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Appendix B

Biological Resources

Special-Status Plant Species

Table B-1 provides a list of the special-status plant species that have been documented within the nine USGS quadrangles surrounding the project area and describes their regulatory status, habitat, and potential for occurrence. A total of 12 special-status plant species have been documented in the vicinity of the project area (Table B-1). Of the 12 special-status plant species identified during the review of existing data, it was determined that six species could occur within or in proximity of the project alignment.

Table B-1 Special-Status Plant Species Known to Occur in the Project Region and Their Potential for Occurrence in the Project Area

Name	Federal Status[1]	State Status[1]	CRPR [1]	Habitat	Potential to Occur in the Survey Area[2]
Ferris' milk-vetch *Astragalus tener* var. *ferrisiae*	--	--	1B.1	Annual herb found on vernally mesic sites and subalkaline flats on overflow land in the Central Valley. Sites usually on dry, adobe soil within meadows, seeps, and valley and foothill grasslands. 5 – 245 feet in elevation. Blooms April – May.	**Not expected to occur:** The project area does not support vernally mesic alkaline habitat suitable for this species.
big-scale balsamroot *Balsamorhiza macrolepis*	--	--	1B.2	Perennial herb found on open, grassy or rocky slopes and valleys in chaparral, cismontane woodland, and valley and foothill grassland. Sometimes on serpentine soils. 150 – 5,100 feet in elevation. Blooms March – June.	**Not expected to occur:** The project area does not support habitat suitable for this species.
hispid salty bird's-beak *Chloropyron molle* ssp. *hispidum*	--	--	1B.1	Annual hemiparasitic herb found on damp, alkaline soils in meadows, seeps, playas, and valley and foothill grasslands. Most occurrences found in alkaline meadows and alkali sinks with *Distichlis*. 5 – 510 feet in elevation. Blooms June – September.	**Not expected to occur:** The project area does not support mesic alkaline habitat suitable for this species.
dwarf downingia *Downingia pusilla*	--	--	2B.2	Annual herb found on vernal lake and vernal pool margins with a variety of associates. Occurs in several types of vernal pools. 5 – 1,460 feet in elevation. Blooms March – May.	**May occur:** The project area supports vernal pool or vernally mesic habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	CRPR [1]	Habitat	Potential to Occur in the Survey Area[2]
Boggs Lake hedge-hyssop *Gratiola heterosepala*	--	SE	1B.2	Annual herb found on clay soils in shallow water and exposed mud of vernal pools, wet meadows, lake margins. 35 – 7,790 feet in elevation. Blooms April – August.	**May occur:** The project area supports vernal pool or vernally mesic habitat suitable for this species.
woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	--	--	1B.2	Perennial, rhizomatous, emergent herb found on moist, freshwater-soaked riverbanks and low peat islands in sloughs. Can also occur on riprap, levees, freshwater marshes, and swamps. In California, this species is known from the Delta watershed.. 0 – 395 in elevation. Blooms June – September.	**Not expected to occur:** The project area does not support wetland, freshwater marsh, and swamp habitat suitable for this species.
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	--	--	1B.2	Annual herb restricted to the margins of vernal pools and grassland swales in valley and foothill grassland. 100 – 750 feet in elevation. Blooms March – May.	**May occur:** The survey project area supports vernal pool or vernally mesic habitat suitable for this species.
Red Bluff dwarf rush *Juncus leiospermus* var. *leiospermus*	--	--	1B.1	Annual herb found on vernally mesic sites in chaparral, valley and foothill grassland, cismontane woodland, meadows, and seeps. Often found on the margins of vernal pools. 115 – 4,100 feet in elevation. Blooms March – June.	**May occur:** The project area supports vernal pool or vernally mesic habitat suitable for this species.
legenere *Legenere limosa*	--	--	1B.1	Annual herb found in vernal pools. 5 – 2,885 feet in elevation. Blooms April–June.	**May occur:** The project area supports vernal pool or vernally mesic habitat suitable for this species.
Sacramento Orcutt grass *Orcuttia viscida*	FE	SE	1B.1	Annual herb (graminoid) found in vernal pools. Sacramento Orcutt grass grows in the deepest parts of vernal pools that have water for the longest time. 100 – 330 feet in elevation. Blooms April–July.	**May occur:** The project area supports vernal pool or vernally mesic habitat suitable for this species.
Sanford's arrowhead *Sagittaria sanfordii*	--	--	1B.2	Perennial, rhizomatous, emergent herb found in standing or slow-moving freshwater ponds, marshes, and ditches. 0 – 2,135 feet in elevation. Blooms May – October.	**Not expected to occur:** The project area does not support pond, freshwater marsh, and ditch habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	CRPR [1]	Habitat	Potential to Occur in the Survey Area[2]
Suisun Marsh aster *Symphyotrichum lentum*	--	--	1B.2	Perennial, rhizomatous herb found in brackish and freshwater marshes. Most often found along sloughs with *Phragmites, Scirpus, Rubus, Typha* etc. 0 – 10 feet in elevation. Blooms May – November.	**Not expected to occur:** The project area does not support marsh habitat suitable for this species.

Notes: CRPR = California Rare Plant Rank; CNDDB = California Natural Diversity Database

[1 & 2] Legal Status Definitions

Federal:
FE Endangered (legally protected)
State:
SE Endangered (legally protected)

California Rare Plant Ranks:
1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)
2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

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

[2] Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present within the project survey area due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

May occur: Suitable habitat is available within the project survey area; however, there are little to no other indicators that the species might be present.

Likely to occur: All of the species life history requirements can be met by habitat present within the survey area, and populations/occurrences are known to occur in the immediate vicinity.

Sources: CDFW 2024a, CNPS 2024, USFWS 2024a.

Special-Status Wildlife Species

Table B-2 provides a list of the special-status wildlife species that have been documented within the nine USGS quadrangles surrounding the project area and describes their regulatory status, habitat, and potential for occurrence. A total of 30 special-status wildlife species have been documented in the vicinity of the project area (Table B-2). Of the 30 special-status wildlife species identified during the review of existing data, it was determined that seven species could occur or were observed within or in proximity of the project alignment.

Table B-2 Special Status Wildlife Species Known to Occur in the Project Region and Their Potential for Occurrence in the Project Area

Name	Federal Status[1]	State Status[1]	Habitat	Potential to Occur in the Survey Area
Invertebrates				
vernal pool fairy shrimp *Branchinecta lynchi*	FT	--	Endemic to vernal pools and seasonal wetlands in the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**May occur:** The project area supports vernal pool and seasonal wetland habitat suitable for this species.
monarch butterfly *Danaus plexippus*	FC	--	Monarch butterfly habitat requirements include host plants for larvae; adult nectar sources; and sites for roosting, thermoregulation, mating, hibernation, and predator escape. Additionally, monarch butterfly requires conditions and resources for initiating and completing migration both to and from winter roosting areas. Along their migration routes and on their summer ranges, monarch butterflies require two suites of plants: (1) host plants for monarch caterpillars, which are primarily milkweeds (*Asclepias* spp.) within the family Apocynaceae upon which adult monarchs lay eggs; and (2) nectar-producing flowering plants of many other species that provide food for adult butterflies. Having both host and nectar plants available	**Not expected to occur:** The project area is within the monarch spring/summer breeding and spring/fall migration ranges. No observations of monarch individuals, monarch breeding, or milkweed in or near the project area are reported in the Western Monarch Milkweed Mapper (WMMM 2024). Monarchs could occasionally move through portions of the project area, but foraging and breeding habitat quality is limited. The project area is not located within the overwintering range of monarch butterfly.

Name	Federal Status[1]	State Status[1]	Habitat	Potential to Occur in the Survey Area
			from early spring to late fall and along migration corridors is critical to the survival of migrating pollinators. Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	--	Riparian scrub. Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	**Not expected to occur:** The project area does not support blue elderberry shrubs.
vernal pool tadpole shrimp *Lepidurus packardi*	FE	--	Inhabits vernal pools, seasonal wetlands, and seasonal swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	**May occur:** The project area supports vernal pool and seasonal wetland habitat suitable for this species.
Fish				
green sturgeon – southern DPS *Acipenser medirostris pop. 1*	FT	--	Spawns in the Sacramento, Feather and Yuba Rivers. Presence in Upper Stanislaus and San Joaquin Rivers may indicate spawning. Non-spawning adults occupy marine/estuarine waters. Delta estuary is important for rearing juveniles. Spawning occurs primarily in cool (11-15 c) sections of mainstem rivers in deep pools (8-9 meters) with substrate containing small to medium sized sand, gravel, cobble, or boulder.	**Not expected to occur:** The project area does not support aquatic habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	Habitat	Potential to Occur in the Survey Area
Sacramento perch *Archoplites interruptus*	--	SSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefers warm water. Aquatic vegetation is essential for young. Tolerates wide range of physio-chemical water conditions	**Not expected to occur:** The project area does not support aquatic habitat suitable for this species.
Steelhead - Central Valley DPS *Oncorhynchus mykiss irideus* pop. 11	FT	--	Aquatic. Sacramento/San Joaquin flowing waters. Populations in the Sacramento and San Joaquin rivers and their tributaries.	**Not expected to occur:** The project area does not support aquatic habitat suitable for this species.
Chinook salmon – Central Valley spring-run ESU *Oncorhynchus tshawytscha* pop. 11	FT	ST	Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 c are lethal to adults. Federal listing refers to populations spawning in Sacramento River and tributaries	**Not expected to occur:** The project area does not support aquatic habitat suitable for this species.
Chinook salmon – Sacramento River winter-fun ESU *Oncorhynchus tshawytscha* pop. 7	FE	SE	Sacramento River below Keswick Dam. Spawns in the Sacramento River, but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 c for spawning.	**Not expected to occur:** The project area does not support aquatic habitat suitable for this species.
Sacramento splittail *Pogonichthys macrolepidotus*	--	SSC	Aquatic, estuary, freshwater marsh, Sacramento/San Joaquin flowing waters. Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	**Not expected to occur:** The project area does not support aquatic habitat suitable for this species.
Longfin smelt *Spirinchus thaleichthys*	FPE	ST	Aquatic, estuary. Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt but can be found in completely freshwater to almost pure seawater.	**Not expected to occur:** The project area does not support aquatic habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	Habitat	Potential to Occur in the Survey Area
Amphibians				
California tiger salamander *Ambystoma californiense*	FT	ST	Central Valley DPS federally listed as threatened. Santa Barbara and Sonoma counties DPS federally listed as endangered. Lives in vacant or mammal-occupied burrows throughout most of the year; in grassland, savanna, or open woodland habitats. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	**Not expected to occur:** The project area is outside the current known range of this species.
Western spadefoot *Spea hammondii*	--	SSC	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	**May occur:** The project area supports vernal pool and seasonal wetland habitat suitable for this species. Annual grasslands adjacent to this aquatic habitat provides suitable upland habitat for this species.
Reptiles				
Western pond turtle *Emys marmorata*	FPT	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**Likely to occur:** Magpie Creek and an unnamed perennial channel just north of Magpie Creek provide suitable aquatic habitat within the project area for this species. Grasslands and streambanks adjacent to this aquatic habitat provides suitable basking sites and upland egg-laying habitat for this species. There is a known occurrence of western pond turtle associated with Magpie Creek immediately adjacent to the project alignment (CDFW 2024a).
Giant gartersnake *Thamnophis gigas*	FT	ST	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	**Not expected to occur:** The project area is outside of the current known range of this species. In addition, the aquatic habitat in the project area is of marginal quality for this species.
Birds				
tricolored blackbird *Agelaius tricolor*	--	ST/ SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting	**Not expected to occur:** The project area does not support freshwater marsh, swamp, or wetland habitat suitable for this species to nest.

Name	Federal Status[1]	State Status[1]	Habitat	Potential to Occur in the Survey Area
			substrate, and foraging area with insect prey within a few kilometers of the colony.	
grasshopper sparrow *Ammodramus savannarum*	--	SSC	Dense grasslands on rolling hills, lowland plains, in valleys, and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs, and scattered shrubs. Loosely colonial when nesting	**Not expected to occur:** The project area does not support nesting habitat suitable for this species.
golden eagle *Aquila chrysaetos*	GEBEPA	FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	**Not expected to occur:** The project area does not support nesting habitat suitable for this species.
burrowing owl *Athene cunicularia*	--	SSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**Not expected to occur:** Although the grassland habitat within the project are provides suitable nesting habitat for this species, human usage and presence of predatory species (i.e., feral and domestic cats, dogs, coyotes) likely preclude the presence of this species
Swainson's hawk *Buteo swainsoni*	--	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**May occur:** The project area supports nesting habitat suitable for this species.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT	SE	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	**Not expected to occur:** The project area does not support large and dense riparian habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	Habitat	Potential to Occur in the Survey Area
White-tailed kite *Elanus leucurus*	--	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Likely to occur:** The project area supports nesting and foraging habitat suitable for this species. There is a known occurrence of white-tailed kite associated with Magpie Creek immediately adjacent to the project alignment (CDFW 2024a).
California black rail *Laterallus jamaicensis coturniculus*	--	ST/FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**Not expected to occur:** The project area does not support nesting habitat suitable for this species.
Song sparrow ("Modesto" population) *Melospiza melodia*	--	SSC	Central lower basin of Central Valley, from Colusa County south to Stanislaus County and east of Suisun Marsh. Breeds chiefly below 200 feet elevation. Emergent freshwater marshes dominated by tules and cattails, riparian willow thickets, riparian forests of valley oak with a sufficient understory of blackberry, and along vegetated irrigation canals and levees.	**Not expected to occur:** Although this species may forage within the grassland habitat, its preferred emergent freshwater marsh nesting habitat is not present within the project area.
Purple martin *Progne subis*	--	SSC	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly, also in human-made structures. Nest often located in tall, isolated tree/snag.	**Not expected to occur:** Although this species may forage over the project area, this species is known to nest within large bridge overpasses in the Sacramento area which are not present within the project area.
Bank swallow *Riparia riparia*	--	ST	Riparian scrub, riparian woodland. Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**Not expected to occur:** The project area does not support vertical banks/cliff habitat suitable for this species.

Name	Federal Status[1]	State Status[1]	Habitat	Potential to Occur in the Survey Area
least Bell's vireo *Vireo bellii pusillus*	FE	SE	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 feet. Nests placed along margins of bushes or on twigs projecting into pathways.	**Not expected to occur:** The project area does not support nesting habitat suitable for this species.
Mammals				
American badger *Taxidea taxus*	--	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**Not expected to occur:** The project area is isolated from potential migratory routes for this species to use.

General references: Unless otherwise noted all habitat and distribution data provided by CNDDB.

Note: CNDDB = California Natural Diversity Database

[1] Legal Status Definitions

Federal:
FE Endangered (legally protected)
FT Threatened (legally protected)
FPE Federally proposed for listing as Endangered under ESA (legally protected)
FPT Federally proposed for listing as Threatened under ESA (legally protected)
FC Federal candidate species (not legally protected under ESA)
GEBEPA Protected under the Golden and Bald Eagle Protection Act

State:
SE Endangered (legally protected)
ST Threatened (legally protected)
FP Fully protected (legally protected)
SSC Species of special concern (no formal protection other than CEQA consideration)

[2] Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present in the project area due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

May occur: Suitable habitat is available in the project area; however, there are little to no other indicators that the species might be present.

Likely to occur: All of the species life history requirements can be met by habitat present in the project area, and populations/occurrences are known to occur in the immediate vicinity.

Source: CDFW 2024a, USFWS 2024a