

**ATTACHMENT 5.4-E: SPECIAL-STATUS TERRESTRIAL WILDLIFE SPECIES WITH THE  
POTENTIAL TO OCCUR**



**ATTACHMENT 5.4-E: SPECIAL-STATUS TERRESTRIAL WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR**

Common Name (Scientific Name)	Listing Status <sup>1</sup>	Habitat and Life History	Potential to Occur in the Survey Area
<b>Amphibians</b>			
California red-legged frog ( <i>Rana draytonii</i> )	FT, SSC	This highly aquatic species typically inhabits quiet pools of streams, marshes and ponds, preferring habitat with extensive shoreline vegetation. Diet is highly variable and may include various invertebrates, amphibians, and small mammals. In Northern California, breeding usually takes place between March and July (USFWS 2023a).	Suitable wetland habitat is not present within the survey area. This species has been recently documented between 1 and 5 miles from the survey area based on California Natural Diversity Database (CNDDB) records (California Department of Fish and Wildlife [CDFW] 2023a). This species was not observed during the field survey. <b>Low Potential</b>
California tiger salamander – central California Distinct Population Segment (DPS) ( <i>Ambystoma californiense</i> pop. 1)	FT, ST, WL	This species occupies grassland, savanna, or open woodland habitats and spends much of the year in underground refuges, especially ground squirrel ( <i>Ammospermophilus beechyi</i> ) burrows. Vernal pools or other seasonal water sources are required for breeding and egg-laying. Adults may travel hundreds of meters across upland habitat to reach breeding ponds following seasonal rains during November to February. Diet is highly variable and may include invertebrates, amphibians, or small mammals (USFWS 2023a).	Annual grassland habitat is present within the survey area; however, no suitable refuge burrows were observed during field surveys. Further, no suitable vernal pools were observed within the survey area. These findings are consistent with previous habitat assessments for this species within the survey area. These protocol-level assessments concluded that the survey area lacks suitable aquatic habitat (Jennings 2010), contains multiple barriers to movement/dispersal (Area West Environmental [AWE] 2017), land use practices that inhibit dispersal (AECOM 2018b), and a scarcity of suitable burrows refugia. This species has been recently documented between 1 and 5 miles from the survey area based on CNDDB records (CDFW 2023a). This species was not observed during the field survey. <b>Low Potential</b>
<b>Birds</b>			
American peregrine falcon ( <i>Falco peregrinus anatum</i> )	FP	This species can be found occupying several biomes throughout California year-round. Breeding takes place from April to June. A majority of nests are constructed on ledges on relatively tall cliffs in remote areas with minimal human disturbance and are often reused from year to year. Foraging occurs in a variety of habitat types, and its diet consists almost exclusively of other birds (Audubon 2023).	Suitable nesting habitat does not occur in or near the survey area. Foraging and migrating individuals may occur in or near the survey area. This species has been recently documented within 1 and 5 miles of the survey area based on CNDDB records (CDFW 2023a) but was not observed during the field survey. <b>No Potential (Nesting)</b> <b>Low Potential (Foraging/Migration)</b>
Burrowing owl ( <i>Athene cunicularia hypugaea</i> )	SCE, SSC, BCC	This species can be found in a variety of open habitat types, including grassland, savanna, desert scrub, agricultural, and urban areas. Breeding occurs from March through October, and nesting takes place within abandoned burrows dug by burrowing mammals. This species preys on large insects and small mammals (USFWS 2023a).	Grassland habitat suitable for foraging is found in the survey area north of the Sacramento-San Joaquin River Delta (Delta); however, burrows suitable for species occupation and breeding were not observed during the field surveys. Migrating individuals have been reported to occur within the survey area during winter months (AECOM 2018a), and all CNDDB occurrences north of the Delta were recorded during the non-breeding season. Nesting habitat is limited and marginal given the ongoing agricultural activity north of the Delta, but ground squirrels may recolonize and provide suitable burrow habitat if the fields are left fallow or grazed (AECOM 2018a). This species was not observed during the field surveys. <b>Moderate Potential (Nesting)</b> <b>High Potential (Foraging/Migration)</b>

<sup>1</sup> Explanation of federal and state listing codes:

Federal listing codes:

-FE: Federally listed as endangered

-FT: Federally listed as threatened

-PT: Proposed to be federally listed as threatened

-BCC: United States (U.S.) Fish and Wildlife Service (USFWS) Bird of Conservation Concern

State listing codes:

-SE: State-listed as endangered

-ST: State-listed as threatened

-SCE: State candidate for listing as endangered

-SSC: Species of Special Concern

-FP: Fully protected species

-WL: Watch List species

-WBWG-H: Western Bat Working Group high designation

Common Name (Scientific Name)	Listing Status <sup>1</sup>	Habitat and Life History	Potential to Occur in the Survey Area
California black rail ( <i>Laterallus jamaicensis coturniculus</i> )	ST, FP	This species is found in tidal emergent wetlands dominated by pickleweed ( <i>Salicornia</i> spp.) or in brackish marshes supporting bulrushes ( <i>Scirpus</i> spp.) in association with pickleweed. Breeding occurs from March to June, and nests are concealed in dense vegetation (often pickleweed) near the upper limits of tidal flooding (CDFW 2023b).	Suitable habitat capable of supporting foraging individuals is present in the survey area adjacent to the Delta. Wetland habitats within the survey area lack the large stands of pickleweed and tidal flux preferred by the species for breeding sites. This species has been recently documented within 0.25 mile of the survey area based on CNDDDB records (CDFW 2023a), but the species was not observed during the field survey. <b>Moderate Potential (Nesting)</b> <b>High Potential (Foraging)</b>
California Ridgway's rail ( <i>Rallus obsoletus obsoletus</i> )	FE, SE, FP	This highly elusive species occurs in tidal and brackish marshes with unrestricted daily tidal flows. Habitats dominated by pickleweed and California cordgrass ( <i>Spartina foliosa</i> ) are strongly preferred. Their omnivorous diet consists primarily of various invertebrates with occasional rodents and small birds. Individuals can be seen foraging in the lower and middle marsh zones at low tide. Males will build nests on platforms to avoid inundation during high tides. Nesting season may begin in February and last until July (USFWS 2023b).	Marginal foraging and nesting habitat is present in the survey area adjacent to the Delta. Wetland habitats within the survey area lack the large stands of pickleweed and cordgrass and tidal flux preferred by the species. This species has been recently documented within 1 and 5 miles of the survey area based on CNDDDB records (CDFW 2023a) but was not observed during the field survey. <b>Low Potential (Nesting)</b> <b>Moderate Potential (Foraging)</b>
California least tern ( <i>Sternula antillarum browni</i> )	FE, SE, FP	This species is found throughout California and requires undisturbed stretches of beach and coastline. Adults forage in bays and estuaries for a variety of fish species. The California least tern nests in colonies on relatively open beaches where vegetation is limited by natural scouring from tidal action. However, to avoid humans, tern colonies have been known to move to inland mud flats and dredge fill sites. The breeding season typically begins in early to mid-May, and nests are constructed directly on the ground (California Department of Pesticide Regulation [CDPR] 2023).	Suitable foraging habitat for this species is found adjacent to the survey area within the Delta and Suisun Bay in the Carquinez Strait. However, no suitable breeding habitat is found within the survey area. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a); however, all records are more than 30 years old. This species was not observed during the field survey. <b>No Potential (Nesting)</b> <b>Moderate Potential (Foraging/Migration)</b>
Northern harrier ( <i>Circus cyaneus</i> )	SSC, BCC	This species is found in a variety of open grassland, wetland, and agricultural habitats. Open wetland habitats used for breeding include marshy meadows, wet and lightly grazed pastures, and freshwater and brackish marshes. Breeding habitat also includes dry upland habitats, such as grassland, cropland, drained marshland, and shrub-steppe in cold deserts. Wintering habitat includes open areas dominated by herbaceous vegetation, such as grassland, pastures, cropland, coastal sand dunes, brackish and freshwater marshes, and estuaries (U.S. Department of Agriculture [USDA] 2023).	Suitable foraging and nesting habitat are present in the survey area, and two individuals were observed foraging within the survey area in wetland habitat adjacent to the northern shore of the Delta. This species has not been documented within 5 miles from the survey area based on CNDDDB records (CDFW 2023a). <b>High Potential (Nesting)</b> <b>Present (Foraging)</b>
Saltmarsh common yellowthroat ( <i>Geothlypis trichas sinuosa</i> )	SSC, BCC	This species occurs in freshwater and saltwater marshes. Saltmarsh common yellowthroat require thick, continuous cover down to the water surface for foraging, and tall grasses, tule patches ( <i>Scirpus</i> spp.), and willows ( <i>Salix</i> spp.) for nesting (CDFW 2023b).	Suitable habitat for this species is present within the portion of the survey area located on the northern shore of the Delta. This species has been documented within 0.25 mile of the survey area based on CNDDDB records (CDFW 2023a), but it was not observed during the field survey. <b>High Potential (Nesting)</b> <b>High Potential (Foraging)</b>
Short-eared owl ( <i>Asio flammeus</i> )	SSC, BCC	This species occurs in agricultural fields, grazed and ungrazed grasslands, and freshwater and saltwater marshes. Short-eared owls require open country that supports concentrations of microtine rodents and herbaceous cover sufficient to conceal its nest from predators. Nests are built on the ground. Diet consists of small mammals and is particularly affected by the 3- to 4-year cycle of the California vole ( <i>Microtus californicus</i> ). Its breeding season occurs from April through July (USFWS 2023b).	Suitable foraging and breeding habitat is present in the terrestrial survey area along the northern shore of the Delta. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a); however, all records are more than 30 years old. This species was not observed during the field survey. <b>Low Potential (Nesting)</b> <b>Low Potential (Foraging)</b>

Common Name (Scientific Name)	Listing Status <sup>1</sup>	Habitat and Life History	Potential to Occur in the Survey Area
Song sparrow ("Modesto" population) ( <i>Melospiza melodia</i> pop. 1)	SSC	This species inhabits freshwater marshes, riparian thickets, sparsely vegetated irrigation canals, and valley oak ( <i>Quercus lobata</i> ) restoration sites. The Modesto population seeks cover and nests in willow ( <i>Salix</i> spp.) and nettle thickets ( <i>Urtica</i> spp.), growths of tules ( <i>Schoenoplectus</i> spp.) and cattails ( <i>Typha</i> spp.), and riparian oak ( <i>Quercus</i> spp.) forests with a sufficient understory of blackberry ( <i>Rubus</i> spp.) (CDFW 2023b).	Suitable breeding and foraging habitat for this species is within the portion of the survey area located on the northern shore of the Delta. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a); however, all records are over 30 years old. This species was not observed during the field survey. <b>Low Potential (Nesting)</b> <b>Low Potential (Foraging)</b>
Suisun song sparrow ( <i>Melospiza melodia maxillaris</i> )	SSC	This species occurs throughout California, primarily in saltwater and brackish marshes. Suisun song sparrow require dense vegetation as protection from predators and high tide, for perching, and for nesting habitat. Breeding season is from early March through July (CDFW 2023b).	Suitable breeding and foraging habitat for this species can be found within the portion of the survey area located on the northern shore of the Delta. This species has been documented based on CNDDDB records (CDFW 2023a) within 0.25 mile of the survey area south of Suisun Bay, in the vicinity of Pacific Gas and Electric Company's existing Pittsburg Substation survey area and within 5 miles of the survey area along the northern shore of the Delta, but it was not observed during the field survey. <b>High Potential (Nesting)</b> <b>High Potential (Foraging)</b>
Swainson's hawk ( <i>Buteo swainsoni</i> )	ST	This species occurs in open grasslands, prairies, and farmlands that have nearby trees for nesting. Swainson's hawk nest in bushes and in several tree species, including oaks, willow, and eucalyptus ( <i>Eucalyptus</i> spp.), and usually nests in trees in riparian areas near open fields. This species primarily hunts small rodents, rabbits, birds, and reptiles during the breeding season. Diet includes insects, such as grasshoppers and beetles, during the non-breeding season. It reproduces from March through April, incubates for 34 to 35 days, and fledges 6 weeks later (CDFW 2023b).	An adult male was observed flying overhead during field surveys within the terrestrial survey area north of the Delta. Suitable foraging and breeding habitat is present, and multiple occurrences of the species nesting have been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a). <b>High Potential (Nesting)</b> <b>Present (Foraging/Migration)</b>
Tricolored blackbird ( <i>Agelaius tricolor</i> )	ST, SSC, BCC	This highly colonial species requires open water, protected nesting substrate, and foraging areas adjacent to the colony with insect prey. Breeding occurs near fresh water, often in emergent wetlands with tall, dense cattails or tules, but also in thickets of willow; blackberry; wild rose ( <i>Rosa acicularis</i> ); or tall, dense forbs. Seeds and cultivated grains, such as rice and oats, compose most of its fall and winter diet. Tricolored blackbird forages on the ground in croplands, grassy fields, flooded land, and along edges of ponds. The breeding season usually occurs from mid-April to late July (USFWS 2023b).	Some marginal willow thicket and wild rose habitat is present within the survey area; however, fresh waterbodies suitable for nesting are not present. Suitable foraging habitat is present in the northern portion of the survey area. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a); however, all records are over 30 years old. This species was not observed during the field survey. <b>Low Potential (Nesting)</b> <b>Moderate Potential (Foraging)</b>
White-tailed kite ( <i>Elanus leucurus</i> )	FP	This species nests in riparian or oak woodland adjacent to undisturbed, open fields and grasslands, meadows, farmlands, and emergent wetlands, where it hunts rodents. Breeding generally occurs from February through October. White-tailed kites lay three to five eggs, which it incubates for 30 to 32 days, after which fledging occurs at 5 to 6 weeks of age (All About Birds 2023).	Suitable foraging habitat for the species is present in the survey area; however, oak woodland suitable for nesting is not present. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a), but it was not observed during the field survey. <b>Low Potential (Nesting)</b> <b>Moderate Potential (Foraging)</b>
Yellow rail ( <i>Coturnicops noveboracensis</i> )	SSC	This species breeds in densely vegetated, shallow freshwater marshes and wet meadows. Breeding occurs from May through September. Wintering birds frequent mature salt marshes well above the water line (All About Birds 2023).	Marginal breeding habitat and suitable wintering habitat are present within the survey area. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a), but it was not observed during the field survey. <b>Low Potential (Nesting)</b> <b>Moderate Potential (Foraging/Wintering)</b>

Common Name (Scientific Name)	Listing Status <sup>1</sup>	Habitat and Life History	Potential to Occur in the Survey Area
<b>Invertebrates</b>			
Conservancy fairy shrimp ( <i>Branchinecta conservatio</i> )	FE	This species occurs within vernal pool habitats in California's Central Valley. Conservancy fairy shrimp mostly live in relatively large, turbid freshwater vernal pools called playa pools. This species can be found at elevations ranging from 16 to 5,577 feet in grassland, rural, and wetland habitats. This species opportunistically filter-feeds on various planktonic food sources including algae and protozoa (USFWS 2023a).	No suitable vernal pool habitat was observed during the field survey. It is possible that suitable vernal pool habitat for this species may develop during the rainy season and outside of this report's survey window. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a), but it was not observed during the field survey. <b>Low Potential</b>
Lange's metalmark butterfly ( <i>Apodemia mormo langei</i> )	FE	This species is associated with the Antioch Dunes, a riverbank dune system along the San Joaquin River. Currently, this species can only be found in the Antioch Dunes National Wildlife Refuge, the last remnants of the Antioch Dunes. All life stages are closely associated with naked-stemmed buckwheat ( <i>Eriogonum nudum</i> var. <i>psychicola</i> ), which is the primary nectar source for adults, is used to lay eggs, and is a larval food plant. The leaves of the larval host plant provide both food and shelter throughout the larval instar phases (USFWS 2023a).	Suitable habitat for this species is not present within the survey area. Further, while there are documented occurrences within 0.25 mile of the survey area based on CNDDDB records (CDFW 2023a), this species or its obligate host plant were not observed during field surveys. This species may occur incidentally within the survey area given the proximity of suitable habitat, but the lack of suitable foraging and breeding habitat within the survey area makes this unlikely. <b>Low Potential</b>
Vernal pool fairy shrimp ( <i>Branchinecta lynchi</i> )	FT	This species occurs within vernal pool habitats throughout California. Female vernal pool fairy shrimp carry fertilized eggs in a sac on the underside of their body. The eggs are either dropped to the pool bottom or remain in the brood sac until the mother dies and sinks to the bottom of the pool. This species opportunistically filter-feeds on various planktonic food sources, including algae and protozoa (USFWS 2023a).	No suitable vernal pool habitat was observed during the field survey. It is possible that suitable vernal pool habitat for this species may develop during the rainy season and outside of this report's survey window. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a), but it was not observed during the field survey. <b>Low Potential</b>
Vernal pool tadpole shrimp ( <i>Lepidurus packardii</i> )	FE	This species occurs within vernal pool habitats with a patchy distribution within California's Central Valley. Female vernal pool tadpole shrimp produce up to six clutches of eggs containing 32 to 61 eggs per clutch during each wet season. Fertilized eggs are carried in a sac on the underside of their body. The eggs are either dropped to the pool bottom or remain in the brood sac until the mother dies and sinks to the bottom of the pool. This species opportunistically filter-feeds on other fairy shrimp ( <i>Branchinecta</i> spp.), invertebrates, and waste from other vernal pool species (USFWS 2023a).	No suitable vernal pool habitat was observed during the field survey. It is possible that suitable vernal pool habitat for this species may develop during the rainy season and outside of this report's survey window. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a), but it was not observed during the field survey. <b>Low Potential</b>
<b>Mammals</b>			
Salt marsh harvest mouse ( <i>Reithrodontomys raviventris</i> )	FE, SE, FP	This species inhabits salt marshes in California and is adapted to live in marsh vegetation, including pickleweed and cordgrass, which provide cover, food sources, and breeding habitats. Breeding typically occurs between March and October. Diet consists of marsh vegetation, including seeds, stems, and leaves (USFWS 2023a).	Suitable salt marsh habitat for this species is present within the survey area in salt marshes north of the Delta. This species has been documented based on CNDDDB records (CDFW 2023a) within 0.25 mile of the survey area on both the north shore of the Delta and south shore of the Suisun Bay but was not observed during field surveys. <b>High Potential</b>
San Joaquin kit fox ( <i>Vulpes macrotis mutica</i> )	FE, ST	This species inhabits a variety of open habitats, including grasslands, chenopod scrublands, and semi-arid regions. Breeding occurs from January to March, with a gestation period of 49 to 55 days. The female constructs a den in the ground, often utilizing existing burrows dug by other animals. Diet primarily consists of small mammals, such as rodents, rabbits, and ground squirrels (USFWS 2023a).	Grassland habitat suitable for foraging is present within the survey area; however, this species and suitable breeding burrows/dens were not observed during the survey. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a), but these records are more than 30 years old. <b>Low Potential</b>
Western red bat ( <i>Lasiurus blossevillii</i> )	SSC, WBWG-H	This species occurs in a variety of habitats, including forests, woodlands, and riparian areas. Western red bat roost and forage among trees and vegetation and exhibits a preference for mixed coniferous and deciduous forests. Breeding occurs in the spring and early summer. This species typically seeks out tree foliage, such as leaves or branches, to create roosting sites. The diet consists mainly of insects, such as moths, beetles, and flies (Texas Parks and Wildlife Department [TPWD] 2023).	Marginally suitable roosting habitat is present in the survey area within the limited stands of trees, and suitable foraging habitat is present. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a), but it was not observed during field surveys. <b>Moderate Potential (Roosting)</b> <b>Moderate Potential (Foraging)</b>

Common Name (Scientific Name)	Listing Status <sup>1</sup>	Habitat and Life History	Potential to Occur in the Survey Area
<b>Reptiles</b>			
Alameda whipsnake ( <i>Masticophis lateralis euryxanthus</i> )	FT, ST	This species inhabits grasslands, chaparral, and oak woodlands within Alameda and Contra Costa counties. Alameda whipsnakes are primarily diurnal, being active during the day and seeking shelter in vegetation or underground burrows at night. Breeding typically occurs in the spring and summer months. The diet consists of small vertebrates, including lizards, rodents, and birds (USFWS 2023a).	Suitable grassland habitat is present within the terrestrial survey area north of the Delta; however, this species was not observed during field surveys and suitable habitat is not found within the survey area south of the Delta within the geographic range for this species. The species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a) south of the Delta. <b>No Potential</b>
California glossy snake ( <i>Arizona elegans occidentalis</i> )	SSC	This species is typically found in desert scrub, grasslands, and rocky areas. California glossy snake is primarily nocturnal, being active during the night and seeking shelter in burrows, crevices, or under rocks during the day. Breeding occurs in the spring and early summer. Females lay eggs in sandy soil or loose substrate, where they are left to incubate. Diet consists mainly of small mammals, including rodents, lizards, and occasionally birds or eggs (CDFW 2023b).	Suitable grassland habitat is present; however, this species was not observed during field surveys and the survey area is outside of the geographic range for this species. The species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a), but all occurrences are more than 30 years old. <b>No Potential</b>
Giant gartersnake ( <i>Thamnophis gigas</i> )	FT, ST	This semi-aquatic species inhabits marshes, wetlands, and slow-moving bodies of water. Giant gartersnake is often closely associated with water sources, which serve as its hunting grounds. Breeding typically occurs in the spring and early summer. After mating, females give birth to live young. The diet primarily consists of small fish, amphibians, and aquatic invertebrates (USFWS 2023a).	Suitable wetland habitat is not present within the survey area. Although species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a), these observations were made in habitats upstream of the survey area with far less salt-water intrusion. The species was not observed during field surveys. <b>Low Potential</b>
Northern California legless lizard ( <i>Anniella pulchra</i> )	SSC	This species is found in grasslands, chaparral, and open woodlands and requires loose, friable soils for burrowing. Breeding typically occurs in the spring or early summer. Females lay small clutches of eggs in underground burrows or hidden areas. The diet primarily consists of small invertebrates, such as insects, spiders, and other arthropods (CDFW 2023b).	Marginal grassland habitat for this species is present within the survey area. This species has been documented between 1 and 5 miles from the survey area based on CNDDDB records (CDFW 2023a), but it was not observed during field surveys. <b>Low Potential</b>
Western pond turtle ( <i>Actinemys marmorata</i> )	PT, SSC	This freshwater turtle species primarily inhabits ponds, lakes, and slow-moving streams with suitable basking sites. This species spends a significant amount of time basking on logs or rocks. Breeding typically occurs in the spring and early summer. Females dig nests in sandy or gravelly areas near water, where they lay their eggs. The hatchlings emerge several months later and make their way to the water. The diet is omnivorous and consists of various aquatic plants, insects, small fish, and amphibians (USFWS 2023a).	Suitable wetland habitat is present within the survey area; however, suitable nesting habitat is not present. This species has been documented within 0.25 mile of the survey area based on CNDDDB records (CDFW 2023a), but it was not observed during field surveys. <b>High Potential</b>