* Project-level application of the above mitigation measures to the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to American badger to *less than significant*.

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Impact BIO-14. Impacts to Wildlife Movement Corridors

Implementation of the VCIP Energy Resource and Infrastructure Plans would not interfere with the home range and dispersal movements of native wildlife. (*Less-than-Significant Impact*)

As discussed in Section 4.4.1. *Environmental Setting*, there are several wildlife movement corridors within and adjacent to the Plan Area. The northern third of the Plan Area serves some function as a wildlife linkage/corridor, which potentially includes a narrower southwest-northeast wildlife linkage/corridor area across the Plan Area from the region of Three Rocks to just south of the Mendota Wildlife Refuge. In addition, the natural hills on the west side of I-5 act as a wildlife linkage/corridor. Other wildlife corridors adjacent to the Plan Area include the riparian corridor along the San Joaquin and Kings Rivers and the Delta-Mendota Canal and Fresno Slough. The San Luis Canal/California Aqueduct, which bisects the Plan Area, also provides a corridor for wildlife movement.

Since approximately 25 percent of the Plan Area would be developed under full VCIP buildout, and since much of the planned development would occur in non-contiguous DFAs, the Plan Area would retain open lands which would be utilized for wildlife movement. The VCIP projects would retain the existing canals and ditches which pass through the solar and energy storage sites, and which would not be enclosed within the facilities' perimeter fencing, and would therefore allow open access through the area for wildlife movement. Thus, it is expected that wildlife that currently uses the canals for movement will continue to use the canal system to move through the site at project buildout without substantial interference. Also, the VCIP projects would include wildlife-friendly fencing which would include a 5-7 inch continuous gap at the bottom of the fencing to permit passage of wildlife through the facilities, as specified in MM BIO-12g.

In summary, wildlife currently using the Plan Area for movement are expected to continue to use the Plan Area after VCIP buildout. Therefore, the implementation of VCIP energy and infrastructure plans would not interfere with the home range and dispersal movements of native wildlife, and the impact would be *less than significant*.

Mitigation Measures: No mitigation is required.

Impact BIO-15. Potential Hazards to Avian Species

Implementation of the VCIP Energy Resource and Infrastructure Plans would minimize potential hazards to avian species due to night lighting, lake effect, collision, and electrocution. (*Less-than-Significant Impact with Mitigation*)

Night Lighting

The avian species that occur within the Plan Area or migrate through it would be subject to potential increases in night lighting from the VCIP solar, energy storage, and substation facilities. Night lighting, particularly upward-facing lights can attract night-migrating birds and move them off their migratory {AM0010.1}

track. Minimal night lighting is expected to be employed for individual projects within the Plan Area. As described in Section 4.1. *Aesthetics*, lighting for the typical solar and energy storage facility would be designed to provide minimum illumination for safety and security. Light fixtures would be hooded and downward directed. Low-level lighting would be installed at the entry gates, substation, and O&M building, and there would be no lighting along any internal access driveways, or around the facility perimeter. Lighting systems would be light activated to automatically come on in the evening and shut off in the morning. There would be no lighting within the solar fields except at the power conversion system inverter/transformer pads (PCSs), which would be activated only when needed by switch or motion sensors. Since each individual VCIP project would include minimal and low-intensity lighting, the impact of project lighting to avian species would be *less than significant*.

Lake Effect

The “lake effect” is a phenomenon where migrating waterfowl are attracted to solar photovoltaic (PV) facilities because the solar arrays can be mistaken for water surfaces, causing the birds to collide with the structures as they attempt to land on the panels. As discussed in detail in LOA’s biological report in Appendix C, birds that are water-associated species like shorebirds and geese have the ability to fly off land or water, while water-obligated birds such as ducks, grebes, and loons need water to take off for flight and are unable to take off from land. Migrating water-obligated species require water bodies at regular intervals along their migration routes. Upland avian species also need daily water and can be attracted by the lake effect. This could result in collisions with solar arrays, or for water-obligated species could result in stranding since they need water to take flight.

Studies suggest that birds are attracted to structures with higher polarization, or reflectivity (Diehl et al. 2021; Kosciuch et al. 2020). Thus, the attraction would be greater at concentrating solar facilities, which utilize highly reflective mirrors to focus reflected sunlight to a central receiving tower, compared to solar PV arrays, where the panels are manufactured and treated specifically to produce low reflectivity.

As part of the Pacific Flyway, the San Joaquin Valley has significant aquatic and wildlife habitat areas that support millions of birds across the seasons. Migratory waterfowl move through the San Joaquin Valley from the Delta to San Francisco Bay, the Grasslands region, Mendota Wildlife Area, Tulare Lakebed, and Kern National Wildlife Refuge. Large bodies of surface water in the region include the San Luis Reservoir, Los Banos Reservoir, and O’Neill Forebay. Apart from the San Joaquin River and the marsh and slough complex in the Mendota Wildlife Area to the northeast, there are no large waterbodies near the Plan Area, although studies have shown that waterfowl use lands within the Plan Area for foraging.

Given the abundance of aquatic habitat available in the Plan Area vicinity to support migrating and resident avian species, and the low level of attraction to the non-reflective solar arrays planned under the VCIP, the potential for adverse effects due to potential “lake effect” from VCIP solar PV facilities would be small.

During solar facility operation, solar panels are typically positioned at night where they last tracked the sun, or are pre-positioned to the east to capture sunrise (i.e., the panels would be in a near vertical position overnight). However, if left in a horizontal or flat position, solar panels may attract birds attempting to land on a PV array at sunset or sunrise that mistake it for water. Bird collisions with solar facilities would be a *potentially significant impact*, but this impact would be reduced to *less than* {AM0010.1}

significant by implementing MM BIO-14a, which would require panels to be set at a near vertical position at the end of each day. Therefore, during morning and late afternoon/evening hours when waterfowl are most likely to land in large bodies of water, the panels would be in a position which would avoid producing the potential for “lake effect” during those critical hours. This would reduce the potential for the arrays to be mistaken for water surfaces and thus reduce the potential for attempted landings and collisions with the arrays, and thus would minimize the potential for harm to birds.

Collision and Electrocutation Hazards at Transmission Lines

All bird species, especially raptors and other large birds, are susceptible to collisions with power lines, particularly when the lines have low visibility. The VCIP gen-ties and transmission lines would introduce new collision hazards resulting in potential injury or mortality to raptors and other large bird species.

Electrocutation can occur when phase conductors and other electrical hardware are separated by less than the wingspan or height of the bird. The risk of injury or mortality from electrocutation would be a *potentially significant impact*.

The risk of collision and electrocutation would be reduced to *less than significant* by implementing MM BIO-15b, which would require transmission lines and electrical components to be designed, installed, in accordance with the guidance of the Avian Power Line Interaction Committee (APLIC).

Mitigation Measure BIO-14. Protection of Avian Species from Risk of Collision and Electrocutation

To avoid harm or mortality to avian species due to risk of collision with solar arrays, and risk of collision and electrocutation at transmission lines, the following mitigation measures are applicable at the project-specific level:

- a. **Reduce Potential for Bird Collisions with Solar Arrays.** At the end of each day, the solar panels shall be set at a near vertical position to avoid a horizontal resting position which may attract birds which could mistake the arrays for water surfaces.
- b. **Reduce Potential for Bird Collisions and Electrocutations with Power Lines.** To minimize the potential for bird collisions and electrocutations with power lines, the VCIP gen-tie and transmission lines shall be designed, constructed, and maintained in accordance with the following APLIC guidelines: *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012) and *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC 2006).

Significance After Mitigation: *Less-than-significant impact.* Project-level application of the above mitigation measures to the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential collision and electrocutation hazard impacts to avian species to *less than significant*.

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Impact BIO-16. Impacts to Jurisdictional Waters and Riparian Habitats

Implementation of the VCIP Energy Resource and Infrastructure Plans could result in potentially adverse impacts to jurisdictional waters and riparian habitats. (*Less-than-Significant Impact with Mitigation*)

Hydrologic features within the Plan Area include the San Luis Canal/California Aqueduct, Coalinga Canal, canals, and some ephemeral drainages which are expected to be dry nearly the entire year. The Plan Area also likely supports a few vernal pools and seasonal wetlands along its eastern boundary. The San Luis Canal/California Aqueduct are considered unlikely to be jurisdictional by the USACE.

Ephemeral drainages are not likely to meet the criteria to be jurisdictional by the USACE. However, specifics and contexts are important and whether USACE, RWQCB, or CDFW any of would exercise jurisdiction over such a feature can only be ascertained by conferring with each agency.

Vernal pools and seasonal wetlands on the other hand, while likely meeting the wetlands criteria of USACE, would only be considered jurisdictional if they have a continuous surface connection with a body of water that is itself a “water of the United States”. The RWQCB would likely consider these features as water of the state. CDFW does not have jurisdiction over isolated vernal pools or seasonal wetlands unless a protected species is present.

None of the hydrologic features within the Plan Area are expected to be impacted by the potential VCIP projects particularly since there are few hydrologic features in the Plan Area and each project would have sufficient acreage for design flexibility to avoid such features. Therefore, impacts associated with most, if not all, VCIP projects would be less than significant. Suitable permits may be required if a VCIP project would involve impacts to hydrologic regulated by the USACE, RWQCB and/or CDFW; the affected projects would be subject to mitigation conditions as stipulated in any relevant permit. With implementation of MM BIO-15, the potential impact would be avoided or substantially reduced to *less than significant*.

Mitigation Measure BIO-15: Jurisdictional Waters and Riparian Habitats

If a proposed VCIP project includes plans to place fill or structures within a wetland, jurisdictional water, or riparian habitat, the following mitigation measures are applicable at the project-specific level to ensure consistency with applicable “no net loss” policies:

- a. **Minimization of Impact.** If a proposed VCIP project includes plans to fill a Water of the U.S., and/or a Water of the State, the project shall be designed to minimize impacts to such Waters to the maximum extent practicable.
- b. **Compensatory Mitigation.** If avoidance is not practicable, compensation for the loss of Waters of the U.S. and/or Waters of the State may be required unless a waiver is granted. This may be accomplished by purchasing in-kind credits at an approved mitigation bank, payment into an established in-lieu fund, or through the preservation of onsite or offsite lands with similar hydrologic features. Any preservation lands would be placed under conservation

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easement held by a third party and managed in perpetuity with an agency approved endowment fund.

- c. **Creation of New Wetlands.** As an alternative to Mitigation Measure BIO-16b, a project proponent may compensate for the loss of Waters of the U.S. and/or State through the creation of in-kind waters at a ratio determined by the USACE and/or RWQCB on preserved lands, onsite or offsite, which have characteristics necessary for creation of similar hydrologic features. Such created wetland would be placed under conservation easement held by a third party and managed in perpetuity with an agency approved endowment fund.
- d. **Employee Education Program.** During the construction phases of the project, a qualified biologist shall conduct an environmental awareness program for all construction and onsite personnel. Training shall include a discussion of avoidance and minimization measures being implemented to protect biological resources (including jurisdictional Waters and wetlands) as well as terms and conditions of the permits.

Significance After Mitigation: **Less-than-significant impact.** Project-level application of the above mitigation measures to the potential VCIP energy resource and infrastructure projects would avoid or substantially reduce potential impacts to jurisdictional waters and riparian habitats to *less than significant*.

Impact BIO-17. Local Policies or Ordinances Protecting Biological Resources

Implementation of the VCIP Energy Resource and Infrastructure Plans would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (*Less-than-Significant Impact*)

Since the Plan Area is within Fresno County, the VCIP energy and infrastructure development may be subject to the policies and regulations of Fresno County. The Fresno County General Plan includes a number of policies related to the protection of biological species and habitats, as enumerated in Section 4.4.2. *Regulatory Context*. These include policies for the protection of sensitive species and habitats during project development by requiring biological surveys for discretionary projects, and implementing mitigation for potential biological impacts. Open Space and Conservation Policy OS-F.4 Landmark Trees specifically provides for the preservation and protection of landmark trees whenever possible.

The biological resources impacts associated with VCIP implementation are identified previously in this section. The mitigation measures identified for potential impacts provide detailed prescriptive actions to be undertaken at the project-specific stage to avoid or substantially reduce potentially significant impacts to biological resources to less-than-significant levels. It is expected that potential VCIP energy and infrastructure development would take place in a manner that would not conflict with local policies or ordinances protecting biological resources. As such, the impact of VCIP implementation with regard to conflicts with local policies and ordinances protecting biological resources would be *less than significant*.

Mitigation Measures: No mitigation is required.

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Impact BIO-18. Habitat Conservation Plans

Implementation of the VCIP Energy Resource and Infrastructure Plan would not conflict with adopted habitat conservation plans or other approved local, regional or state habitat conservation plans. (*Less-than-Significant Impact*)

USFWS adopted the *Recovery Plan for Upland Species of the San Joaquin Valley* (USFWS 1998) which covers 34 species of plants and animals that occur in the San Joaquin Valley. The majority of these species occur in arid grasslands and scrublands of the San Joaquin Valley and the adjacent foothills and valleys. The Plan Area includes information on recovery criteria, habitat protection, umbrella and keystone species, monitoring and research program, adaptive management, and economic and social considerations.

The western edge of the Plan Area is adjacent to the Ciervo-Panoche Natural Area, which the Recovery Plan defines as “natural lands along the western edge of the Valley and in the contiguous foothills and coastal range, from the Panoche Hills and Valley, Fresno and San Benito Counties, south to Anticline Ridge near Coalinga, Fresno County.” The Ciervo-Panoche Natural Area encompasses an area of approximately one-half million acres in the Coast Ranges immediately west of the Plan Area. Within this Natural Area, the goals of the Recovery Plan are to protect the natural lands to facilitate the recovery of specific species and to maintain and enhance existing movement corridors as well as connecting other natural lands within the Recovery area.

The Ciervo-Panoche Natural Area is included in the recovery plans for three plant species (California jewelflower, San Joaquin woollythreads, and Hoover’s eriastrum) and two animal species (giant kangaroo rat and blunt-nosed leopard lizard). Suitable habitat for all these species consists of open/natural lands, while cultivated agricultural land is unsuitable habitat for these species. Almost all the Plan Area lands west of I-5 consist of lands in cultivation for row or tree crops, with a few pockets of natural/open lands or fallowed lands. Among the DFAs located west of I-5, there are a total of approximately 500 acres in open/natural or fallowed lands. Before these lands can be developed for solar and energy storage facilities, pre-construction surveys for these species would be required, as set forth in MM BIO-1, BIO-2, BIO-7 and BIO-11 above, which would confirm presence or absence of these species and require mitigation as appropriate in each case. As such, impacts to individuals of these species would be avoided or mitigated to less than significant levels. The loss of up to 500 dispersed acres of potential habitat at the extreme eastern edge of the Ciervo-Panoche Natural Area would not impair or impede the recovery of the five species sought to be protected, and the impact would be *less than significant*.

Another species addressed in the Recovery Plan that potentially occurs within or in the vicinity of the Plan Area is the SJKF. While the Recovery Plan covers the kit fox, it does not include a specific recovery plan for this species as it does for the five species mentioned above and others. However, any potential impacts to kit fox would be avoided through implementation of MM BIO-12 above. Therefore, the implementation of the VCIP would not conflict with the goals of the Recovery Plan for protecting the SJKF and the impact would be *less than significant*.

The Recovery Plan also identifies potential wildlife movement corridors and indicates that the northern portion of the Plan Area contains areas mapped as “[p]roposed areas where connectivity and linkages

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should be promoted,” and the natural hills west of I-5 are likely used by native wildlife as a corridor along the foothills. In this context, it is noted that the solar and energy storage projects planned under the VCIP would include wildlife-friendly fencing which would include a 5- to 7-inch continuous gap at the bottom of the fencing to permit passage of wildlife through the facilities. In addition, the ditches and canals that pass through the solar and energy storage sites would not be enclosed within the facilities’ perimeter fencing, and would therefore allow open access through the area for wildlife movement. As such, the VCIP projects would not impede wildlife movement, including the movement of SJKF through the Plan Area, and the impact would be *less than significant*.

In summary, the projects planned under the proposed VCIP would not conflict with the provisions of the Recovery Plan, and the impact to the Recovery Plan would be *less than significant*.

The Plan Area is not covered by any existing HCP or NCCP, or any other conservation plan area adopted at the local, regional, state, or federal level. Therefore, the implementation of the VCIP Energy Resource and Infrastructure Plans would not conflict with any such plans.

The Plan Area is not included in any Critical Habitat Area designated by the USFWS or CDFW (CDFW 2024).

Mitigation Measures: Implement MM BIO-1, BIO-2, BIO-7, BIO-11, and BIO-12.

4.4.3.2. TRANSMISSION CORRIDORS OUTSIDE THE VCIP

The transmission corridors for delivery of solar generation from potential VCIP projects to urban electricity markets in northern and southern California have been identified at a conceptual level in this PEIR to allow a general discussion of environmental impacts associated with transmission line development for informational purposes. These transmission delivery corridors extend far beyond the District’s boundaries and are not part of the proposed VCIP. Planning and approval of these outside transmission lines are under the jurisdiction of the state and federal energy regulatory agencies, public utilities, and cities and counties traversed by the transmission lines. The following discussion provides an overview of potential impacts of the outside transmission lines upon biological resources.

The three main delivery transmission lines would traverse 10 counties en route to the regional load centers in northern, central, and southern California. The transmission lines would pass through diverse biological settings comprising seven ecoregions. The northern transmission corridor extends along the western edge of the San Joaquin Valley from Fresno to Alameda counties and would run through the Great Valley and Coast Ranges ecoregions (CDFW 2024c). The land cover along the northern transmission route consists primarily of agricultural land on the valley floor, and in the foothill segments it consists entirely of annual grasslands which transitions to blue oak woodlands on the higher terrain to the west (USFS 2017). Ephemeral streams, seasonal wetlands, vernal pools, and riparian habitats also occur along the corridor. A number of protected plant and animal species have been observed and recorded in the vicinity of the northern corridor. Examples include valley longhorn elderberry beetle, blunt-nosed leopard lizard, burrowing owl, Swainson’s hawk, and critical habitat for red-legged frog near Tracy (CDFW 2024c). Some species found in the northern corridor are not present within the Plan Area and are therefore not analyzed above (e.g., the red-legged frog).

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The western transmission corridor would extend westward over the Coast Ranges through San Benito and Monterey counties to Moss Landing on Monterey Bay. The mountains and interior valleys traversed by this corridor are part of the Central Valley Coast Ranges and Central California Coast ecoregions and are vegetated by a mixture of oak woodland, scrub, and chaparral. Ephemeral streams, seasonal wetlands, vernal pools, and riparian habitats also occur along the corridor. A number of protected plant and animal species occur in the vicinity of the western corridor. Examples include blunt-nosed leopard lizard, SJKF and numerous resident and migratory bird species. The transmission route traverses critical habitat for the Monterey spineflower in the vicinity of Prunedale (CDFW 2024c).

The southern transmission route would extend southward on the San Joaquin Valley floor until reaching the Tehachapi Range southeast of Bakersfield. The transmission route would then run southeastward over the mountains before descending to the Antelope Valley en route to the Vincent Substation near Acton. The southern transmission route would pass through three counties and four ecoregions including the Great Valley, Sierra Nevada Foothills, Sierra Nevada, and Mojave Desert ecoregions. The land cover along the southern transmission route consists primarily of agricultural land on the valley floor, oak woodland and chaparral vegetative cover in the Tehachapis, and juniper woodland and desert shrub/scrub in the Antelope Valley (CDFW 2024). A number of protected plant and animal species occur in the vicinity of the southern corridor. Examples include blunt-nosed leopard lizard, SJKF, burrowing owl, Bakersfield cactus, and several other rare plant species. The transmission route traverses a small area of critical habitat for the California condor in the vicinity of Stallion Springs in the Tehachapis (CDFW 2024c).

As described above, the outside transmission corridors pass through regions containing numerous protected plant and animal species which would be subject to potential impacts due to construction and operation of the transmission lines. As part of the approval and environmental review processes for each transmission project, full coverage ground surveys would be required to determine the presence or absence of these species within the corridor, similar to those specified above in MMs BIO-1 and BIO-2. If individuals of these species are found to be present, then the avoidance measures specifically tailored for each species would be required to prevent direct impacts to the affected species and their habitats, similar to those set forth in MMs BIO-3 through BIO-13.

The outside transmission corridors would pass through areas containing wetlands, jurisdictional waters, streams or riparian areas, but it is expected that the transmission projects would be designed to span such features to avoid potential impacts. Similarly, the very small footprints and wide spacing of transmission towers would not interfere with wildlife movements and migration patterns. The potential for avian collisions or electrocution are expected to be minimized by following APLIC guidance for transmission design, similar to the measure specified for the VCIP projects in MM BIO-14.

With regard to local plans and policies, utilities infrastructure is typically permitted in all local zoning districts, so there would be no conflicts between the outside transmission lines and local plans and policies. Regarding habitat conservation plans, the transmission corridors do not traverse any lands subject to HCPs or NCCPs (CDFW 2024c). In the event the transmission lines were to be subject to future HCPs, utilities infrastructure is typically included as a “covered activity” in such plans, which would require compliance with the applicable provisions of the plans such as payment of mitigation fees.

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4.4.3.3. CUMULATIVE IMPACTS

The study area for cumulative biological impacts varies depending on the species or resource under consideration. For example, the study area for cumulative impacts to Swainson's hawk is generally considered to encompass lands within a 10-mile radius of a project site, while the study areas for other species are usually smaller. Therefore, the geographic scope of this cumulative analysis varies depending on the species or resource under consideration, with the minimum extent represented by the VCIP Plan Area, and the maximum extent encompassing lands within 10 miles of the Plan Area. Accordingly, the cumulative projects considered in this analysis include projects within 10 miles of the Plan Area; these projects are listed in Table 4.0-2 and consist mainly of solar PV projects. The total land area covered by these completed, approved, and pending projects is approximately 39,933 acres, of which non-solar projects comprise about 1,463 acres.

The Plan Area includes habitat for several protected plant and animal species. Prior to construction of each VCIP energy and infrastructure project, full coverage ground surveys would be required to determine the presence or absence of these species at the given project site, as specified above in MMs BIO-1 and BIO-2. If individuals of these species are found to be present, then the avoidance measures specified in the MMs BIO-3 through BIO-13 for each affected species would be implemented to prevent direct impacts to the species. With respect to habitat impacts, VCIP implementation would not have a significant impact upon foraging habitat of Swainson's hawks, other raptors or migratory bird species, SJKF, or American badger, given the abundance of available foraging habitat in the area. Individual solar projects within the Plan Area may result in impacts to burrowing owl foraging habitat if active burrowing owl burrows are identified at specific solar project sites prior to development. Depending on the availability of other foraging habitat nearby, compensatory mitigation may be required in the form of restrictive covenants or similar habitat protection measures on adjacent or nearby lands to mitigate the impact to burrowing owl habitat, as specified in MM BIO-9. The potential impacts of VCIP implementation upon wildlife movement through the Plan Area would be avoided through project design features such as wildlife friendly fencing and leaving canals and ditches outside the fenced facility footprints. VCIP projects could result in potential impacts to jurisdictional wetlands or riparian habitat, but any such impacts would be mitigated through implementation of MM BIO-15. In summary, all potential impacts to special-status animal species and habitats as a result of VCIP energy and infrastructure development would be avoided or reduced to less-than-significant levels through applicable mitigation measures. The VCIP implementation would not conflict with local plans or policies or HCPs. The potential cumulative impacts associated with VCIP energy and infrastructure development are discussed below.

Regarding impacts to individuals of special-status animal species, it is anticipated that any impacts to individual animals would be avoided at the cumulative project sites through the same avoidance measures to be implemented in conjunction with VCIP implementation, as specified in MMs BIO-1 through BIO-13. Since these impacts would be avoided for each project, the near-term cumulative impacts to individuals of special-status animal species would be *less than significant* and the impact of VCIP implementation, as mitigated, *would not be cumulatively considerable*.

Regarding impacts to Swainson's hawk foraging habitat, these impacts are considered in the context of the 10-mile foraging radius for a typical Swainson's hawk pair. The full development of the VCIP Plan Area, combined with the development of the other cumulative projects within a 10-mile radius of the Plan Area,

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would result in a reduction of about 116,459 acres in available foraging habitat for Swainson's hawks. However, as discussed under Impact BIO-8 above, approximately 941,879 acres of foraging habitat would still remain after this cumulative development to support the existing Swainson's hawks within a 10-mile radius, and would also provide sufficient surplus habitat to support additional pairs of Swainson's hawks. Therefore, the cumulative impact to Swainson's hawk foraging habitat would be *less than significant* and the impact of VCIP implementation *would not be cumulatively considerable*.

With respect to foraging habitat for burrowing owls, it is possible that one or more of the cumulative projects in the region may include burrowing owl burrows within their sites. If so, it is expected that determinations would be made in each case as to whether sufficient foraging habitat would remain in the vicinity after project development. If it is determined that insufficient foraging habitat would be available, it is expected that such a project would be required to provide replacement habitat nearby in the form of a restrictive covenant or similar measure, as specified in MM BIO-9, to reduce the impact to a less than significant level. In anticipation that this would occur wherever necessary, the cumulative impact to burrowing owl habitat would be *less than significant*, and the impact of VCIP implementation *would not be cumulatively considerable*.

VCIP energy and infrastructure development could have potential impacts to wetlands, jurisdictional waters, streams or riparian areas, but any such impacts would be mitigated through avoidance or mitigation measures specified in MM BIO-15. It is expected that any other cumulative projects that would have potential impacts to wetland or riparian habitats would be subject to similar mitigation measures. Therefore, the cumulative impact to wetland and riparian habitat would be *less than significant* and the impact of VCIP implementation, as mitigated, *would not be cumulatively considerable*.

Neither the VCIP projects nor any other cumulative projects would interfere with wildlife movement corridors or migration patterns. Over 95 percent of the cumulative projects comprise solar facilities, which would all include wildlife friendly fencing, similar to that specified for VCIP projects in MM BIO-12g, to allow through movement of SJKFs or other species that may disperse through the area. Therefore, the cumulative impact to wildlife movement corridors would be *less than significant*, and the contribution of the VCIP implementation, as mitigated, *would not be cumulatively considerable*.

None of the cumulative projects, including VCIP projects, would conflict with local plans and policies protecting biological resources, or conflict with an applicable HCP or a NCCP. As such, there would be no cumulative impact in this regard, and the VCIP projects would make *no contribution* to any such cumulative impact in the near term.

In summary, the cumulative impact to biological resources would be *less than significant*, and the project *contribution would not be considerable with implementation of the mitigation measures identified above*.

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