
APPENDIX F

BIOLOGICAL RESOURCES

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Table F-1 Special-Status Plants that May Occur in the Study Area

Common and Scientific Names	Status Federal/ State/CNPS	Geographic Distribution/ Floristic Province	Habitat Requirements	Blooming Period	Likelihood of Occurrence in Study Area
Stebbin's morning-glory <i>Calystegia stebbinsii</i>	E/E/IB.1	Known from fewer than 15 occurrences in the northern Sierra Nevada foothills in El Dorado and Nevada counties	Gabbro or serpentine soils in chaparral openings, cismontane woodland; 607–2,395 feet (185–1,090 meters)	April–July	Not Expected: typically occurs on gabbroic and serpentine derived soils, which are not present in the Study Area;
Chaparral sedge <i>Carex xerophila</i>	-- /--/IB.2	Recorded in several locations from El Dorado County north to Butte County	Chaparral, cismontane woodland, lower montane coniferous forest	March--June	Not Expected: typically occurs in chaparral habitats
Pine Hill ceanothus <i>Ceanothus roderickii</i>	E/R/IB.1	Endemic to El Dorado County	Serpentine or gabbroic soils in chaparral or cismontane woodland; 808– 3,597 feet (245–1,090 meters)	April–June	Not Expected: typically occurs on gabbro and serpentine derived soils on the Pine Hill formation, which are not present in the Study Area.
Red Hills soaproot <i>Chlorogalum grandiflorum</i>	--/IB.2	Scattered occurrences in the northern Sierra Nevada foothills from Placer to Tuolumne Counties	Chaparral, cismontane woodland, lower montane coniferous forest in serpentine, gabbro, or other soils; 804–3,855 feet (245–1,170 meters)	May–June	Not Expected: typically occurs on gabbro and serpentine derived soils on the Pine Hill formation, which is not present in the Study Area.
Brandegee's clarkia <i>Clarkia biloba</i> ssp. <i>brandegeae</i>	--/IB.2	Butte, El Dorado, Nevada, Placer, and Yuba Counties	Chaparral, cismontane woodland, often on roadcuts; 239–3,002 feet (73–915 meters)	May–July	Possible: Potential habitat present in oak woodland; historic occurrence is mapped within the city limits
Dwarf downingia <i>Downingia pusilla</i>	--/2.2	Inner north Coast Ranges, southern Sacramento Valley, northern and central San Joaquin Valley	Mesic areas in valley and foothill grassland, vernal pools; below 1,460 feet (445 meters)	March–May	Possible: potential habitat in seasonal wetlands and vernal pools. Nearest occurrence ~5 miles away
Pine Hill flannelbush <i>Fremontodendron decumbens</i>	E/R/IB.2	Known from fewer than 20 occurrences in El Dorado, Nevada (?), and Yuba (?) Counties	Rocky gabbro or serpentine soils in chaparral, cismontane woodland; 1,394 to 2,493 feet (425–760 meters)	April–July	None: No habitat or microhabitat present and Study Area is outside species' elevation range

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Stinkbells <i>Fritillaria agrestis</i>	-/-/4.2	Outer north Coast Ranges, Sierra Nevada foothills, Central Valley, Central Western California	Clay, sometimes serpentine soils in chaparral, cismontane woodland, pinyon-juniper woodland, valley and foothill grassland; 33–5,102 feet (10–1,555 meters)	March–June	Possible: habitat potentially present in grassland. No serpentine present. Nearest occurrence is ~7 miles away.
El Dorado bedstraw <i>Galium californicum</i> ssp. <i>sierra</i>	E/R/IB.2	Endemic to El Dorado County	Gabbro soils in chaparral, cismontane woodland, lower montane coniferous forest; 328– 1,919 feet (100–585 meters)	May–June	Not Expected: typically occurs on gabbroic and serpentine derived soils on the Pine Hill formation, which are not present in the Study Area.
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	-/E/IB.2	Inner north Coast Ranges, central Sierra Nevada foothills, Sacramento Valley, Modoc Plateau	Marshes and swamps along lake margins, vernal pools on clay soils; 33–7,792 feet (10–2,375 meters)	April–August	Possible: potential habitat in seasonal wetlands and vernal pools. Nearest occurrence is adjacent to the Study Area.
Bisbee Peak rush-rose <i>Crocانthemum suffrutescens</i>	-/-/3.2	Amador, Calaveras, El Dorado, Mariposa, Sacramento and Tuolumne Counties	Chaparral openings, often on serpentine, gabbro, or lone soils; 148–2,756 feet (45–840 meters)	April–August	Not Expected: typically occurs on gabbro and serpentine derived soils on the Pine Hill formation, which are not present in the Study Area.
Legenere <i>Legenere limosa</i>	-/-/IB.1	Sacramento Valley, north Coast Ranges, northern San Joaquin Valley and Santa Cruz Mountains	Vernal pools; below 2,887 feet (880 meters)	April–June	Possible: potential habitat in seasonal wetlands and vernal pools. Nearest occurrence is ~5 miles away.
Pincushion navarretia <i>Navarretia myersii</i> ssp. <i>myersii</i>	--/--IB.1	Amador, Placer, Merced, Sacramento, and Calaveras counties	Vernal pools; often acidic soils; 60-270 feet [20-330 meters]	April- May	Possible: potential habitat in vernal pools
Slender Orcutt grass <i>Orcuttia tenuis</i>	T/E/IB.1	Sierra Nevada and Cascade Range foothills from Siskiyou to Sacramento Counties	Vernal pools; 114–5,774 feet (35–1,760 meters)	May–September; uncommonly October	Possible: potential habitat in seasonal wetlands and vernal pools. Nearest occurrence is adjacent to the Study Area.

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Sacramento Orcutt grass <i>Orcuttia viscida</i>	E/E/IB.1	Endemic to Sacramento County	Vernal pools; 98–328 feet (30–100 meters)	April–July	Possible: potential habitat in seasonal wetlands and vernal pools. Historic occurrence is mapped within the city limits.
Layne’s ragwort <i>Packera layneae</i>	T/R/IB.2	Northern Sierra Nevada foothills in Butte, El Dorado, Tuolumne, and Yuba Counties	Rocky serpentine or gabbro soils in chaparral and foothill woodland, between 656–3,281 feet (200–1,000 meters)	April–August	Not Expected: typically occurs on gabbro and serpentine derived soils on the Pine Hill formation, which are not present in the Study Area.
Sanford’s arrowhead <i>Sagittaria sanfordii</i>	–/–/IB.2	Scattered locations in Central Valley and Coast Ranges	Freshwater marshes, sloughs, canals, and other slow-moving water habitats; below 2,132 feet (650 meters)	May–October	Possible: potential habitat present in wetlands. Nearest occurrence is adjacent to the Study Area.
El Dorado County mule ears <i>Wyethia reticulata</i>	–/–/IB.2	Known from only El Dorado and Yuba counties	On clay, serpentine, or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest; 607–2,067 feet (185–630 meters)	April–August	Not Expected: typically occurs on gabbro and serpentine derived soils on the Pine Hill formation, which is not present in the Study Area.
Federal E = listed as endangered under the federal Endangered Species Act. T = listed as threatened under the federal Endangered Species Act. – = no listing.		State E = listed as endangered under the California Endangered Species Act. R = listed as rare under the California Native Plant Protection Act (this category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation) – = no listing.			
California Native Plant Society (CNPS) 1B = List 1B species; rare, threatened, or endangered in California and elsewhere. 2 = List 2 species; rare, threatened, or endangered in California but more common elsewhere. 3 = List 3 species: more information is needed about this plant 4 = List 4 species: limited distribution and on a watch list 0.1 = seriously endangered in California. 0.2 = fairly endangered in California. ? = population status in County uncertain Source: California Native Plant Society, Rare Plant Program, 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Accessed at http://www.rareplants.cnps.org [accessed 20 December 2017].					

Table F-2: Special-Status Wildlife Species that May Occur in the Study Area				
Species	Status ^a Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Invertebrates				
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	E/-	Disjunct occurrences in Solano, Merced, Tehama, Ventura, Butte, and Glenn Counties	Large, deep vernal pools in annual grasslands	None: No suitable habitat present in Study Area
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T/-	Streamside habitats below 3,000 feet throughout the Central Valley	Riparian and oak savanna habitats	Present: Known to occur within the Study Area. Elderberry shrubs located within the Study Area provide suitable habitat
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T/-	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County	Common in vernal pools. Also found in sandstone rock outcrop pools, and seasonal wetlands	Present: Known to occur within the Study Area. Vernal pools and seasonal wetlands located within the Study Area provide suitable habitat.
Vernal pool tadpole shrimp <i>Lepidurus packardi</i>	E/-	Shasta County south to Merced County	Vernal pools, seasonal wetlands, and ephemeral stock ponds	Possible: Vernal pools and seasonal wetlands located within the Study Area provide suitable habitat
Amphibians				
California red-legged frog <i>Rana aurora draytoni</i>	T/SSC	Found along coast and coastal mountain ranges of California from Marin County to San Diego County and in Sierra Nevada from Tehama County to Fresno County	Permanent and semipermanent aquatic habitats, such as creeks and coldwater ponds, with emergent and submergent vegetation. May aestivate in rodent burrows or cracks during dry periods	Possible: California red-legged frogs are not known to occur within the Study Area, though they may occur in ponds and streams located within the Study Area
California tiger salamander <i>Ambystoma californiense</i>	T/T	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae. Rodent burrows, rock crevices, or fallen logs for cover for adults and summer dormancy	Possible: California tiger salamanders are not known to occur within the Study Area, though vernal pools and seasonal wetlands occurring within the Study Area provide suitable breeding habitat

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Western spadefoot <i>Scaphiopus hammondi</i>	-/SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California	Shallow streams with riffles and seasonal wetlands such as vernal pools in annual grasslands and oak woodlands		Possible: Western spadefoots not known to occur within the Study Area, though vernal pools and seasonal wetlands occurring within the Study Area provide suitable breeding habitat
Fishes					
Delta Smelt <i>Hypomesus transpacificus</i>	T/E	Endemic to California; occurs only in the Sacramento/San Joaquin River Delta; individuals may travel as far north as the I Street Bridge in Sacramento	Sacramento/San Joaquin River Delta		Not Expected: migration would be blocked by Nimbus Dam.
Steelhead - Central Valley DPS <i>Oncorhynchus mykiss [irideus population]</i>	T/-	Sacramento and San Joaquin rivers and their tributaries, excluding steelhead from San Francisco and San Pablo bays and their tributaries	Sacramento and San Joaquin rivers and their tributaries		Possible: May occur in the American River
Reptiles					
Giant garter snake <i>Thamnophis gigas</i>	T/T	Central Valley from vicinity of Burrel in Fresno County north to near Chico in Butte County. Has been extirpated from areas south of Fresno	Sloughs, canals, low-gradient streams, and freshwater marsh habitats where there is a prey base of small fish and amphibians. Also found in irrigation ditches and rice fields. Requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter		None: Study Area is outside of the species' range
Western pond turtle <i>Actinemys marmorata</i>	-/SSC	Occurs from the Oregon border of Del Norte and Siskiyou Counties south along coast to San Francisco Bay, inland through Sacramento Valley, and on western slope of Sierra Nevada	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests		Present: Known to occur within the Study area. Creeks, streams, and ponds occurring within the Study Area provide suitable habitat

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Birds					
Bald eagle <i>Haliaeetus leucocephalus</i>	FP/E	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in Lake Tahoe Basin. Reintroduced into central coast. Winter range includes rest of California, except southeastern deserts, very high altitudes in Sierra Nevada, and east of Sierra Nevada south of Mono County	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or ocean		Present: Recorded at Folsom Lake in both winter and nesting season. Unlikely to nest within the Study Area
Bank swallow <i>Riparia riparia</i>	FP/T	Occurs along Sacramento River from Tehama County to Sacramento County, along Feather and lower American Rivers, in Owens Valley, and in plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou Counties. Small populations near coast from San Francisco to Monterey County	Nests in bluffs or banks, usually adjacent to water, where soil consists of sand or sandy loam		None: No suitable nesting habitat present in Study Area
California black rail <i>Laterallus jamaicensis coturniculus</i>	FP/T	Permanent resident in San Francisco Bay and eastward through Delta into Sacramento and San Joaquin Counties. Small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties	Tidal salt marshes associated with heavy growth of pickleweed. Also occurs in brackish marshes or freshwater marshes at low elevations		None: No suitable habitat present in Study Area
Double-crested cormorant <i>Phalacrocorax auratus</i>	FP/--/--	Very adaptable; found along coast, inland reservoirs; bays, rivers	Nests colonially in large trees near or over water, on sea cliffs, or on the ground on islands		Possible: May occur occasionally in Study Area; unlikely to nest there.
Great blue heron <i>Ardea herodias</i>	FP/--/--	Very adaptable; found along coast, inland reservoirs; bays, rivers	Nests colonially in large trees near or over water, on sea cliffs, or on the ground on islands		Possible: May occur occasionally in Study Area; unlikely to nest there.

Table F-1 Special-Status Plants that May Occur in the Study Area

Common and Scientific Names	Status Federal/ State/CNPS	Geographic Distribution/ Floristic Province	Habitat Requirements	Blooming Period	Likelihood of Occurrence in Study Area
Golden eagle <i>Aquila chrysaetos</i>	FP/FP	Foothills and mountains throughout California; uncommon non-breeding visitor to lowlands such as the Central Valley	Nest on cliffs and escarpments or in tall trees overlooking open country; forages in annual grasslands, chaparral, and oak woodlands with plentiful medium- and large-sized mammals		Possible: Cliffs and larger trees in the eastern hill area of the Study Area provide potential nesting habitat
Grasshopper sparrow <i>Ammodramus savannarum</i>	FP/SSC	Summer resident and breeder in foothills and lowlands west of the Cascade-Sierra Nevada crest	Occurs in dry, dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches. Nests in slight depressions in dense grasslands		Possible: Grassland areas located within the Study Area provide suitable nesting habitat
Purple martin <i>Progne subis</i>	FP/SSC	Coastal mountains south to San Luis Obispo County, west slope of the Sierra Nevada, and northern Sierra and Cascade ranges. Absent from the Central Valley except in Sacramento. Isolated, local populations in southern California.	Nests in abandoned woodpecker holes in oaks, cottonwoods, and other deciduous trees in a variety of wooded and riparian habitats. Also nests in vertical drainage holes under elevated roadways and road bridges.		Possible: Vertical drainage holes located under road bridges within the Study Area provide suitable nesting habitat
Swainson's hawk <i>Buteo swainsoni</i>	FP/T	Lower Sacramento and San Joaquin Valleys, Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland in Yolo County	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields		Present: Known to nest within the Study Area. Large trees occurring within the Study Area provide suitable nesting habitat and annual grasslands provide foraging habitat
Tricolored blackbird <i>Agelaius tricolor</i>	FP/SSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony		Present: Known to nest within the Study Area. Cattails and large blackberry briars occurring within the Study Area provide suitable nesting habitat; open grasslands provide foraging habitat
Western burrowing owl <i>Athene cunicularia</i>	FP/SSC	Lowlands throughout California, including Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along South Coast	Level, open, dry, heavily grazed or low-stature grassland or desert vegetation with available burrows		Present: Known to nest in the Study Area. Burrows in annual grassland and ruderal areas of the Study Area provide suitable nesting habitat

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White-tailed kite <i>Elanus leucurus</i>	FP/FP	Lowland areas west of Sierra Nevada from head of Sacramento Valley south, including coastal valleys and foothills to western San Diego County at Mexico border	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging		Present: Known to nest within the Study Area. Large trees occurring within the Study Area provide suitable nesting habitat and annual grasslands provide foraging habitat
Mammals					
American badger <i>Taxidea taxius</i>	-/SSC	Found throughout most of California except in the northern North Coast area. Suitable habitat is characterized by herbaceous, shrub, and open stages of most habitats with dry, friable soils	Occurs in most habitats in California except alpine and montane habitats; digs burrows in friable soils for cover; frequently uses old burrows		Possible: Larger grassland areas occurring within the Study Area provide suitable habitat
Pallid bat <i>Antrozous pallidus</i>	-/SSC	Occurs throughout California except the high Sierra Nevada from Shasta County to Kern County and the northwest coast; primarily at lower and mid-elevations	Occurs in a variety of habitats from desert to coniferous forest; most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California		Possible: Buildings and the underside of bridges occurring within the Study Area provide suitable roosting habitat
LEGEND					
Federal					
E = listed as endangered under federal Endangered Species Act (ESA).					
T = listed as threatened under ESA.					
FP = protected under the Federal Migratory Bird Treaty Act					
State					
E = listed as endangered under California Endangered Species Act (CESA).					
T = listed as threatened under CESA.					
FP = fully protected under California Fish and Game Code.					
SSC= species of special concern in California.					
Source: California Natural Diversity Database (CNDDDB) 2017. Migratory Bird Treaty Act Protected Species (10.13 list, online version).					