San Luis Low Point Improvement Project Environmental Impact Statement / Environmental Impact Report

Appendix M2: Terrestrial Resources Detailed Affected Environment

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Appendix M2
Terrestrial Resources Detailed Affected Environment

M2.1 Terrestrial Natural Communities and Wildlife

The following section describes the potentially affected common and special status natural communities and associated wildlife species.

M2.1.1 San Luis Reservoir Region

M2.1.1.1 Common Natural Communities

Annual grassland. Annual grassland comprises the majority of terrestrial habitat in the San Luis Reservoir Region. Most grassland areas have not been grazed recently and are dominated by tall non-native annual grasses interspersed with shrubs and forbs. Small mammal burrows occur within the annual grassland. Dominant plants observed within the annual grassland during the September 2018 biological surveys include wild oat (*Avena fatua*), ripgut brome, foxtail chess (*Bromus madritensis*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneum*), perennial pepperweed (*Lepidium latifolia*), stinkwort (*Dittrichia graveolens*), and alkali heliotrope (*Heliotropium curassavicum* var. *oculatum*). Isolated or small clusters of oak (*Quercus* sp.), coyote brush (*Baccharis pilularis*), and silverscale saltbush (*Atriplex argentea*) are interspersed throughout the annual grassland.

Purple needlegrass (*Stipa pulchra*) grassland has limited distribution in the project area, occurring in various densities (e.g., up to an acre in size) within annual grasslands (see Section M21.3.2 Sensitive Natural Communities).

Urban/Disturbed. Urban/disturbed areas include campgrounds, picnic areas, boat ramps, facilities, roads, driveways, and roadsides. The majority of urban/disturbed areas observed during the September 2018 biological surveys contained minimal vegetation. Ruderal vegetation observed includes isolated, self-established mullein (*Verbascum* sp.), turkey mullein (*Croton setigerus*), radish (*Raphanus sativa*), and stinkwort.

In the wetter areas around the reservoir species include broad-leaved pepper-grass, spiny cocklebur (*Xanthium spinosum*), and bristly ox-tongue (*Helminthotheca echioides*). In the drier areas dominant species include yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), and short-pod mustard (*Hirschfeldia incana*) (Reclamation and California

Department of Pesticide Regulation [CDPR] 2013). At the Basalt Campground and Basalt Day Use Area non-native shade trees (e.g., *Eucalyptus* spp. and *Pinus* spp.) have been planted around the camp sites.

M2.1.1.2 Special-Status Natural Communities

Woodlands. Three types of woodland occur within the San Luis Reservoir Region: coast live oak, blue oak, and savanna. Coast live oak woodland occurs in San Luis Wildlife Area at the northwestern corner of the reservoir. Coast live oak woodland includes primarily coast live oak with blue oak, California bay (*Umbellularia californica*), valley oak (*Quercus lobata*), and California buckeye (*Aesculus californica*) intermixed throughout.

Blue oak woodland and savanna occur in the San Luis Wildlife Area and along the western edge of the San Luis Reservoir. Blue oak woodland occurs on the tops and sides of the ridges in small clumps. Blue oak (*Quercus douglasii*) is the dominant tree of this woodland with an occasional coast live oak (*Quercus agrifolia*). Blue oak woodland transitions to blue oak savanna, which consists of a sparse cover of trees growing within grassland.

The understory of the blue oak woodland mostly consists primarily of non-native grass as identified under the grassland vegetation community. Native forbs interspersed within the grassland include blue dicks (*Dichelostemma capitatum*) and clarkia (*Clarkia* spp.). Understory shrubs include California sagebrush (*Artemesia californica*), redberry buckthorn (*Rhamnus crocea*), and golden yarrow (*Eriophyllum confertiflorum*) (Reclamation and CDPR 2013).

Understory vegetation includes woodland sanicle (*Sanicula crassicaule*), blue wildrye (*Elymus glaucus*), miner's lettuce (*Claytonia perfoliata*), fiesta flower (*Pholistoma auritum*), chickweed (*Stellaria media*), sweet pea (*Lathyrus* spp.), bedstraw (*Galium apairne*), western poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and redberry buckthorn.

Scrub/Chaparral. Coyote brush scrub occurs in patches around the reservoir on shaded slopes and in drainage depressions. California sagebrush scrub occurs on the shallow soils of slopes along the reservoir's northwestern drainages. Dominant vegetation includes California sagebrush and California buckwheat (*Eriogonum fasciculatum*). Understory vegetation includes grassland between the shrubs. Dominant shrubs include chamise (*Adenestoma fasciculatum*), manzanita (*Arctostaphylos* spp.).

In the San Luis Region, chaparral and scrub vegetation is interspersed throughout the annual grassland. Dominant plants observed within the chaparral-scrub include coyote brush, mule fat (*Baccharis salicifolia* ssp. *salicifolia*), black sage (*Salvia mellifera*), tree tobacco (*Nicotiana glauca*), and honey mesquite (*Prosopis glandulosa* var. *torreyana*) (Environmental Science Associates [ESA] 2018).

Purple Needlegrass Grassland. Purple needlegrass (*Nasella pulchra*) grassland occurs in various densities within small to moderate-sized areas (e.g., up to an acre) in limited locations within annual grasslands. Patches with a minimum cover of ten-percent purple needlegrass were identified as this community.

Valley Foothill Riparian. Riparian occurs at the edges of San Luis Reservoir, with a canopy of black willow (*Salix goodingii*), Fremont cottonwood (*Populus fremontii*), and western sycamore (*Platanus racemosa*), and a shrub understory of mulefat (*Baccharis salicifolia*) and sandbar willow (*Salix exigua*). Herbaceous understory plants include crabgrass (*Cynodon dactylon*), spiny cockleburr, and Italian thistle (Reclamation and CDPR 2013). Dominant plants observed within the valley foothill riparian during the September 2018 biological surveys include those identified above, in addition to western goldenrod (*Euthamia occidentalis*), narrow-leaved cattail (*Typha angustifolia*), Mexican rush (*Juncus mexicanus*), and rabbit's foot grass (*Polypogon monspeliensis*).

Freshwater Emergent Wetland. Wetland vegetation occurs in wet areas along the edges of the San Luis Reservoir below the high water mark. Dominant species include broadleaf cattail (*Typha latifolia*), tule (*Schoenoplectus acutus* ssp. *occidentalis*), crabgrass, knotgrass (*Paspalum distichum*), Mexican rush, water parsley (*Oenanthe sarmentosa*), and water smartweed (*Polygonum punctatum*). Meadow barley (*Hordeum brachyantherum*) and creeping wildrye (*Leymus triticoides*) occur in in adjacent drier areas (Reclamation and CDPR 2013). Dominant vegetation observed in small pools during September 2018 biological surveys included eryngium (*Eryngium* sp.) and pillwort (*Pilularia americana*) (ESA 2018). Seasonal wetlands and vernal pools may occur within the grassland to the south and east of the San Luis Reservoir.

Seasonal Wetland and Ephemeral Drainage. Seasonal wetlands occur within the grassland around the reservoir in areas of relatively poor drainage (Reclamation 2018). These areas have saturated soil during the wet season and spring, but are dry in summer, and are dominated by plant species adapted to life in saturated soils (i.e., hydrophytes). Dominant vegetation observed within the seasonal wetlands include rabbit's foot grass, curly dock (*Rumex crispus*), alkali bulrush (*Bolboschoenus maritimus* ssp. *paludosus*), sedge (*Carex* spp.), and narrow-leaved cattail. Dominant plant species may also include hydrophytic grasses such as Mediterranean barley, and squirreltail fescue (*Festuca bromoides*), and herbaceous species such as broad-leaved pepperweed, heliotrope, and white horehound (*Marrubium vulgare*). Seasonal wetland is a sensitive natural community because of its important ecological functions and is subject to regulation by United States Army Corps of Engineers (USACE) and California Department of Fish and Wildlife (CDFW).

Ephemeral drainages which convey water during the wet season, but are dry during most of the year are typically not vegetated with hydrophytic vegetation,

but may be considered jurisdictional waters by the USACE and are therefore special-status communities.

M2.1.1.3 Wildlife

Grassland habitats support many species of migratory birds and raptors including western meadowlark (*Sturnella neglecta*), savannah sparrow (*Passerculus sandwichensis*), and red-tailed hawk (*Buteo jamaicensis*). Amphibians an reptiles including western fence lizard (*Sceloporus occidentalis*) and common garter snake (*Thamnophis sirtalis*) and mammals including California ground squirrel (*Otospermophilis beecheyi*), bobcat (*Felis rufus*) and coyote (*Canis latrans*) inhabit grassland.

Scrub/chaparral provides cover for wildlife including desert cottontail (*Sylvilagus audubonii*), western rattlesnake (*Crotalus viridis*) and coyote.

Riparian areas support common wildlife species including: amphibians such as Sierran treefrog (*Pseudacris sierra*); birds including Wilson's warbler (*Wilsonia pusilla*), Swainson's thrush (*Catharus ustulatus*), yellow warbler (*Dendroica petechia brewsteri*), green heron (*Butorides striatus*), and red-shouldered hawk (*Buteo lineatus*); and mammals including raccoon (*Procyon lotor*) and striped skunk (*Mephitis mephitis*), and gray fox (*Urocyon cinereoargenteus*).

Emergent wetlands are important for foraging and breeding habitat for many species of water birds including: wading birds such as great egret (*Ardea alba*); waterfowl including green-winged teal (*Anas crecca*), mallard, and American coot; shorebirds including killdeer, black-necked stilt (*Himantopus mexicanus*), greater yellowlegs (*Tringa melanoleuca*), and American avocet (*Recurvirostra americana*); and passerines including Brewer's blackbird (*Euphagus cyanocephalus*), red-winged blackbird, brown-headed cowbird (*Molothrus ater*), and American pipit (*Anthus rubescens*) (Santa Clara County 2012).

Developed areas provide limited habitat for wildlife. However, typical bird species that are found in developed areas include American robin (*Turdus migratorius*), mockingbird (*Mimus polyglottos*), American crow (*Corvus brachyrhynchos*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and rock pigeon (*Columba livia*). Other wildlife adapted to living in developed areas include Norway rat (*Rattus norvegicus*), western gray squirrel (*Sciurus niger*), opossum (*Didelphis virginiana*), and raccoon.

M2.1.2 SCVWD Service Area

M2.1.2.1 Common Natural Communities

Major natural communities found in the Santa Clara Valley Water District (SCVWD) Service Area include grassland, chaparral, coastal scrub, oak woodland, riparian forest and scrub, wetland, and open water (Santa Clara County 2012). The Santa Teresa water treatment plant (WTP) is located primarily within developed areas. However, grassland, oak woodland, and

riparian forest and scrub vegetation communities do occur at or near proposed construction areas. These natural communities are described in more detail below. Further description of the Santa Teresa WTP Area natural communities is also provided below.

Annual Grassland. Grassland is a predominant vegetation community in the SCVWD Service Area. The grassland communities are dominated by non-native annuals, interspersed with small patches of native perennial grasses (Santa Clara County 2012).

Oak Woodland. Oak woodland is the dominant vegetation community type in the SCVWD Service Area and includes several sub-types such as valley oak woodland, mixed oak woodland and forest (the most common subtype), blue oak woodland, and coast live oak woodland. Other species that occur in this community include California buckeye and foothill pine (*Pinus sabiniana*). Oak woodland in the SCVWD Service Area are often located next to streams and creeks and have associated riparian vegetation (Santa Clara County 2012).

Riparian Forest and Scrub. Riparian forests are dominated by trees such as willow (*Salix* spp.) and Fremont cottonwood (*Populus fremontii*). Other commonly occurring trees include white alder (*Alnus rhombifolia*), bigleaf maple (*Acer macrophyllum*), California sycamore (*Platanus racemosa*), and coast live oak. Riparian woodland contain an understory of shrubs and forbs. Riparian scrub is dominated by young willow trees and shrubs such as mulefat typically representing an early successional stage of riparian woodland (Santa Clara County 2012).

These vegetation communities occur along several creeks that traverse the SCVWD Service Area, including Penitencia Creek, Los Gatos Creek, Guadalupe Creek, and Guadalupe River, described in more detail below.

Wetlands and Open Water Habitat. Freshwater marsh wetlands may occur in association with creeks and rivers in the SCVWD Service Area. Wetlands are dominated by emergent herbaceous plants such as bulrush (*Bolboschoenus* spp.), sedge (*Carex* spp.), and cattail (*Typha* spp.) with either intermittently flooded or perennially saturated soils. These communities are found throughout the coastal drainages of California wherever water slows down and accumulates, even on a temporary or seasonal basis (Santa Clara County 2012). In addition, vernal pools and seasonal wetlands may occur in the SCVWD Service Area.

Open water habitat includes lakes, reservoirs, and groundwater recharge ponds within the SCVWD Service Area. Wetlands can also occur around the margins of these water bodies.

Chaparral. Chaparral includes mixed chaparral and mixed serpentine chaparral. Mixed chaparral is found on rocky, porous, nutrient-deficient soils

and on steep slopes. Mixed serpentine chaparral consists of fire-adapted shrubs found on serpentine soils and is generally more open than other chaparral types (Santa Clara County 2012). Dominant shrubs include chamise (*Adenestoma fasciculatum*), manzanita (*Arctostaphylos* spp.), scrub oak (*Quercus berberidifolia*), and ceanothus (*Ceanothus* sp.). Other species include toyon (*Heteromeles arbutifolia*), coffeeberry (*Rhamnus californica*), madrone (*Arbutus menziesii*), California bay (*Umbellularia californica*), birchleaf mountain-mahogany (*Cercocarpus betuloides*), western poison-oak, bush monkey flower (*Mimulus aurantiacus*), and California yerba santa (*Eriodictyon californicum*) (Santa Clara County 2012).

Developed. Developed areas include residential, commercial, industrial, transportation, landfill, landscaping, and recreational uses. Some developed areas contain ornamental vegetation, landscaped lawns.

M2.1.2.2 Wildlife

Given similarities in vegetation communities, many of the wildlife species that occur in the SCVWD Service Area are similar to those found in the San Luis Reservoir Region, such as grassland, riparian, and wetlands, as described above. Common wildlife associated with the vegetation communities not found in the San Luis Reservoir Region, including chaparral.

Chaparral communities in the SCVWD Service Area support many species of birds including Anna's hummingbird (*Calypte anna*), western scrub-jay (*Aphelocoma californica*), Bewick's wren (*Thryomanes bewickii*), California towhee (*Pipilo crissalis*), and California quail (*Callipepla californica*). Reptiles that utilize chaparral include gopher snake (*Pituophis melanoleucus*) and western rattlesnake (*Crotalus oreganus*). Mammals that utilize chaparral include California pocket mouse (*Perognathus californicus*), California ground squirrel, bobcat, and coyote.

M2.1.2.3 Santa Teresa WTP

A reconnaissance-level field survey was conducted at SCVWD's Santa Teresa WTP on June 11-12, 2012.

The Santa Teresa WTP is located near the Santa Teresa Hills in the City of San Jose. Surrounding land uses are primarily residential, with adjacent small patches of oak woodland and annual grassland. Trees and other vegetation around the site provide habitat for migratory birds and other wildlife adapted to living near residential areas.

Santa Teresa County Park is located east of the WTP and consists of 1,627 acres of annual grassland, oak woodland, and developed areas that supports many wildlife species.

M2.1.3 Pacheco Reservoir

Natural communities found in the vicinity of the Pacheco Reservoir are primarily comprised of oak woodlands. Other natural communities in the area include riparian woodland, annual grassland, and chaparral (including serpentine chaparral and northern mixed chaparral/charmise chaparral) (Santa Clara County 2012).

M2.1.3.1 Common Natural Communities

Grassland. Annual grassland communities occur throughout the lowlying valleys that would be flooded by an expanded reservoir, and are dominated by non-native annuals, interspersed with small patches of native perennial grasses (Santa Clara County 2012).

Chaparral. Both northern mixed chaparral/chamise chaparral and limited amounts of serpentine chaparral occur in the Pacheco Reservoir region. Vegetation surveys have not been performed in the Pacheco Reservoir area, however, species similar to those described for the SCVWD Service Area are expected. Small areas of serpentine soils are mapped on the east side of Pacheco Reservoir, including within the proposed expanded reservoir area (Santa Clara County 2012) within larger areas of chamise and mixed chaparral (see Figure M1-2a).

M2.1.3.2 Sensitive Natural Communities

Oak Woodland. Oak woodland is the dominant vegetation community type in the Pacheco Reservoir region and includes several sub-types such as foothill-pine oak woodland, mixed oak woodland and forest, blue oak woodland, and valley oak woodland, which are considered sensitive communities by CDFW.

Valley Foothill Riparian. Riparian habitat includes trees such as California sycamore, white alder, and black willow (Santa Clara County 2012). This vegetation community is present along Pacheco Creek upstream and downstream of the Pacheco Reservoir.

Wetlands. One large patch of freshwater emergent wetland is located along the floodplain above the confluence of the North and East Forks of Pacheco Creek. Isolated ponds are also present upstream of Pacheco Reservoir.

M2.1.3.3 Wildlife

Biological surveys have not yet been conducted in the Pacheco Reservoir region. Given similarities in vegetation communities, many of the wildlife species that occur near the Pacheco Reservoir are assumed to be similar to those found in the San Luis Reservoir Region. Common wildlife may also be associated with the vegetation communities not found in the San Luis Reservoir Region, including chaparral.

Sensitive wildlife species, including California tiger salamander, and California red-legged frog may use mixed chaparral habitat areas for movement,

aestivation, or foraging habitat, particularly when located near aquatic habitat that supports these species. Bay checkerspot butterfly may move through this community type (Santa Clara County 2012).

Numerous amphibian, reptile, bird, and mammal wildlife species use riparian habitats. Sensitive species such as California tiger salamander, California red-legged frog, foothill yellow-legged frog, western pond turtle, and least Bell's vireo use riparian habitat for movement, breeding, foraging, and/or refugia. Tricolored blackbird and San Joaquin kit fox may briefly use such habitat as well during movement and foraging.

M2.2 Special-Status Species

M2.2.1 Methods

Special-status species are protected pursuant to federal and/or state endangered species laws or have been designated as species of concern by the CDFW. In addition, Section 15380(b) of the California Environmental Quality Act (CEQA) Guidelines provides a definition of rare, endangered, or threatened species that are not included in any listing. Species recognized under these terms are collectively referred to as "special-status species." For purposes of this Environmental Impact Statement/ Environmental Impact Report (EIS/EIR), special-status species include:

- Plant and wildlife species that are identified as rare, threatened, or endangered under the federal or state endangered species acts
- Species that are candidates for listing under either federal or state law
- Species designated by CDFW as species of special concern
- Species protected by the federal Migratory Bird Treaty Act (16 United States Code [USC] Sections 703–711)
- Species identified under Fish and Game Code as fully protected (Section 3511)
- Bald and golden eagles protected by the federal Bald Eagle Protection Act (16 USC 668)
- Species such as candidate and California Rare Plant Rank (CRPR) 1A, 1B, 2A, and 2B species that may be considered rare or endangered pursuant to the criteria in Section 15380(b) of the CEQA Guidelines
- The CDFW-managed tule elk is additionally included in the analysis at San Luis Reservoir for the purposes of examining wildlife movement under CEQA

In addition to range maps, habitat assessments, and reports from field surveys, the following databases pertaining to the natural resources of the region were

reviewed to determine the determine the regional likelihood of occurrence of special-status plant and wildlife species:

- U.S. Fish and Wildlife Service (USFWS) official lists, dated December 13, 2018, of federally listed species that may occur or could potentially be affected by activities within the San Luis Reservoir Region including the San Luis Low Point Improvement Project (USFWS 2018), and the Pacheco Reservoir Region (USFWS 2018).
- CDFW California Natural Diversity Database (CNDDB) lists of documented occurrences (CDFW 2018).
- Calflora (2018) database: Information on California plants for education, research and conservation [web application]. 2018. Berkeley, California: Available: https://www.calflora.org/ (Dec 13, 2018).

M2.2.2 Special-Status Species with Potential to Occur

Table M2-1 identifies regionally occurring special-status species including common and scientific names for each species, regulatory status (federal, State, local, CRPR), habitat descriptions, and potential for occurrence for each of the alternative. Species with the potential to occur include those observed during the surveys and those with the potential to occur based on presence of habitat.

San Luis Reservoir Region: A California Natural Diversity Database (CNDDB) record search of the Mariposa Peak, Three Sisters, Los Banos Valley, San Luis Dam, Pacheco Pass, Pacheco Peak, Crevison Peak, Mustang Peak, and Howard Ranch 7.5-minute USGS quadrangles was conducted to obtain regionally occurring special-status species documented in the vicinity of the San Luis Reservoir (Figure M1-3). In addition, an official species list of federally listed species that may occur or could potentially be affected by activities within this location was obtained from the USFWS (USFWS 2018). These species are listed in Table M2-1. In September 2018 a biological resources field survey was conducted of the B.F. Sisk construction area (ESA 2018).

SCVWD Service Area: This area includes the area encompassed by the Santa Teresa WTP. A CNDDB search was conducted to identify special-status species with documented occurrences in the SCVWD Service Area. The search included the San Jose West, San Jose East, Calaveras Reservoir, Los Gatos, Santa Teresa Hills, Morgan Hill, Cupertino and Mt. Sizer 7.5-minute USGS quadrangles. The location of occurrences of special-status species surrounding Santa Teresa WTP are shown in Figure M1-4. In addition, official species lists of federally listed species that may occur or could potentially be affected by activities within the SCVWD Service Area were obtained from the USFWS (USFWS 2018). These species are provided in Table M2-1.

Pacheco Reservoir: A CNDDB search was conducted to identify special-status species with documented occurrences in the Pacheco Reservoir region. The search included the Mississippi Creek, Mustang Peak, Crevison Peak, Gilroy

Hot Springs, Pacheco Peak, Pacheco Pass, San Felipe, Three Sisters, Mariposa Peak 7.5-minute USGS quadrangles. In addition, an official species list of federally listed species that may occur or could potentially be affected by activities within this location was obtained from the USFWS (USFWS 2018). The location of occurrences of special-status species in the Pacheco Reservoir region are shown in Figure M1-5.

Table M2-1. Special-Status Terrestrial Species and Potential to Occur in the San Luis Reservoir Region, the SCVWD Service Area, and the Pacheco Reservoir Region

Common Name	Scientific Name	Status	Habitat Requirements	Potential to Occur within the San Luis Reservoir Region[1]	Potential to Occur within the SCVWD Service Area[2]	Potential to Occur within the Pacheco Reservoir Region
Invertebrates						
Bay checkerspot butterfly	*Euphydryas editha bayensis*	FT	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay.	N/A	Moderate. Grasslands within the SCVWD Service Area provide habitat for this species. Nearest CNDDB occurrences are in hills above Anderson Reservoir and near Calero Reservoir.	Low. The Pacheco Reservoir Region is outside the known geographic range of this species. No CNDDB occurrences in the Pacheco Reservoir Region.
Conservancy fairy shrimp	*Branchinecta conservatio*	FE	Found in large vernal pools.	N/A	None. The SCVWD Service Area does not provide habitat for this species. No CNDDB occurrences in SCVWD Service Area.	Low. Vernal pool habitat is uncommon in the steep terrain surrounding Pacheco Reservoir. There are no known occurrences of this species within the Pacheco Reservoir Region.
San Bruno Elfin butterfly	*Callophrys mossii bayensis*	FE	Coastal mountains near San Francisco Bay with steep north facing slopes. Larval food plant is broadleaf stonecrop.	N/A	None. The SCVWD Service Area occurs outside the known geographic range for this species. No CNDDB occurrences in SCVWD Service Area	Low. Its larval food plant, broadleaf stonecrop, has been observed nearby in Henry W. Coe State Park. There are no known occurrences of this species within Santa Clara County.
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Found in ephemeral wetland habitats and vernal pools within sandstone, alkaline soils, and alluvial fan terraces, within annual grassland.	Moderate. Observed pools and seasonal wetlands within the San Luis Region provide suitable habitat for this species. No CNDDB occurrences in the San Luis Reservoir Region.	Moderate. Potentially occurring vernal pools and seasonal wetlands within the SCVWD may provide habitat for this species. No CNDDB occurrences in SCVWD Service Area.	Low. Vernal pool habitat is uncommon in the steep terrain surrounding Pacheco Reservoir. There are no known occurrences of this species within the Pacheco Reservoir Region.

Common Name	Scientific Name	Status	Habitat Requirements	Potential to Occur within the San Luis Reservoir Region[1]	Potential to Occur within the SCVWD Service Area[2]	Potential to Occur within the Pacheco Reservoir Region
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	Found in a wide variety of ephemeral wetland habitats.	Moderate. Observed pools and seasonal wetlands within the vicinity of the San Luis Region provide suitable habitat for this species. No CNDDB occurrences in the San Luis Reservoir Region.	Moderate. Potentially occurring vernal pools and seasonal wetlands within the SCVWD may provide habitat for this species. No CNDDB occurrences in SCVWD Service Area.	Low. Vernal pool habitat is uncommon in the steep terrain surrounding Pacheco Reservoir. There are no known occurrences of this species within the Pacheco Reservoir Region.
Zayante band-winged grasshopper	*Trimerotropis infantilis*	FE	Isolated sandstone deposits in the Santa Cruz Mountains (the Zayante Sand Hills ecosystem).	N/A	Low. The SCVWD Service Area occurs outside the known geographic range for this species. No CNDDB occurrences in SCVWD Service Area.	Low. The Pacheco Reservoir region occurs outside the known geographic range for this species.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus nigra* ssp. *caerulea*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for “stressed” elderberries.	High. Elderberry bushes were observed in 2002 2016, and 2018 within San Luis Reservoir Region. CNDDB occurrence along Los Banos Creek, over 5 miles southeast of San Luis Reservoir.	N/A	None. The Pacheco Reservoir Region occurs outside the geographic range of this species.

Common Name	Scientific Name	Status	Habitat Requirements	Potential to Occur within the San Luis Reservoir Region[1]	Potential to Occur within the SCVWD Service Area[2]	Potential to Occur within the Pacheco Reservoir Region
Amphibians						
California tiger salamander (Central California Distinct Population Segment)	*Ambystoma californiense*	FT, ST Critical Habitat	Need underground refuges, especially ground squirrel burrows for upland aestivation within grassland and vernal pools or other seasonal water sources for breeding.	Moderate. Grasslands provides upland aestivation habitat. CNDDB occurrence along Los Banos Creek, southeast of San Luis Reservoir. CNDDB report approximately 2.5 miles southeast of Basalt Use Area and campground. Critical habitat occurs within the western portion of the San Luis Reservoir.	Moderate. The ponds in the vicinity of the SCVWD Service Area provide breeding habitat and grasslands provides upland habitat. Critical habitat occurs within a portion of the site.	Moderate. Ponds near the Pacheco Reservoir provide potential breeding habitat for this species and grasslands provide potential upland habitat.
Foothill yellow-legged frog	*Rana boylii*	SC, Fed under review	Partly-shaded, shallow perennial and intermittent streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Rarely encountered far from permanent water sources.	None. Although CNDDB records occur along permanent streams to the south, no permanent streams occur within the reservoir system. CNDDB occurrences along Los Banos Creek, southeast and southwest of San Luis Reservoir.	Moderate. Permanent drainages associated with the wetlands and open water habitat provide open water habitat for this species.	Moderate. Riverine habitat upstream and downstream of the Pacheco Reservoir provide suitable habitat for this species.

Common Name	Scientific Name	Status	Habitat Requirements	Potential to Occur within the San Luis Reservoir Region[1]	Potential to Occur within the SCVWD Service Area[2]	Potential to Occur within the Pacheco Reservoir Region
California red-legged frog	*Rana draytonii*	FT, CSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to aestivation habitat.	Present. Breeding population observed near quarry during 2018 field surveys. Grasslands and riparian areas provide upland and dispersal corridors. CNDDB records occur in the vicinity of San Luis Reservoir.	High. The drainages and freshwater marsh wetlands associated with the wetlands and open water habitat provide open water habitat for this species.	Moderate. The Pacheco Reservoir Region occurs within critical habitat for this species. The creeks, ponds, and riparian habitat located in vicinity of the Pacheco Reservoir provide suitable habitat for this species.
Reptiles						
Western pond turtle	*Actinemys marmorata pallida*	CSC, Fed under review	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Moderate. The San Luis Reservoir may provide aquatic habitat for this species. CNDDB occurrences in Pacheco State Park. Observed in the Portuguese Creek Area of San Luis Reservoir in 2004.	High. The drainages and freshwater marsh wetlands associated with the wetlands and open water habitat provide open water habitat for this species.	High. The aquatic habitat along the reservoir and creek provides suitable habitat for this species.

Common Name	Scientific Name	Status	Habitat Requirements	Potential to Occur within the San Luis Reservoir Region[1]	Potential to Occur within the SCVWD Service Area[2]	Potential to Occur within the Pacheco Reservoir Region
Blunt-nosed leopard lizard	*Gambelia sila*	FE, SE	Sparsely vegetated alkali and desert scrub habitats, in areas of low topographic relief. Seeks cover in mammal burrows, under shrubs or structures such as fence posts; does not excavate burrows. This species is known from the extreme northwest Santa Barbara County and western Kern County north to southern Merced County.	Low. The San Luis Reservoir Region occurs outside of the known extant geographic range for this species. The current species' range is restricted to areas south of San Luis Reservoir (1993 observation south of Los Banos Creek Reservoir). A 1930s record of a population in the vicinity of the Sisk Dam is likely extirpated.	N/A	Low. This region occurs outside known distribution range of this species.
Coast horned lizard	*Phrynosoma blainvillii*	CSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects are required.	Moderate. Grasslands provides suitable habitat for this species.	Moderate. Grasslands provides suitable habitat for this species. Nearest CNDDB occurrence is near Calero County Park.	Moderate. Grasslands and chaparral provides habitat for this species.
Alameda whipsnake	*Masticophis lateralis euryxanthus*	FT, ST	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna, and woodland habitats.	N/A	Moderate. CNDDB occurrences are sensitive but species may occur in suitable habitat in the project area.	Low. This region occurs outside known distribution range of this species.

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San Joaquin whipsnake	*Masticophis flagellum ruddocki*	CSC	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.	High. Grasslands and scrub/chaparral provide habitat for this species. CNDDB occurrence southeast of San Luis Reservoir. Status unknown but expected to occur.	N/A	High. Grasslands provide habitat for this species.
Giant garter snake	*Thamnophis gigas*	FT	Found in agricultural wetlands, irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Absent from large rivers and waters with large, introduced, predatory fish and from wetlands with sand, gravel, or rock substrates.	Low. The San Luis Reservoir contains predatory fish, which precludes this species from being present. CNDDB occurrence to the east of I-5.	N/A	Low. The Pacheco Reservoir Region is not within the geographic range of this species.
Birds						
American peregrine falcon	*Falco peregrinus anatum*	CFP	Nests near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge over an open site.	N/A	High. The wetlands and open water habitat and structures associated with developed areas provide nesting habitat. Known to nest on the San Jose City Hall building.	Moderate. Suitable nesting habitat exists in the vicinity of the existing Pacheco Reservoir.

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Bald eagle	*Haliaeetus leucocephalus*	BGEPA, SE, CFP	Requires large bodies of water, or free flowing rivers with abundant fish, and adjacent snags or other perches for nesting.	Present. Bald eagle was observed in the region during site visit (ESA 2016). May winter in small numbers and possible nesting on power line towers around reservoirs.	Present. Bald eagle have nested in the SCVWD Service Area at Calero Reservoir	Moderate. Nesting habitat is available in the vicinity of Pacheco Reservoir Region.
Black swift	*Cypseloides niger*	CSC	Coastal belt of Santa Cruz and Monterey County; central and southern Sierra Nevada; San Bernardino and San Jacinto Mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf.	N/A	Low. The SCVWD Service Area does not provide suitable nest habitat for this species, however eBird observations record several sightings in the area. No CNDDB occurrences in SCVWD Service Area.	Low. The Pacheco Reservoir Region occurs outside the known geographic range of this species, howevever, eBird observations record sevreal sightings in the area.No CNDDB occurrences in the Pacheco Reservoir Region.
Ridgway's rail	*Rallus longirostris obsoletus*	FE	Resides in coastal wetlands and brackish areas around San Francisco Bay.	N/A	Low. The known extant geographic range for this species occurs in the SCVWD Service Area but not near the Treatment Alternative Study Area. No CNDDB occurrences in SCVWD Service Area.	None. No suitable habitat is present for this species in the vicinity of Pacheco Reservoir Region.

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California condor	*Gymnogyps californianus*	FE, SE	Nests in caves on cliff faces in mountains up to 6,000 feet. Found in California's southern coastal ranges from Big Sur to Ventura County, east through the Transverse Range and southern Sierra Nevada.	Moderate. While nesting habitat is not present, foraging habitat is present within the San Luis Reservoir Region. Nearest CNDDB occurrence is 33 miles for this San Luis Reservoir Region.	N/A	Low. The Pacheco Reservoir is located outside the known range of this species.
California least tern	*Sterna antillarum browni*	FE	Breeds along seacoasts, beaches, bays, estuaries, lagoons, lakes, and rivers.	N/A	None. The SCVWD Service Area does not provide habitat for this species. No CNDDB occurrences in SCVWD Service Area.	Low. No suitable habitat for this species is present within the Pacheco Reservoir Region. No CNDDB occurrences of this species within the Pacheco Reservoir Region
Golden eagle	*Aquila chrysaetos*	BGEPA	Needs open terrain for hunting; grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats.	High. Known to occur around San Luis Reservoir. Suitable nesting habitat present. CNDDB occurrence near the San Luis Reservoir.	Moderate. Known to occur within Alum Rock Park.	High. Suitable habitat present for this species within the Pacheco Reservoir Region.
Marbled murrelet	*Brachyramphus marmoratus*	FT, SE	Nests along coastlines with stands of mature redwood and Douglas-fir.	N/A	None. The SCVWD Service Area does not provide habitat for this species. No CNDDB occurrences near SCVWD Service Area.	None. No suitable habitat available for this species within the Pacheco Reservoir Region.

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Northern harrier	*Circus cyaneus*	CSC	Coastal salt and fresh-water marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge.	Present. This species was observed during the 2002 survey. CNDDB occurrences near San Luis Reservoir.	Present. Along shoreline.	Moderate. Suitable habitat is available within the Pacheco Reservoir Region.
Purple martin	*Progne subis*	CSC	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, & Monterey pine.	N/A	Low. The SCVWD Service Area does not provide habitat for this species. Known from one CNDDB occurrence in Santa Cruz Mountains outside SCVWD Service Area.	Low. No suitable habitat within Pacheco Reservoir Region.
Swainson's hawk	*Buteo swainsoni*	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands. Alameda, Butte, Colusa, Contra Costa, Fresno, Glenn, Inyo, Kern, Kings, Lassen, Los Angeles, Madera, Merced, Modoc, Mono, Napa, Placer, Plumas, Sacramento, San Bernardino, San Joaquin, San Luis Obispo, Siskiyou, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba counties.	Present. Grasslands provides foraging habitat CNDDB occurrences near O'Neill Forebay. Observed during 2003 and 2016 field surveys; known to nest in the area.	Low. The SCVWD Service Area occurs outside of the geographic range for this species. Nearest CNDDB occurrence on Coyote Creek south of Bailey Ave Overpass.	Low. The Pacheco Reservoir Region is located outside the known geographic range of this species.

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Tricolored blackbird	*Agelaius tricolor*	ST, Fed under review	Highly colonial species, most numerous in Central Valley and vicinity. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	High. The annual grassland provides foraging habitat and the riparian vegetation along south end of San Luis Reservoir near Sisk Dam provides nesting habitat.	High. The annual grassland provides foraging habitat and the freshwater marsh wetlands associated with the open water habitat may provide nesting habitat. Nearest CNDDB occurrence at Calero Reservoir.	Moderate. Suitable habitat is present in wetland habitat within the Pacheco Reservoir Region.
Western burrowing owl	*Athene cunicularia*	CSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	Present. The annual grassland, scrub/chaparral, and ruderal provide habitat for this species. CNDDB occurrences east of the San Luis Reservoir. Observed east of reservoir in cattle pastures in 2016 (ESA 2016). Likely to occur in small numbers during winter and the nesting season.	High. The annual grassland and scrub/chaparral provide habitat for this species. Nearest CNDDB occurrences is just east of San Jose airport and near Kirby Canyon, west of Anderson Reservoir.	Moderate. Suitable habitat is present within grasslands. scrub/chaparral habitat within the Pacheco Reservoir Region.
Western snowy plover	*Charadrius alexandrinus nivosus*	FT, CSC	Occurs along the California coast and breeds on dune-backed beaches.	N/A	Moderate. The SCVWD Service Area provides habitat but nowhere near the Treatment Alternative Study Area. CNDDB occurrences near SCVWD Service Area but nowhere near the Treatment Alternative Study Area.	Low. No suitable habitat present. No CNDDB occurrences documented within the Pacheco Reservoir Region.

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White-tailed kite	*Elanus leucurus*	CFP	Coastal and valley lowlands; undisturbed, open grasslands, meadows, farmlands and emergent wetlands.	High. The trees surrounding the San Luis Reservoir Region provide nesting habitat. No CNDDB occurrences. Likely nester based on observances at San Luis Reservoir from 2000-2004.	High. The trees provide habitat for this species. Suitable nesting habitat within service area. CNDDB occurrence along Stevens Creek in Cupertino.	Moderate. Suitable nesting habitat is present throughout the Pacheco Reservoir Region.
Yellow-billed cuckoo	*Coccyzus americanus*	FT, SE	Frequents dense valley foothill riparian habitats within Butte, Colusa, Fresno, Glenn, Humboldt, Imperial, Inyo, Kern, Lake, Los Angeles, Madera, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Joaquin, San Luis Obispo, Siskiyou, Sonoma, Stanislaus, Sutter, Tehama, Ventura, Yolo, and Yuba counties in California.	N/A	None. The SCVWD Service Area occurs outside of the known extant geographic range for this species. Although one CNDDB occurrence is documented within the SCVWD Service Area, the record is from 1899, and is considered extirpated (Occurrence number 196).	None. The Pacheco Reservoir Region occurs outside the known extant geographic range for this species.
Mammals						
American badger	*Taxidea taxus*	CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Present. Observed in 2018 near Basalt and Gonzaga Rds. The scrub/chaparral and grassland provide habitat for this species. CNDDB occurrences within the San Luis Reservoir Region.	High. The scrub/chaparral and grassland provide habitat for this species. Nearest CNDDB occurrence 2.4 miles northwest of Anderson Reservoir.	High. The chaparral and grassland habitat within the Pacheco Reservoir Region provide suitable habitat for this species.

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Fresno kangaroo rat	*Dipodomys nitratoides exilis*	FE	Found in grassland/ and chaparral. Known from Fresno, Kings, and Madera counties.	Low. The San Luis Reservoir Region occurs outside of the known extant geographic range for this species. No CNDDB occurrences in the San Luis Reservoir Region.	N/A	Low. The Pacheco Reservoir Region occurs outside the known geographic range of this species.
Giant kangaroo rat	*Dipodomys ingens*	FE	Found in grassland. Known from Fresno, Kern, San Benito, and San Luis Obispo counties and extirpated from Kings, Merced, and Santa Barbara counties.	Low. The San Luis Reservoir Region occurs outside of the known extant geographic range for this species. No CNDDB occurrences in the San Luis Reservoir Region.	N/A	Low. The Pacheco Reservoir Region occurs outside the known geographic range of this species.
Greater western mastiff bat	*Eumops perotis californicus*	CSC	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	Moderate. Grasslands, scrub/chaparral, and oak woodland provides foraging habitat for this species. No CNDDB occurrences near San Luis Reservoir.	Moderate. Grasslands, scrub/chaparral, and oak woodland provides foraging habitat for this species. No CNDDB occurrences near SCVWD Service Area.	Moderate. Potential habitat is present within grasslands and oak woodland present within the Pacheco Reservoir Region.
Pallid bat	*Antrozous pallidus*	CSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Moderate. Grasslands, scrub/chaparral, and oak woodland habitat provides foraging habitat for this species. No CNDDB occurrences near San Luis Reservoir.	Moderate. The trees within the SCVWD Service Area provide day roosts. A CNDDB occurrence is documented within SCVWD Service Area.	Moderate. Potential habitat is present within grasslands and oak woodland present within the Pacheco Reservoir Region.

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Ringtail	*Bassariscus astutus*	CFP	Mixed oak woodland and riparian habitats.	Moderate. The oak woodland, chaparral, and riparian provide habitat for this species. There are no nearby documented occurrences.	Moderate. The oak woodland and riparian provide habitat for this species. There are no nearby documented occurrence for this species.	Moderate. Oak woodland and riparian habitat provides suitable habitat for this species. There are no nearby documented occurrences.
San Joaquin kit fox	*Vulpes macrotis mutica*	FE, ST	Annual grassland or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing and suitable prey base.	High. The annual grassland provides habitat for this species. Many potential dens reported in 2009 survey. CNDDB occurrences near San Luis Reservoir. Few documented occurrences in recent years suggest an unstable and possibly declining population.	High. The annual grassland provides habitat for this species. Most recent CNDDB occurrence in general vicinity was in Morgan Hill in the early 1970s.	Moderate. The annual grassland provides habitat for this species. Most recent CNDDB occurrence was in 2002 about 1 mile west of Pacheco Reservoir.
Salt marsh harvest mouse	*Reithrodontomys raviventris*	FE	Requires dense cover including pickleweed (*Salicornia virginica*). Known only in the saline emergent wetlands of San Francisco Bay and its tributaries.	N/A	None. The SCVWD Service Area does not provide habitat. There are no CNDDB occurrences documented for this species.	None. No suitable habitat exists within the Pacheco Reservoir Region.
Townsend's big-eared bat	*Corynorhinus townsendii*	CSC	Throughout California in a wide variety of habitats. Most common in mesic sites.	Moderate. Grasslands, scrub/chaparral, and oak woodland provides foraging habitat for this species. No CNDDB occurrences near San Luis Reservoir.	Moderate. SCVWD Service Area provides foraging habitat.	Moderate. Suitable foraging habitat is present within the Pacheco Reservoir Region.

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Western red bat	*Lasiurus blossevillii*	CSC	Roosts primarily in trees, less often in shrubs. Roost sites often are in edge habitats adjacent to streams, fields, or urban areas.	Present. Identified during acoustic surveys near Basalt Quarry; may roost in tree groves within the project area. No CNDDB occurrences near San Luis Reservoir.	Moderate. SCVWD Service Area provides foraging habitat.	Moderate. Suitable habitat is present within the Pacheco Reservoir Region.
Tule elk	*Cervus elaphus nannodes*	Managed as Big Game Mammal	Grasslands, riparian areas and other habitats that provide brush, trees, shrubs, and herbaceous vegetation as cover.	Present. The riparian and grassland habitats support about 300 elk, which range around the reservoir. Population established on the San Luis National Wildlife Refuge in 1984.	N/A	N/A
Plants						
Alkali goldfields	*Lasthenia ferrisiae*					
Arburua Ranch jewelflower	*Streptanthus insignis* ssp. *lyonii*	CRPR 1B.2	Coastal scrub. Serpentine slopes. 230-850m. Blooms March through May.	No. The San Luis Reservoir Region does not provide habitat. Nearest known occurrence is on slopes along South Fork of Los Banos Creek.	N/A	Low. No suitable habitat for this species within the Pacheco Reservoir Region.
Arcuate bush-mallow	*Malacothamnus arcuatus*	CRPR 1B.2	Chaparral. Gravelly alluvium. 80-355m. Blooms April through September.	Moderate. The chaparral provides habitat. Known in area from single sighting from 1936.	Moderate. The chaparral provides habitat. Observations of this species in 2018 within the Pacheco Reservoir Region recorded in Calflora.Nearest CNDDB occurrences near Calero Reservoir and Alum Rock park.	Moderate.. Calflora observations in 2018 within the Pacheco Reservoir Region.

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Big-scale balsamroot	*Balsamorhiza macrolepis* var. *macrolepis*	CRPR 1B.2	Chaparral, cismontane woodland, grassland – sometimes on serpentinite and basalt rock outcrops. 90 – 1400m. Blooms March through June.	High. Grasslands and oak woodland provide habitat. Nearest known CNDDB occurrence in Pacheco State Park on slopes above San Luis Reservoir.	High. Grasslands and oak woodland provide habitat. Nearest CNDDB occurrence is east of Coyote Creek.	Moderate. Suitable habitat in grassland habitat on rock outcrops. No known occurrences of this species within the Pacheco Reservoir Region.
California alkali grass	*Puccinellia simplex*	CRPR 1B.2	Meadows and seeps, chenopod scrub, valley and foothill grasslands, vernal pools; 1-915m. Blooms March through May.	Moderate. The scrub/chaparral and grassland provide habitat. Known from one record from 1986 in Los Banos Valley.	N/A	Low. Limited suitable habitat and no known occurrences of this species within the Pacheco Reservoir Region.
California seablite	*Suaeda californica*	FE, CRPR 1B.1	Marshes and swamps, which are occasionally coastal salt. Known from San Luis Obispo County. Presumed extirpated from Alameda, Contra Costa, Santa Clara, and San Francisco counties. Blooms July through October.	N/A	None. The SCVWD Service Area occurs outside of the known extant geographic range. No CNDDB occurrences near SCVWD Service Area	None. The Pacheco Reservoir Region is located outside the known geographic range of this species
Chaparral harebell	*Campanula exigua*	CRPR 1B.2	Chaparral. Rocky sites, usually on serpentine in chaparral. 300-1250m. Blooms May through June.	Moderate. The scrub/chaparral provides habitat. Known in area from single sighting before 1950.	Moderate. The chaparral provides habitat. Nearest CNDDB occurrence is northeast of Alum Rock Park.	Moderate. The chaparral habitat within the Pacheco Reservoir Region provides habitat.

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Congdon's tarplant	*Centromadia parryi* ssp. *congdonii*	CRPR 1B.2	Grassland – alkaline; 1 – 230m. Blooms May through October.	Moderate. Grasslands would provide suitable habitat. Nearest known occurrence is in Pacheco State Park.	Moderate. Grasslands would provide suitable habitat. Nearest CNDDB occurrence is east San Jose.	Moderate. Grasslands would provide suitable habitat. No known occurrences of this species within the Pacheco Reservoir Region.
Contra Costa goldfields	*Lasthenia conjugens*	FE, CRPR 1B.1	Valley and foothill grassland, vernal pools, cismontane woodland. Extirpated from most of its range; extremely endangered. Blooms March through June.	N/A	Moderate. Grasslands and oak woodland provide habitat. Nearest CNDDB occurrence is east San Jose.	Moderate. Grasslands and oak woodland provide habitat. No known occurrences of this species within the Pacheco Reservoir Region.
Coyote ceanothus	*Ceanothus ferrisiae*	FE, CRPR 1B.1	Chaparral, valley and foothill grassland, coastal scrub, on serpentine sites in the Mt. Hamilton range. Blooms January through May.	N/A	Moderate. The chaparral, grassland, and oak woodland provide habitat. CNDDB occurrence along Coyote Creek near Anderson Reservoir.	Moderate. The chaparral, grassland, and oak woodland provide habitat. Calflora occurrences NW of Pacheco, near Anderson Lake..
Fragrant fritillary	*Fritillaria liliacea*	CRPR 1B.2	Coastal scrub, valley and foothill grassland, coastal prairie. Blooms February through April.	N/A	Moderate. The scrub, riparian, and grassland provide habitat Nearest CNDDB occurrences near Calero Reservoir.	Moderate. The scrub, riparian, and grassland provide habitat No known occurrences of this species within the Pacheco Reservoir Region.
Hairless popcorn-flower	*Plagiobothrys glaber*	CRPR 1A	Meadows and seeps, marshes and swamps. Blooms March through May.	N/A	Moderate. The freshwater marsh wetlands provide habitat.	Moderate. The chaparral habitat within the Pacheco Reservoir Region provides habitat.

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Hall's bush-mallow	*Malacothamnus hallii*	CRPR1B.2	Chaparral. Some populations on serpentine. 10-550m. Blooms May through September.	Moderate. The chaparral provides habitat. Nearest known occurrence is near Pacheco Pass, in San Luis Wildlife Area. Potential habitat in scrub and mesic grassland habitats along northwestern shore.	Moderate. The chaparral provides habitat. CNDDB occurrences near Anderson Reservoir and along Guadalupe Creek north of Highway 17.	Moderate. The chaparral habitat within the Pacheco Reservoir Region provides habitat.
Hispid bird's-beak	*Chloropyron mollis* ssp. *hispidum*	CRPR 1B.1	Meadows and seeps, playas, and valley and foothill grasslands with alkaline soil. Blooms June through September.	Moderate. Grasslands would provide suitable habitat. No CNDDB occurrences near San Luis Reservoir	N/A	Low. Suitable habitat is lacking in the Pacheco region. No known occurrences of this species within the Pacheco Reservoir Region.
Hospital Canyon larkspur	*Delphinium californicum* ssp. *interius*	CRPR 1B.2	Chaparral – openings, cismontane woodland, 230 – 1095m. Blooms March through June.	High. The chaparral and oak woodland provide habitat. Known occurrence approximately 4 miles north of San Luis Reservoir.	N/A	Moderate. The chaparral habitat within the Pacheco Reservoir Region provides habitat.
Lemmon's jewelflower	*Caulanthus lemmonii*	CRPR 1B.2	Pinyon-juniper woodland, valley and foothill grassland. Blooms February through May.	Moderate. Grasslands provide habitat. No CNDDB occurrences near San Luis Reservoir. No suitable habitat within study area.	N/A	Low. Suitable habitat is lacking in the Pacheco region. No known occurrences of this species within the Pacheco Reservoir Region.

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Lime Ridge navarretia	*Navarretia gowenii*	CRPR 1B.1	In rocky serpentine areas bordering chaparral. Blooms May through June.	Moderate. The chaparral provides habitat. Nearest occurrence is approximately 7 miles north of San Luis Reservoir.	N/A	Moderate; suitable chaparral habitat present within the Pacheco Reservoir Region.
Loma Prieta hoita	*Hoita strobilina*	CRPR 1B.1	Chaparral, cismontane woodland, riparian woodland. Blooms May through July.	N/A	Moderate. The chaparral, woodland, and riparian provide habitat. Nearest CNDDB occurrences near Lexington Reservoir and Santa Teresa County Park.	Low. Pacheco is outside the known range of this species. No known occurrences of this species within the Pacheco Reservoir Region.
Maple-leaved checkerbloom	*Sidalcea malachroides*	CRPR 4.2	Broad-leafed upland forest, coastal prairie, coastal scrub, north coast coniferous forest. Blooms April through August.	N/A	None. The SCVWD Service Area does not provide habitat. CNDDB occurrence is in Alum Rock.	Low. No suitable habitat present. No known occurrences of this species within the Pacheco Reservoir Region.
Metcalf Canyon jewelflower	*Streptanthus albidus* ssp. *albidus*	FE, CRPR 1B.1	Valley and foothill grassland, occasionally on serpentinite substrate. Blooms April through June.	N/A	Moderate. Grasslands provides habitat. CNDDB occurrences near Yerba Buena Road.	Moderate. No known occurrences of this species within the Pacheco Reservoir Region, however suitable habitat is present.
Most beautiful jewelflower	*Streptanthus albidus* ssp. *peramoenus*	CRPR 1B.2	Chaparral, valley and foothill grassland and cismontane woodland. Blooms April through September.	N/A	Moderate. The chaparral, woodland, and grassland provide habitat. Occurrences on ridge above Anderson Reservoir.	Moderate. The chaparral, woodland, and grassland provide habitat. Calflora occurrence outside Coe State Park. No known occurrences of this species within the Pacheco Reservoir Region.

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Mt. Hamilton fountain thistle	*Cirsium fontinale* var. *campylon*	CRPR 1B.2	Cismontane woodland, chaparral, and valley and foothill grassland. Blooms April through October.	N/A	Moderate. The chaparral, oak woodland, and grassland provide habitat. CNDDB occurrences at Anderson Reservoir.	Moderate. The chaparral, oak woodland, and grassland provide habitat. No known occurrences of this species within the Pacheco Reservoir Region.
Mt. Hamilton jewelflower	*Streptanthus callistus*	CRPR 1B.3	Chaparral, cismontane woodland on open talus. Blooms April through May.	N/A	Moderate. The chaparral and oak woodland provide habitat. Nearest CNDDB occurrence in Henry Coe State Park	Moderate. The chaparral and oak woodland would provide habitat. No known occurrences of this species within the Pacheco Reservoir Region.
Pink creamsacs	*Castilleja rubicundula* ssp. *rubicundula*	CRPR 1B.2	Chaparral, meadows and seeps, valley and foothill grassland, on serpentine. Blooms April through June.	N/A	Moderate. The chaparral and grassland provide habitat. CNDDB occurrence on slopes above Anderson Reservoir.	Low. Moderate. The chaparral and grassland provide habitat. No known occurrences of this species within the Pacheco Reservoir Region.
Robust spineflower	*Chorizanthe robusta* var. *robusta*	FE, CRPR 1B.1	Cismontane woodland, coastal dunes, coastal scrub. Blooms April through September.	N/A	Moderate. The oak woodland provides habitat. CNDDB occurrences are documented for this species.	Low. Moderate. The oak woodland provides habitat. No known occurrences of this species within the Pacheco Reservoir Region.
Round-leaved filaree	*California macrophylla*	CRPR 1B.1	Cismontane woodland, grassland – clay soils; 15 – 1200m. Blooms March through May.	Moderate. Grasslands and oak woodland provide habitat. Nearest known occurrence is in Pacheco State Park.	N/A	Moderate. Grasslands and oak woodland provide habitat. No known occurrences of this species within the Pacheco Reservoir Region.
Saline clover	*Trifolium hydrophilum*	CRPR 1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Blooms April through June.	N/A	Moderate. The freshwater marsh wetlands associated with the open water and grassland provide habitat.	Moderate. Suitable grassland habitat is present within the Pacheco Reservoir Region.

Common Name	Scientific Name	Status	Habitat Requirements	Potential to Occur within the San Luis Reservoir Region[1]	Potential to Occur within the SCVWD Service Area[2]	Potential to Occur within the Pacheco Reservoir Region
San Francisco collinsia	*Collinsia multicolor*	CRPR 1B.2	Closed-cone coniferous forest, coastal scrub. Blooms March through May.	N/A	Moderate. The scrub provides habitat. CNDDB occurrence along Anderson Reservoir shoreline.	Low. Suitable habitat is not present. No known occurrences of this species within the Pacheco Reservoir Region.
Santa Clara Valley dudleya	*Dudleya abramsii* ssp. *setchellii*	FE, CRPR 1B.1	Valley and foothill grassland, cismontane woodland. Blooms April through October.	N/A	Moderate. Grasslands and oak woodland provide habitat. CNDDB occurrences near Anderson Reservoir.	Moderate. Suitable grassland and woodland habitat is present within the Pacheco Reservoir Region.
Santa Cruz Mountains beardtongue	*Penstemon rattanii* var. *kleei*	CRPR 1B.2	Chaparral, lower montane coniferous forest. Blooms May through June.	N/A	Moderate. The chaparral provides habitat. Nearest CNDDB occurrence is in Loma Prieta.	Low. Chaparral habitat is present, but site is outside the known range of this plant. No known occurrences of this species within the Pacheco Reservoir Region.
Santa Cruz Mountains pussypaws	*Calyptridium parryi* var. *hesseae*	CRPR 1B.1	Chaparral, cismontane woodland. Blooms May through August.	N/A	Moderate. The chaparral and oak woodland provide habitat. Nearest CNDDB occurrence is in Loma Prieta.	Moderate. The chaparral and oak woodland provide habitat. No known occurrences of this species within the Pacheco Reservoir Region.
Shining navarretia	*Navarretia nigelliformis* ssp. *radians*	CRPR 1B.2	Cismontane woodland, valley and foothill grassland, vernal pools. Apparently in grassland, and not necessarily in vernal pools. 200-1000m. Blooms April through July.	Moderate. The oak woodland and grassland provide habitat. Nearest known CNDDB occurrence is in Los Banos Valley in vicinity of Billy Wright Road.	N/A	Low. Not known to occur in the vicinity of the Pacheco Reservoir Region.

Common Name	Scientific Name	Status	Habitat Requirements	Potential to Occur within the San Luis Reservoir Region[1]	Potential to Occur within the SCVWD Service Area[2]	Potential to Occur within the Pacheco Reservoir Region
Smooth lessingia	*Lessingia micradenia* var. *glabrata*	CRPR 1B.2	Chaparral and cismontane woodland. Blooms July through November.	N/A	Moderate. The chaparral and oak woodland provide habitat for this species. CNDDB occurrence near Anderson Reservoir.	Moderate. Suitable woodland and chaparral habitat is present within the Pacheco Reservoir Region.
Spiny-sepaled button-celery	*Eryngium spinosepalum*	CRPR 1B.2	Vernal pools, valley and foothill grassland; 80-255 m. Blooms April through June.	High. Alkali pools southeast of the reservoir could support this species. RecentCalflora occurences on west side of San Luis Reservoir.	N/A	Low. Not known to occur in the vicinity of the Pacheco Reservoir Region.
Tiburon paintbrush	*Castilleja affinis* ssp. *neglecta*	FE, ST, CRPR 1B.2	Valley and foothill grassland on rocky and serpentine sites. Blooms April through June.	N/A	Moderate. Grasslands provides habitat. CNDDB occurrences on ridge above Anderson Reservoir.	Low. Project area has suitable grassland habitat but is at the edge of known range for this species.
Woodland woollythreads	*Monolopia gracilens*	CRPR 1B.2	Chaparral, valley and foothill grasslands (serpentine), cismontane woodland, broadleafed upland forests, north coast coniferous forest. Blooms March through July.	N/A	Moderate. The chaparral, grassland, and oak woodland provide habitat for this species. Nearest CNDDB occurrences may be near Anderson Reservoir.	Moderate. Suitable chaparral, grassland, and oak woodland habitat is present within the Pacheco Reservoir Region.

Source: CDFW 2018, Reclamation and CDPR 2013.

[1] Regionally occurring special-status species based on occurrences within the Howard Ranch, Crevison Peak, San Luis Dam, Pacheco Pass, Pacheco Peak, Three Sisters, Mariposa Peak, Los Banos Valley, and Mustang Peak 7.5-minute USGS quadrangles..

[2] Regionally occurring special-status species documented within the San Jose West, San Jose East, Calaveras Reservoir, Los Gatos, Santa Teresa Hills, Morgan Hill, Cupertino and Mt. Sizer 7.5-minute USGS quadrangles

Key:

Federal (U.S. Fish and Wildlife Service):

BGEPA = Bald and Golden Eagle Protection Act
FE = Listed as Endangered by the Federal Government
FT = Listed as Threatened by the Federal Government
FPE = Proposed for Listing as Endangered
FPT = Proposed for Listing as Threatened
FD = Federal Delisted Species
FC = Candidate for Federal listing

State (California Department of Fish and Wildlife):

SE = Listed as Endangered by the State of California
ST = Listed as Threatened by the State of California
SC = Candidate for State listing
SR = Listed as Rare by the State of California (plants only)
CSC = California species of special concern
CFP = California fully protected species

California Rare Plant Rank:

CRPR 1A – Species considered extinct in California
CRPR 1B – Rare and endangered in California and elsewhere
CRPR 2 – Species considered rare and endangered in California but more common elsewhere
0.1 – Seriously threatened
0.2 – Fairly threatened in California
0.3 – Not very threatened in California

M2.2.3 Special-Status Species Accounts

A brief description of those special-status plant and wildlife species that occur or have the potential to occur within the San Luis Reservoir Region or in the SCVWD Service Area based on local sightings and/or the potential presence of suitable habitat (but that may not necessarily be impacted by the project), is provided below.

M2.2.3.1 Invertebrates

Federal or State Threatened and Endangered Species

Valley Elderberry Longhorn Beetle The valley elderberry longhorn beetle was listed as federally threatened in 1980 (45 FR 52803). The valley elderberry longhorn beetle is dependent on its host plant, elderberry (*Sambucus* spp.), which is a common component of the remaining riparian forest of the Central Valley. The amount and distribution of suitable habitat for the valley elderberry longhorn beetle has been reduced by the extensive destruction of California's Central Valley riparian forest that has occurred during the last 150 years due to agricultural and urban development (USFWS 2009). Loss of non-riparian habitat where elderberry occurs (e.g., savanna and grassland adjacent to riparian habitat, oak woodland, mixed chaparral-woodland), and where the beetle has been recorded, suggests further reduction of the beetle's range and increased fragmentation of its upland habitat.

In 2018 surveys, a large elderberry stand was identified in the project area northwest of Basalt Quarry, numbering greater than 25 shrubs (Appendix I). No valley elderberry longhorn beetle activity was noted; however, due to the dense vegetation, not all shrubs were examined. In addition, four smaller stands were noted nearby, comprising a total of about 10 shrubs. A single elderberry shrub was found several feet outside the project area, at the sewage holding ponds located 0.5-mile northeast of the Basalt Campground. Other portions of the project area were not surveyed.

The CNDDB includes a valley elderberry longhorn beetle occurrence near the San Luis Reservoir Region, approximately one mile from Los Banos Creek Reservoir. In 1987, two valley elderberry longhorn beetles were collected along Los Banos Creek, approximately 6 miles southeast of San Luis Reservoir (CDFW 2016).

The elderberry shrubs within the San Luis Reservoir Region provide habitat for valley elderberry longhorn beetle. Valley elderberry longhorn beetle is not documented within the SCVWD Service Area. The species has not been documented within the Pacheco Reservoir Region, which is considered outside of the species' range.

Bay Checkerspot Bay checkerspot is federally listed as threatened in 1987 (52 FR 35366). It was federally listed as threatened in 1987. This species occurs

from sea level to treeline within coastal chaparral, meadows, fields, foothills, open woods, and alpine fellfields. Adult butterflies emerge in early spring. The adults emerge during a six-week period from late February to early May. The eggs are deposited at the base of the dwarf plantain plant or less frequently the owl's clover or paintbrush, host plants for larvae.

Bay checkerspot is not documented within the San Luis Reservoir Region.

The chaparral and oak woodland within the SCVWD Service Area provide habitat for this species.

This species has not been documented within the Pacheco Reservoir Region.

Vernal Pool Fairy Shrimp Vernal pool fairy shrimp was listed as federally threatened in 1994 (59 FR 48136). Vernal pool fairy shrimp are found in vernal pools, swales, and ephemeral freshwater habitats. This species is most commonly found in grass or mud bottomed pools or basalt flow depressional pools in unplowed grasslands. The pools vary in size from very small (200 square feet) to very large (25 acres).

Vernal pool fairy shrimp is not documented within the San Luis Reservoir Region. However, pools and seasonal wetlands provide suitable habitat for this species. Four pool areas were identified in 2018 surveys that may support vernal pool fairy shrimp. One alkali pool is located on grasslands near the dam face, and three occur in grasslands north of the California Department of Water Resources (DWR) administration buildings, between the dam and the forebay. One of these features was mapped as a seasonal wetland in the 2018 wetland delineation and the other three features are non-wetland areas (ESA 2018). Other portions of the project area were not surveyed.

Potentially occurring vernal pools and seasonal wetlands provide habitat for this species. Vernal pool fairy shrimp is not documented within the SCVWD Service Area. This species has not been documented within the Pacheco Reservoir Region.

Vernal Pool Tadpole Shrimp Vernal pool tadpole shrimp was listed as federally endangered in 1994 (59 FR 48136). Vernal pool tadpole shrimp are found in natural and artificial seasonally ponded habitats including vernal pools, swales, ephemeral drainages, stock ponds, reservoirs, ditches, backhoe pits, and ruts caused by vehicular activities. Wetlands range from very small (2 square meters) to very large (356,253 square meters).

Vernal pool tadpole shrimp is not documented within the San Luis Reservoir Region. However, they have potential to occur within suitable pools and seasonal wetlands in the area, which provide habitat for this species. Four pool areas were identified that may support vernal pool tadpole shrimp during 2018 surveys. One alkali pool is located on grasslands near the dam face, and three

in grasslands north of the DWR administration buildings (ESA 2018). Other portions of the project area were not surveyed.

Vernal pool tadpole shrimp is not documented within the SCVWD Service Area. Potentially occurring vernal pools and seasonal wetlands provide habitat for this species. Potentially occurring vernal pools and seasonal wetlands provide habitat for this species. This species has not been documented within the Pacheco Reservoir Region.

M2.2.3.2 Amphibians

Federal or State Threatened and Endangered Species

California Tiger Salamander California tiger salamander Central California Distinct Population Segment (DPS) is a Federal and State listed threatened species. California tiger salamander was federally listed as threatened in 2004 (69 FR 47212). California tiger salamander spend the majority of the year in underground burrows in grassland, savanna, or open woodland habitat. Between December and February, when seasonal ponds begin to fill, adult California tiger salamanders engage in mass migrations to aquatic sites during a few rainy nights and are explosive breeders (Barry and Shaffer 1994). Breeding ponds include shallow ephemeral or semi-permanent pools and ponds. Eggs are laid on submerged stems and leaves. Eggs take approximately two weeks to hatch. California tiger salamander larvae take approximately four months to metamorphose into adults. The breeding ponds need to hold water for a minimum of 4.5 months in order for California tiger salamander to complete its aquatic life cycle.

During drought years when ponds do not form, adults may spend the entire year in upland environments, while juveniles may spend 4 to 5 years in their upland burrows before reaching sexual maturity and breeding for the first time (Petranka 1998; Trenham et al. 2000). Adult tiger salamanders swiftly disperse after breeding and have been documented to migrate up to 129 meters (423 feet) the first night after leaving a breeding pond (Loredo et al. 1996). Adult California tiger salamanders readily aestivate[1] in grasslands near ponds and at great distances from breeding ponds. Adults are known to travel distances greater than 1 kilometer (0.62 mile) from breeding ponds and have been documented at distances of 2 kilometers (1.2 miles) or more (Orloff 2007). Typical aestivation sites include the burrows of California ground squirrels and valley pocket gophers (*Thomomys bottae*).

There are three CNDDB records over 2.5 and 4 miles from San Luis Reservoir. Critical habitat is designated for California tiger salamander approximately one mile southeast of San Luis Reservoir and approximately 2.5 miles from the construction gravel pit area (Figure M1-6) (USFWS 2016). San Luis Reservoir Region may provide suitable breeding habitat within the freshwater emergent

[1] Aestivation is a state of dormancy similar to hibernation that occurs during summer and fall.

and seasonal wetlands. Grassland provides upland habitat for California tiger salamander.

During 2018 surveys, one potential low-to-moderate quality California tiger salamander breeding pond was identified within the project area near the Basalt Quarry. Two additional potential breeding ponds were identified within 1 mile southeast of the quarry that could support breeding and serve as a source for species movement into the project area. Hence, California tiger salamander may be encountered in select areas south of the reservoir (ESA 2018). Aquatic habitat that may support breeding may occur in other portions of the project area.

Aquatic breeding habitat is present within the SCVWD Service Area. Grassland provides upland habitat for California tiger salamander. Suitable breeding and upland habitat for California tiger salamander is present in ponds and grassland within the Pacheco Reservoir Region.

California Red-Legged Frog California red-legged frog is a Federally-listed threatened species and California species of special concern. California red-legged frog was listed as federally threatened in 1996 (61 FR 25813). Critical habitat was designated in 2006 (71 FR 19244) and finalized in 2010 (75 FR 12816). They occur at ponds and slow-moving streams with permanent or semipermanent water. This species opportunistically migrates into upland habitats, up to 1.3 miles during normal dispersal behavior. The California red-legged frog may aestivate in upland environments when aquatic sites are unavailable or environmental conditions are inhospitable. If water is unavailable, they shelter from dehydration in a variety of refuges, including boulders, downed wood, moist leaf litter, and small mammal burrows. California red-legged frogs disperse up to one mile from their breeding habitat through upland habitat (USFWS 2002).

There are several CNDDB occurrences documented for California red-legged frogs within the western portion of the San Luis Reservoir Region. California red-legged frogs inhabit stock ponds within Pacheco State Park to the west of the reservoir and within the Upper Cottonwood Wildlife Area to the north of the reservoir.

Critical habitat is designated along the western boundary of the San Luis Reservoir. According to the primary constituent elements associated with the critical habitat designation, critical habitat for the California red-legged frog includes only aquatic and upland areas where suitable breeding and nonbreeding habitats are interspersed throughout the landscape and are interconnected by unfragmented dispersal habitat (50 CFR 17) (Figure M1-6).

During the 2018 surveys, a robust California red-legged frog breeding population was identified at a vegetated pond fed by Willow Spring, approximately 0.3-mile south of the reservoir, off the quarry access road. This

location is on the fringe of the designated borrow area. Habitat for this species was also identified outside of the project area in a spring-fed stock pond located approximately 0.6-mile northwest of the Basalt Hill summit. Adjacent uplands to 1.3 miles provide dispersal and aestivation habitat. Additional freshwater emergent and seasonal wetlands in the San Luis Reservoir Region may provide suitable breeding habitat and grasslands provide upland refugia and overland movement habitat for California red-legged frog. California red-legged frog are not expected to be encountered near Basalt Campground, below the dam, nor at the Medeiros Use Area (ESA 2018).

The reservoirs do not provide breeding habitat for California red-legged frogs due to fluctuations in water levels, lack of suitable egg-laying emergent vegetation, and abundant populations of nonnative fish that prey on this species. However, freshwater emergent and seasonal wetlands in the region may provide additional suitable breeding habitat and grasslands provide upland refugia and overland movement for California red-legged frog.

CNDDB occurrences are documented for California red-legged frog within the SCVWD Service Area. The ponds and permanent and intermittent drainages within the SCVWD Service Area provide aquatic habitat for California red-legged frog. The riparian forest in the vicinity of the drainages provides upland habitat for this species. The riverine pond and associated riparian habitat within the Pacheco Reservoir Region provide suitable habitat , and the Pacheco region is designated critical habitat for this species.

State Species of Special Concern

Foothill Yellow-Legged Frog Foothill yellow-legged frog is a California species of special concern and is a Candidate for listing under the federal Endangered Species Act. Foothill yellow-legged frog inhabit shallow, small to medium sized permanent streams with cobble substrates, beneath which they deposit their eggs, from sea level to 6,000 feet (Jennings and Hayes 1994).

Foothill yellow-legged frog has been recorded along the western end of Los Banos Creek over five miles southeast of San Luis Reservoir (CDFW 2016). Although CNDDB occurrences are documented in the vicinity, no permanent streams occur in the vicinity of the reservoirs.

A CNDDB record is documented for Foothill yellow-legged frog within the SCVWD Service Area. The permanent drainages provide habitat for this species.

Riverine habitat present in the Pacheco Reservoir Region may provide habitat for this species. There are multiple CNDDB documented occurrences of this species in streams within the Pacheco Reservoir Region.

M2.2.3.3 Reptiles

Federal or State Threatened and Endangered Species

Alameda Whipsnake Alameda whipsnake is a federally and state threatened. Alameda whipsnake was listed as federally threatened in 1997 (62 FR 64306). This species is found in chaparral, scrubland, open woodlands, rocky hillsides, foothills, and in higher-elevation mixed woodlands. This species lives underground or under cover when inactive. This species is mostly active from March through November. This species is known from Alameda, Contra Costa, San Joaquin, Santa Clara, and Stanislaus counties.

The San Luis Reservoir Region occurs outside of the known geographic range for this species.

Although not identified within the SCVWD Service Area, CNDDB occurrences are considered sensitive for this species. CNDDB occurrences are identified within the Eylar Mountain, Mount Day, and Calaveras Reservoir quadrangles, which are located within the northeastern boundary of the SCVWD Service Area. The chaparral, scrub, and oak woodland provide habitat for this species.

There are no documented occurrences of this species in the vicinity of the Pacheco Reservoir Region, which is considered to be beyond this species' range.

State Species of Special Concern

Western Pond Turtle Western pond turtle is a California species of special concern. They are commonly found in ponds, lakes, marshes, rivers, streams, and irrigation ditches with rocky or muddy substrates surrounded by aquatic vegetation. These watercourses usually are within woodlands, grasslands, and open forests, between sea level and 6,000 feet. Western pond turtles bask on logs or other objects when water temperatures are lower than air temperatures. Nests are located at upland sites ,up to 0.25-mile from an aquatic site (Jennings and Hayes 1994; Stebbins 2003; Zeiner et al. 1988–1990).

Western pond turtle has not been documented within San Luis or O'Neil Forebay reservoirs, but there are numerous occurrences from stock ponds and drainages within Pacheco State Park, San Luis Wildlife Area, and further to the west in the hills (CDFW 2016). The reservoirs and spring-fed ponds provide marginal aquatic habitat for this species. Grasslands in the vicinity of the reservoirs may provide upland basking and nesting habitat for this species.

CNDDB records are documented for this species within the SCVWD Service Area. The permanent and intermittent drainages and lakes, reservoirs, and groundwater recharge ponds associated with the wetlands and open water provide aquatic habitat for this species.

The Pacheco Reservoir Region provides suitable aquatic and upland habitat for this species.

San Joaquin Whipsnake San Joaquin whipsnake is a California species of special concern. They use open, dry areas with little or no tree cover. In the western San Joaquin Valley, they occur in valley grassland and saltbush scrub. They use small mammal burrows for refuge and egg-laying (Jennings and Hayes 1994). San Joaquin whipsnakes range from the eastern edge of the San Joaquin Valley from Colusa County southward to Kern County and into the inner South Coast Ranges, with an isolated population in the Sutter Buttes.

Occurrences of the San Joaquin whipsnake have been recorded from the mid to late 1980s around Los Banos Creek Reservoir over five miles to the southeast of San Luis Reservoir (CDFW 2016). The grassland and scrub provide habitat for this species within the San Luis Reservoir Region.

The SCVWD Service Area occurs outside of the known geographic range for this species.

The Pacheco Reservoir Region occurs outside the known geographic range for this species.

Coast Horned Lizard Coast horned lizard is a California species of special concern. This species occurs in several habitat types, ranging from areas with an exposed gravelly-sandy substrate containing scattered shrubs, clearings in riparian woodlands, chaparral, annual grassland with scattered perennial seepweed or saltbush, and sandy washes.

There are no CNDDB occurrences for Coast horned lizard within 10 miles of the San Luis Reservoir Region. The grassland and chaparral within the San Luis Reservoir Region provides habitat for this species.

CNDDB occurrences for Coast horned lizard occur within the SCVWD Service Area. The grassland within the SCVWD Service Area provides habitat for this species.

There are CNDDB documented occurrences of this species in the vicinity of the Pacheco Reservoir Region. The grassland provide habitat for this species.

M2.2.3.4 Birds

Federal or State Threatened and Endangered Species

Swainson's Hawk Swainson's hawks are a State-listed threatened species. They are large migratory hawks that nest in North America and winter in Central and South America. Swainson's hawks begin arriving in California in late February and depart for their wintering grounds in early September (Woodbridge 1998). Nests are typically constructed in sturdy trees within or

near agricultural lands, riparian corridors, and roadside trees. Nests are composed of a platform of sticks, bark, and fresh leaves. Swainson's hawks reside in the Central Valley from March through October, with eggs typically laid in April and early May (peaking in late April). This species is known from Alameda, Butte, Colusa, Contra Costa, Fresno, Glenn, Inyo, Kern, Kings, Lassen, Los Angeles, Madera, Merced, Modoc, Mono, Napa, Placer, Plumas, Sacramento, San Bernardino, San Joaquin, San Luis Obispo, Siskiyou, Solano, Stanislaus, Sutter, Tehama, Tulare, Yolo, and Yuba counties.

There are several CNDDB records documented for Swainson's hawk within the San Luis Reservoir Region. A Swainson's hawk was observed circling over the grasslands between San Luis Reservoir and O'Neil Forebay during a 2016 field survey (ESA 2016). Since 2011, several active nests has been documented at the CDFW O'Neill Forebay Wildlife Area, approximately 0.5 mile north of identified staging areas, with nesting also reported in 2006 at sites in the San Luis Reservoir Region near Sisk Dam. The grassland provides foraging habitat and the trees in the riparian and oak woodland provide suitable nesting habitat.

The SCVWD Service Area occurs outside of the geographic range for this species.

The Pacheco Reservoir Region is outside the known geographic range of this species.

California Condor – California condors are a state and federally listed species. California condor was federally listed as endangered in 1967 (32 FR 4001). They nest on the floors of cliff cavities or caves and in crevices among boulders on steep slopes at elevations from 1,968 to 3,281 feet. California condors forage within grasslands, oak savannas, mountain plateaus, ridges, and canyons, usually within 70 kilometers of the nest.

While no CNDDB records have been documented within the San Luis Reservoir Region, the annual grassland provides foraging habitat for California condors.

There are no CNDDB records for this species within the SCVWD Service Area.

There are no CNDDB records for this species in the Pacheco Reservoir Region.

Bald Eagle Bald eagles are State-listed as endangered and fully protected, and are protected by the Federal Bald and Golden Eagle Protection Act. They occupy a wide range of habitats, including woodlands, forests, grasslands, and wetlands. They winter throughout California near lakes, reservoirs, rivers, and some rangelands and coastal wetlands. Nesting is usually restricted to mountainous habitats near reservoirs, lakes, and rivers in northern California. Bald eagles usually nest in large coniferous trees within 1 mile of permanent water. They forage on large water bodies or rivers with easily approached snags and other perches (Zeiner et al. 1988–1990).

Bald eagles have not been documented to nest around San Luis Reservoir Region. One adult bald eagle was observed flying over B.F. Sisk Dam during 2018 field surveys, and one was observed along Pacheco Creek approximately five miles west of the reservoir during a summer 2016 field visit. The San Luis Reservoir Region provides wintering and potential nesting habitat for this species; however, nesting has not been recorded from the San Luis watershed (CDFW 2018).

There are no CNDDB records for this species within the SCVWD Service Area.

There is a single CNDDB record for this species within the Pacheco Reservoir Region.

Tricolored Blackbird Tricolored blackbird has no federal status and is listed as threatened under California Endangered Species Act (CESA). Tricolored blackbirds are a colonial species that nest in dense vegetation in and around freshwater wetlands. When nesting, tricolored blackbirds generally require freshwater wetland areas large enough to support colonies of 50 pairs or more. They prefer freshwater emergent wetlands with tall, dense cattails or tules for nesting, but will also breed in thickets of willow, blackberry, wild rose, or tall herbs. During the nonbreeding season, flocks are highly mobile and forage in grasslands, croplands, and wetlands (Zeiner et al. 1988–1990).

There are CNDDB records documented for tricolored blackbird within the San Luis Reservoir Region. The grassland provides foraging habitat and the cattail marsh riparian vegetation provides suitable nesting habitat.

There are CNDDB records documented for tricolored blackbird within the SCVWD Service Area. The grassland provides foraging habitat and the freshwater marsh wetlands associated with the open water habitat may provide nesting habitat.

There are CNDDB records documented for tricolored blackbird within the Pacheco Reservoir Region. The grassland provides foraging habitat and freshwater marsh wetlands associated with open water may provide nesting habitat.

State Fully Protected

Golden Eagle Golden eagles are fully protected in California and protected by the Federal Bald and Golden Eagle Protection Act. Golden eagle foraging habitat consists of relatively open habitat types such as; open-country grassland, prairie, savanna, shrub-steppe, desert, and tundra. This species is known to occur where there are dense populations of ground squirrels and black-tailed jackrabbits. Nesting habitat for this species includes cliffs, other elevated rocky substrates, and large and mature oak trees or eucalyptus. Within their nesting territory golden eagles may have up to twelve alternate nest structures that are maintained every year even though they may favor one nest several years in a

row. The population of golden eagles in California are mostly sedentary and do not migrate in the winter (USFWS 2013).

CNDDB occurrences of nesting golden eagles are documented within five miles of the northern portion of San Luis Reservoir. The trees within the oak woodland along the steep slopes provide nesting habitat and grasslands provide foraging habitat within the San Luis Reservoir Region.

There are no CNDDB records for this species within the SCVWD Service Area, however, this species is known to nest in Alum Rock Park within the eastern portion of the SCVWD. This species has the potential to nest within the SCVWD.

There are no CNDDB records for this species within the Pacheco Reservoir Region; however, suitable nesting and foraging habitat are present within the area.

American Peregrine Falcon American peregrine falcon are fully protected in California. They nest on ledges or holes on the faces of rocky cliffs or crags located near wetlands, lakes, rivers, or other waters. They also nest in man-made sites including tall buildings, bridges, rock quarries, and raised platforms.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

A CNDDB record documents this species nesting on the San Jose City Hall building. The wetlands and open water habitat and structure associated with developed areas provide nesting habitat within the SCVWD Service Area.

There are no CNDDB records of this species within the Pacheco Reservoir Region, but the species is likely to occur in suitable habitat.

White-Tailed Kite White-tailed kites are fully protected in California. They forage in open grasslands, meadows, farmlands, and emergent wetlands. They typically nest in oak woodlands or trees, especially along marsh or river margins, although they will use any suitable tree or shrub that is of moderate height. They are rarely found far from agricultural areas (Zeiner et al. 1988–1990).

There are no CNDDB records documented for white-tailed kites within 10 miles of the San Luis Reservoir Region. The trees surrounding the San Luis Reservoir Region provide nesting habitat.

Several CNDDB records are documented for white-tailed kite within the SCVWD Service Area. Numerous trees in the area provide potential nesting habitat for this species.

There are no CNDDB records for this species in the Pacheco Reservoir Region, but suitable nesting habitat is present.

State Species of Special Concern

Western Burrowing Owl Western burrowing owls are a California species of special concern. They are residents of open dry grassland and desert. They occupy burrows for both breeding and roosting. They use burrows excavated by ground squirrels and other small mammals and will use human-made burrows and cavities. Where the number and availability of natural burrows is limited, owls may occupy human-made burrows such as drainage culverts, cavities under piles of rubble, discarded pipe, and other tunnel-like structures (Zeiner et al. 1988–1990).

There are CNDDB records documented for western burrowing owl within the San Luis Reservoir Region. Several burrowing owls were observed just east of San Luis Recreation Area during the 2016 surveys. The burrows within grasslands and ruderal habitat provide nesting and roosting habitat for this species.

There are CNDDB records documented for western burrowing owl within the SCVWD Service Area. The burrows within grassland areas provide nesting and roosting habitat for this species.

There are CNDDB records for western burrowing owl within the Pacheco Reservoir Region. The burrows within grasslands may provide nesting and roosting habitat for this species.

Northern Harrier Northern harriers are a California species of special concern. They are found in a wide variety of habitats from annual grasslands up to lodgepole pines and alpine meadow habitats. They are known to frequent meadows, grasslands, open rangelands, desert sinks, and freshwater and saltwater emergent wetlands. Harriers are seldom found in wooded areas. Nests are constructed amid shrubby vegetation usually in emergent wetlands or near a river or lake. They may also nest in grasslands, grain fields, or sagebrush flats several miles from water (Zeiner et al. 1988–1990). Northern harriers are commonly observed foraging over croplands, marshlands, or grasslands within the project region.

There are CNDDB records documented for northern harrier within the northern portion of the San Luis Reservoir Region. The freshwater emergent marsh and grassland provide nesting habitat for this species. There are no CNDDB records for this species within the SCVWD Service Area. There is a CNDDB record for this species within the Pacheco Reservoir Region.

Migratory Bird Treaty Act (MBTA) and §3503.5 Fish and Game Code
Nests of migratory birds and other birds of prey are protected under 50 CFR 10 of the MBTA and/or Section 3503 of the California Fish and Game Code. The generally accepted nesting season is from February 1 to August 31.

The San Luis Reservoir Region provides habitat for nesting birds in all habitat types.

The SCVWD Service Area provides habitat for nesting birds in all habitat types.

The Pacheco Reservoir Region provides habitat for nesting migratory birds in all habitat types.

M2.2.3.5 Mammals

Federal or State Threatened and Endangered Species

San Joaquin Kit Fox San Joaquin kit fox are Federally-listed as endangered and State-listed as threatened. San Joaquin kit fox was federally listed as endangered in 1967 (32 FR 4001). They are a permanent resident of arid grasslands and open scrubland, where friable soils are present. Dens are required year-round for reproduction, shelter, temperature regulation, and protection from predators (USFWS 1998). Historically their habitat included native alkali marsh and saltbush scrub of the valley floor, but the availability of such habitats has diminished markedly due to agricultural conversion. Grasslands with friable soils are considered the principal habitat for denning, foraging, and dispersal, while open oak woodlands provide lower quality foraging and dispersal habitat. Prior to 1930, San Joaquin kit foxes inhabited most of the San Joaquin Valley from southern Kern County to northern San Joaquin County. The current range is thought to cover less than half of the original area, with the largest portion of the range remaining in the southern and western parts of the San Joaquin Valley (USFWS 1998).

North of Kern County, San Joaquin kit foxes primarily occur in a narrow north-south band bordered by I-5 and the Coast Range. A low-density kit fox population is found on lands just south of Santa Nella, which may be augmented from dispersers from the Panoche Valley kit fox population to the south. San Joaquin kit foxes were documented in the vicinity on numerous occasions during the 1970s through the 1990s (CDFW 2016). Three observations of kit foxes were made in 2005 on Billy Wright Road, which is between San Luis Reservoir and Los Banos Creek Reservoir. No observations in the vicinity have been recorded in the CNDDB since December 2005. However, a habitat evaluation for kit fox in 2010 found one known den (with kit fox tracks) and 194 potential kit fox dens within the B.F. Sisk project boundary, similar to the current area of analysis (Reclamation 2010). The species was not observed during 2018 field surveys. The project area grassland provides suitable denning, dispersal, and foraging habitat within the San Luis Reservoir Region.

A CNDDB record of San Joaquin kit fox is located within the vicinity of Anderson Lake, within the SCVWD Service Area. Grasslands provides habitat for this species.

There are CNDDB documented occurrences for San Joaquin kit fox within the Pacheco Reservoir Region and neighboring watersheds, and suitable habitat is potentially present in grasslands within the inundation footprint.

State Fully Protected

Ringtail The ringtail is a fully protected species. This species is found from northern Oregon down through California except the agricultural portion of the Central Valley. They are found in dense riparian growth, montane evergreen forests, oak woodlands, pinyon juniper, chaparral, and deserts. Their territory is usually no farther than ½ mile away from a permanent water source and they find reproductive and resting cover in hollow trees, logs, snags, rocks, and abandoned burrows (CDFW 1995).

There are no CNDDB occurrences for this species within the San Luis Reservoir Region, SCVWD Service Area, or Pacheco Reservoir Region. The oak woodland, chaparral, and riparian provide habitat in these areas provide habitat for this species.

State Species of Special Concern

Bats including Pallid Bat, Townsend's Big-Eared Bat, Western Red Bat, and Greater Western Mastiff Bat Several bats are California species of special concern. Day roosts occur in rock crevices, unoccupied buildings, hollows in large trees, and under bridges.

Pallid bats are a California species of special concern. They inhabit low elevation (< 6,000 feet) rocky arid desert lands and canyonlands, shrub-steppe grasslands, and higher elevation coniferous forests (> 7,000 feet). Pallid bats roost in rock crevices, unoccupied buildings, hollows in large trees, and under bridges. They are most abundant in xeric (dry) ecosystems, including the Great Basin, Mojave, and Sonoran Deserts (Western Bat Working Group 2016).

Western red bat is a California species of special concern. This species is associated strongly with riparian areas, particularly mature stands of cottonwood and sycamore, and may also be found in orchards. Western red bats range through the Central Valley, southern Coast Range, Salinas Valley and San Francisco Bay area (Pierson *et al.*, 2006).

There are no CNDDB occurrences for any rare bats within 10 miles of the San Luis Reservoir Region. However, trees within several habitat types provide roosting habitat for this species within the San Luis Reservoir Region. Three species of bat [Yuma myotis (*Myotis yumanensis*), Mexican free-tailed bat (*Tadarida brasiliensis*), and the western red bat], were recorded in the project

area during 2018 field surveys, and roosting habitat was present in a concrete structure for Yuma myotis and Mexican free-tailed bat (ESA 2018).

A CNDDB record is documented for Pallid bat within the SCVWD Service Area. The trees within the several habitat types in the SCVWD Service Area provide roosting habitat for this species, as well as other species of bats.

There is a CNDDB record for Pallid bat within the Pacheco Reservoir Region. Other bat species are also likely to occur and to roost within trees and structures in this region.

American Badger American badger is a California species of special concern. In California, American badgers occupy a diversity of habitats. Grasslands, savannas, and mountain meadows near the timberline are preferred, though they can be found in deserts as well. The principal requirements seem to be sufficient food, friable soils, and relatively open, uncultivated ground.

CNDDB occurrences are documented for American badger within the San Luis Reservoir Region. This species was observed during 2018 field surveys near the junction of Basalt Road and Gonzaga Road and a badger skull was found in the cattail marsh below the dam (ESA 2018). American badgers are documented within the SCVWD Service Area and Pacheco Reservoir Region. Grasslands in these areas provide habitat for this species.

Managed as Big Game Mammals

Tule Elk Though not a Federal or State special-status species, tule elk are a notable wildlife feature within the San Luis Reservoir Region. This species inhabits native grass, and forb, and perennial bunch grass areas in valley floor and surrounding foothills and oak woodland.

Approximately half a million tule elk were distributed throughout the Sacramento and San Joaquin valleys and the oak-woodlands and oak-grasslands of the Coast Range at the time the early European explorers arrived. By the 1860s, the population was nearly extirpated due to market hunting, competition from introduced livestock, conversion of perennial grasslands to annual grasslands, and the change of large amounts of their habitat to agricultural land use (Reclamation and CDPR 2013).

In the early 1990s, as part of a continuing effort to expand the tule elk population throughout its historic range, CDFW reintroduced tule elk to a private ranch (Wild Rose Ranch) on the southwest side of San Luis Reservoir. The population has slowly increased to the upper 200s, with over half of the elk spending most of their time in Pacheco State Park. This group generally stays west of a line between Dinosaur Point to south of Portuguese Cove. When the water level in San Luis Reservoir is low and there is green vegetation along the shoreline, these individuals will move down to the reservoir from Pacheco State Park (Reclamation and CDPR 2013).

Tule Elk do not occur within the SCVWD Service Area or Pacheco Reservoir Region.

M2.2.3.6 Plants

Federal or State Threatened and Endangered Species

Tiburon Paintbrush Tiburon paintbrush is listed as Federally-listed endangered, State-listed threatened, and has a California Rare Plant Rank of 1B. Tiburon paintbrush was federally listed as endangered in 1995 (60 FR 6671). Tiburon paintbrush is a hemiparasitic perennial herb found in valley and foothill serpentine grassland. This species blooms from April through June.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the Anderson Reservoir within the SCVWD Service Area. Grasslands provides habitat for this species.

There are no CNDDB records for this species in the Pacheco Reservoir Region.

Contra Costa Goldfields Contra Costa goldfields is listed as Federally-listed endangered and has a California Rare Plant Rank of 1B. Contra Costa goldfields was federally listed as endangered in 1997 (62 FR 33029). This species is an annual found in vernal pools, cismontane woodland, valley and foothill grassland, and alkaline playa habitats. The blooming period for this species is from March to June.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The grassland and oak woodland provide habitat for this species.

There are no CNDDB records for this species in the Pacheco Reservoir Region.

Coyote Ceanothus Coyote ceanothus is Federally-listed endangered and has a California Rare Plant Rank of 1B. Coyote ceanothus was federally listed as endangered in 1995 (60 FR 6671). This species is found in chaparral, coastal scrub, and valley and foothill grassland, and has an affinity for serpentine soils (California Native Plant Society [CNPS] 2018).

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The grassland, chaparral and oak woodland provide habitat for this species.

There are no CNDDB records for this species around the Pacheco Reservoir Region.

Robust Spineflower Robust spineflower is Federally-listed endangered and has a California Rare Plant Rank of 1B. Robust spineflower was federally listed as endangered in 1994 (59 FR 5499). This species is an annual herb usually found on sandy or gravelly substrate in chaparral, cismontane woodland, coastal dunes, and coastal scrub. The blooming period for this species is from April through September.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The oak woodlands provide habitat for this species.

There are CNDDB records for this species within the Pacheco Reservoir Region.

Metcalf Canyon Jewelflower Metcalf Canyon jewelflower is federally endangered and has a California Rare Plant Rank of 1B. Metcalf Canyon jewelflower was federally listed as endangered in 1995 (60 FR 6671). Metcalf Canyon jewelflower is an annual herb found in valley and foothill grassland, occasionally on serpentinite substrate. This species blooms from April through July.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. Grasslands provides habitat for this species.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Santa Clara Valley Dudleya Santa Clara Valley dudleya is Federally-listed endangered and has a California Rare Plant Rank of 1B. Santa Clara Valley dudleya was federally listed as endangered in 1995 (60 FR 6671). This species is found on rocky, serpentinite substrate within cismontane woodland and valley and foothill grassland. The distribution of this species is generally limited to southern Santa Clara County.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The grassland and oak woodland provide habitat for this species.

There are CNDDB records for this species within the Pacheco Reservoir Region.

California Rare Plant Rank Species

Arcuate Bush-Mallow Arcuate bush-mallow has a California Rare Plant Rank of 1B. This species is found in chaparral and cismontane woodland. The blooming period for this species is from April through September.

There is one CNDDB record for this species within 10 miles of the San Luis Reservoir Region. Chaparral areas provide potential habitat for this species.

There are CNDDB occurrences for this species within the SCVWD Service Area. Chaparral areas provide potential habitat for this species.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Big-Scale Balsamroot Big-scale balsamroot has a California Rare Plant Rank of 1B. This species is a perennial herb sometimes found on serpentinite soils in chaparral, cismontane woodland, and valley and foothill grassland. The blooming period for this species is from March through June.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. The grassland and oak woodland provide habitat.

There are CNDDB occurrences for this species within the SCVWD Service Area. The grassland and oak woodland provide habitat.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

California Alkali Grass California alkali grass has a California Rare Plant Rank of 1B. This species is found on alkaline, vernally mesic, sinks, flats, and lake margins within chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools. The blooming period for this species is from March through May.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. The grassland and scrub/chaparral provide habitat.

There no CNDDB occurrences for this species within the SCVWD Service Area.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Chaparral Harebell Chaparral harebell has a California Rare Plant Rank of 1B. This species is found in chaparral, which is occasionally rocky, and usually serpentinite. The blooming period for this species is from May through June.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. Chaparral areas provide potential habitat for this species.

There are CNDDB occurrences for this species within the SCVWD Service Area. Chaparral areas provide potential habitat for this species.

There are CNDDB records for this species within the Pacheco Reservoir Region.

Congdon's Tarplant Congdon's tarplant has a California Rare Plant Rank of 1B. It is found in valley and foothill grassland, which is occasionally alkaline. The blooming period for this species is from May through June.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. Grasslands provides habitat.

There are CNDDB occurrences for this species within the SCVWD Service Area. Grasslands provides habitat.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Fragrant Fritillary Fragrant fritillary has a California Rare Plant Rank of 1B. It is a perennial herb found in broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland at elevations from 60 to 1,300 meters. The blooming period for this species is from February through April.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The scrub, riparian, and grassland provides habitat.

There are no CNDDB occurrences for this species within the Pacheco Reservoir Region.

Hairless Popcornflower Hairless popcornflower has a California Rare Plant Rank of 1A. It is found in meadows and seeps, which are occasionally alkaline, and marshes and swamps, which are occasionally coastal salt. The blooming period for this species is from March through May.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The marshes and swamps provide habitat.

There are CNDDB occurrences for this species around the Pacheco Reservoir Region.

Hall's Bush-Mallow Hall's bush-mallow has a California Rare Plant Rank of 1B. This species is found in chaparral and coastal scrub. The blooming period for this species is from May through September and occasionally into October.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. Chaparral areas provide potential habitat for this species.

There are CNDDB occurrences for this species within the SCVWD Service Area. The scrub, riparian, and grassland provides habitat. Chaparral areas provide potential habitat for this species.

There are CNDDB occurrences for this species within the Pacheco Reservoir Region.

Hispid Bird's Beak Hispid bird's beak has a California Rare Plant Rank of 1B. This species is usually found in alkaline substrate in meadows and seeps, playas, and valley and foothill grassland. The blooming period for this species is from June through September and occasionally into October.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. Grasslands provides habitat.

There are no CNDDB occurrences for this species within the SCVWD Service Area.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Hospital Canyon Larkspur Hospital canyon larkspur has a California Rare Plant Rank of 1B. This species is found occasionally in openings of chaparral, in mesic areas of cismontane woodland, and in coastal scrub. The blooming period for this species is from April through June.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. The chaparral and oak woodland provide habitat.

There are no CNDDB occurrences for this species within the SCVWD Service Area.

There are CNDDB records for this species within the Pacheco Reservoir Region.

Lemmon's Jewel-Flower Lemmon's jewel-flower has a California Rare Plant Rank of 1B. This species is found in pinyon-juniper woodland and valley and foothill grassland. The blooming period for this species is from February through May.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. Grasslands provide habitat.

There are no CNDDB occurrences for this species within the SCVWD Service Area.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Lime Ridge Navarretia Lime Ridge Navarretia has a California Rare Plant Rank of 1B. This species is found in chaparral. The blooming period for this species is from May through June.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. Chaparral areas provide potential habitat for this species.

There are no CNDDB occurrences for this species within the SCVWD Service Area.

There are CNDDB records for this species within the Pacheco Reservoir Region.

Loma Prieta Hoita Loma Prieta hoita has a California Rare Plant Rank of 1B. This species is usually found on serpentinite mesic substrate in chaparral, cismontane woodland, and riparian woodland. The blooming period for this species is from May through October.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The chaparral, woodland, and riparian provide habitat.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Maple-Leaved Checkerbloom Maple-Leaved Checkerbloom has a California Rare Plant Rank of 1B. This species is usually found in broad-leafed upland forest, coastal prairie, coastal scrub, north coast coniferous forest. The blooming period for this species is from May through October.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The chaparral, woodland, and riparian provide habitat.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Most Beautiful Jewel-Flower Most beautiful jewel-flower has a California Rare Plant Rank of 1B. This species is found in chaparral, cismontane woodland, and valley and foothill grassland, and has an affinity for serpentine soils. The blooming period for this species is from March through October.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The chaparral, woodland, and grassland provide habitat.

There are no CNDDB occurrences for this species within the Pacheco Reservoir Region.

Mt. Hamilton Fountain Thistle Mt. Hamilton fountain thistle has a California Rare Plant Rank of 1B. It is found in chaparral, cismontane woodland and valley and foothill grassland, and has an affinity for serpentine soils. The blooming period for this species is from February through October.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The chaparral, woodland, and grassland provide habitat.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Pink Creamsacs Pink creamsacs has a California Rare Plant Rank of 1B. It is a hemiparasitic annual herb found in open chaparral, cismontane woodland, meadows and seeps, and valley and foothill grassland, and has an affinity for serpentine soils.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The chaparral and grassland provide habitat.

There are no CNDDB occurrences for this species within the Pacheco Reservoir Region.

Round-Leaved Filaree Round-leaved filaree has a California Rare Plant Rank of 1B. It is a found in valley and foothill grassland and cismontane woodland, on clay soils. The blooming period for this species is from March through May.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. The grassland and woodland provide habitat for this species.

There are no CNDDB occurrences documented for this species within the SCVWD Service Area.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Saline Clover Saline clover has a California Rare Plant Rank of 1B. It is a found in valley and foothill grassland, marshes and swamps, and vernal pools. The blooming period for this species is from April through June.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The grassland and freshwater marsh provide habitat for this species.

There are CNDDB occurrences for this species within the Pacheco Reservoir Region.

San Francisco Collinsia San Francisco collinsia has a California Rare Plant Rank of 1B. This species is found in closed-cone coniferous forest, coastal scrub, and can sometimes be found in areas with serpentine soil. The blooming period for this species is from February through May.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The scrub provides habitat for this species.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Santa Cruz Mountains Beardtongue Santa Cruz Mountains beardtongue has a California Rare Plant Rank of 1B. This species is found in chaparral and lower montane coniferous forest. The blooming period for this species is from May through June.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. Chaparral areas provide potential habitat for this species.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Santa Cruz Mountains Pussypaws Santa Cruz Mountains pussypaws has a California Rare Plant Rank of 1B. This species is found in chaparral and cismontane woodland. The blooming period for this species is from May through August.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The chaparral and woodland provide habitat for this species.

There are no CNDDB records for this species within the Pacheco Reservoir Region.

Shining Navarretia Shining navarretia has a California Rare Plant Rank of 1B. This species is found in cismontane woodland, valley and foothill grassland, and vernal pools. The blooming period for this species is from March through June.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. The oak woodland and grassland provide habitat.

There are no CNDDB occurrences for this species within the SCVWD Service Area.

There are CNDDB records for this species within the Pacheco Reservoir Region.

Smooth Lessingia Smooth lessingia has a California Rare Plant Rank of 1B. It is an annual herb found in chaparral and cismontane woodland, which are often along roadsides, and has an affinity for serpentine soil (CNPS 2018).

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. Chaparral areas provide potential habitat for this species.

There are CNDDB records for this species within the Pacheco Reservoir Region.

Spiny Sepaled Button-Celery Spiny-sepaled button-celery has a California Rare Plant Rank of 1B. This species is found in vernal pools and valley and foothill grassland. The blooming period is from April through May.

There are CNDDB records for this species within 10 miles of the San Luis Reservoir Region. Grassland areas provide potential habitat for this species.

There no CNDDB occurrences for this species within the SCVWD Service Area.

There are CNDDB occurrences for this species around the Pacheco Reservoir Region.

Woodland Woollythreads Woodland woollythreads has a California Rare Plant Rank of 1B. It is found in chaparral, valley and foothill grassland, which is occasionally on serpentinite, cismontane woodland, broadleafed upland, and north coast coniferous forest. The blooming period for this species is from February through July.

There are no CNDDB records for this species within 10 miles of the San Luis Reservoir Region.

There are CNDDB occurrences for this species within the SCVWD Service Area. The chaparral, grassland, and oak woodland provide habitat.

There are CNDDB occurrences for this species within the Pacheco Reservoir Region.

M2.2 References

Barry, S. J., and H. B. Shaffer. 1994. The Status of the California Tiger Salamander (*Ambystoma californiense*) at Lagunita: a 50-year update. Journal of Herpetology 28:159-164.

California Department of Fish and Wildlife (CDFW). 1995. California Wildlife Habitat Relationships System, Life History and Range Map for Ringtail. https://www.wildlife.ca.gov/Data/CWHR/Life-History-and-Range.

--- .2018. California Natural Diversity Database (CNDDB). Commercial Version. Accessed on: October 4, 2018.

Calflora. 2018. Information on Wild California Plants. Accessed on October 4, 2018. Available at: https://www.calflora.org/

California Native Plant Society (CNPS). 2018. Inventory of Rare and Endangered Plants (online edition). Sacramento, CA. Accessed on October 4, 2018. Available at: http://www.rareplants.cnps.org.

Environmental Science Associates (ESA). 2016. Field reconnaissance survey notes by Julie Remp and Rebecca Acosta (wildlife biologists). June 13-14, 2016

--- . 2018. B.F. Sisk Safety of Dams Modification Project Biological Survey Report.

Jennings, M. R., and M. P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. Final Report to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA. 225 pp.

Loredo, Ivette, Dirk Van Vuren, and Michael L. Morrison. 1996. Habitat Use and Migration Behavior of the California Tiger Salamander. Journal of Herpetology 0(2): 282-285.

Orloff, S. 2007. Migratory movements of California tiger salamander in upland habitat – a five-year study (Pittsburg, California). Prepared for Bailey Estates LLC, Walnut Creek, California. 47 pp. + append.

Orloff, S., F. Hall, and L. Speigel. 1986. Distribution and Habitat Requirements of the San Joaquin Kit Fox in the Northern Extreme of Their Range. Transactions of the Western Section of the Wildlife Society, 22: 60-70, 1986.

Petranka, J. W. 1998. Salamanders of the United States and Canada. Smithsonian Institution Press, Washington, D. C. 587 pp.

Pierson, E.D., W.E. Rainey and C. Corben. 2006. Distribution and status of Western red bats (*Lasiurus blossevillii*) in California. Calif. Dept. Fish and Game, Habitat Conservation Planning Branch, Species Conservation and Recovery Program Report 2006-04, Sacramento, CA

Santa Clara County. 2012. Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP). Accessed on: 18 03 2013. Available at: http://www.scv-habitatplan.org/www/default.aspx.

Stebbins, R.C. 2003. A Field Guide to Western Reptiles and Amphibians. 3rd ed. Boston, Massachusetts: Houghton Mifflin Company.

Trenham, P.C., H.B. Shaffer, W.D. Koenig and M.R. Stromberg. 2000. Life history and demographic variation in the California tiger salamander (*Ambystoma californiense*). Copeia 2000:365–377

United States Department of the Interior, Bureau of Reclamation (Reclamation). 2010. San Joaquin Kit Fox Early Evaluation Report. B.F. Sisk Dam, Central Valley Project, California. March.

--- .2018. Delineation of Waters of the United States. B.F. SISK Dam Safety of Dams Modification Project Aquatic Resources Delineation, California. Draft

United States Department of the Interior, Bureau of Reclamation and California Department of Parks and Recreation (Reclamation and CDPR). 2013. San Luis Reservoir State Recreation Area; Final Resource Management Plan/General Plan and Final Environmental Impact Statement/Environmental Impact Report. June 2013.

United States Fish and Wildlife Service (USFWS). 1998. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, OR. 319 pp.

--- .2002. Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, Oregon. viii + 173 pp.

--- .2009. Species Account: Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus). U.S Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California. May 2009.

--- .2013. Eagle Conservation Plan Guidance, Module 1 – Land-based Wind Energy, Version 2. USFWS Division of Migratory Bird Management. April.

--- .2016. National Wetlands Inventory. U.S. Fish and Wildlife Service Branch of Resource Mapping and Support. Accessed on: 06 2016. Available at: http://www.fws.gov/wetlands/Data/Mapper.html.

--- .2018. List of Threatened and Endangered Species that May Occur in your Proposed Project Location, and/or May be Affected by the San Luis Low Point Improvement Project. U.S. Department of Interior Fish and Wildlife Service. Sacramento Fish and Wildlife Office. https://ecos.fws.gov/ipac/ Accessed on: October 4, 2018.

Western Bat Working Group. 2016. Western Bat Species. Accessed on: 06 2016. Available at: http://wbwg.org/western-bat-species/

Woodbridge, B. 1998. Swainson's Hawk (*Buteo swainsoni*). In: The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight. Available at: http://www.prbo.org/calpif/htmldocs/riparian_v-2.html.

Zeiner, D.C., W.F.Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California Depart. of Fish and Game, Sacramento, California.

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