

# Biological Resources Technical Report

Integrated Mosquito and Vector  
Management Programs for Nine  
Districts

33441001



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Project Name            Integrated Mosquito and Vector Management Programs for Nine Districts

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*Prepared for:*

Alameda County Mosquito Abatement District  
Alameda County Vector Control Services District  
Contra Costa Mosquito and Vector Control District  
Marin/Sonoma Mosquito and Vector Control District  
Napa County Mosquito Abatement District

Northern Salinas Valley Mosquito Abatement District  
San Mateo County Mosquito and Vector Control District  
Santa Clara County Vector Control District  
Solano County Mosquito Abatement District

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## Acronyms

ACMAD	Alameda County Mosquito Abatement District
ACVCSD	Alameda County Vector Control Services District
CCMVCD	Contra Costa Mosquito and Vector Control District
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CDPR	California Department of Pesticide Regulation
MSMVCD	Marin/Sonoma Mosquito Vector Control District
NCMAD	Napa County Mosquito Abatement District
NMFS	National Marine Fisheries Service
NSVMAD	Northern Salinas Valley Mosquito and Vector Control District
RWQCB	Regional Water Quality Control Board
SCCVCD	Santa Clara County Vector Control District
SCMAD	Solano County Mosquito Abatement District
SMCMVCD	San Mateo County Mosquito and Vector Control District
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

# 1 Introduction

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This report provides a description of the environmental setting for biological resources for the Integrated Mosquito and Vector Management Programs (Programs) for nine mosquito abatement and/or vector control districts in northern California. The Programs provide for mosquito and/or vector control activities within each District's Program Area. The nine District Program Areas include both the areas within the districts and the surrounding counties where the districts may provide mosquito and/or other vector management services when requested. The nine districts are: Alameda County Mosquito Abatement District (ACMAD), Alameda County Vector Control Services District (ACVCSD), Contra Costa Mosquito and Vector Control District (CCMVCD), Marin/Sonoma Mosquito Vector Control District (MSMVCD), Napa County Mosquito Abatement District (NCMAD), Northern Salinas Valley Mosquito Abatement District (NSVMAD), San Mateo County Mosquito and Vector Control District (SMCMVCD), Santa Clara County Vector Control District (SCCVCD), and the Solano County Mosquito Abatement District (SCMAD).

The immediate nine District Service Areas are located in the following nine counties of the state: Alameda, Contra Costa, Marin, Monterey (NSVMD), Napa, Sonoma, Solano, San Mateo, and Santa Clara. The nine District Program Areas addressed in this report also include the ten surrounding counties: Mendocino, Merced, Lake, Sacramento, San Benito, San Francisco, San Joaquin, Santa Cruz, Stanislaus, Yolo, and the portion of Monterey County south of the NSVMAD. Control activities may also be provided in areas adjacent to the District Service Areas upon request of the adjacent jurisdictions to protect the health and safety of residents in adjacent jurisdictions. Actions that would be taken outside of the nine Districts' Service Areas are the same types of actions undertaken within the Districts' Service Areas and in similar types of habitats or sites.

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## 2 Environmental Setting

### 2.1 Aquatic Habitat

Due to the extent of the nine Program Areas, hydrologic provinces and fish species assemblages presented in Moyle (2002) have been used to describe the areas where treatments would be implemented (Figure 2-1). The hydrologic provinces (as described in Moyle 2002) potentially affected by the Programs are described below. The provinces for each district and its boundary counties are provided in Table 2-1.

**Table 2-1 Hydrologic Provinces by District and Adjacent Counties**

District	Sacramento – San Joaquin Province			North Coast Province	South Coast Province
	Central Valley Subprovince	Clear Lake Subprovince	Monterey Bay Subprovince		
ACMAD	yes	--	--	--	--
ACMAD adjacent	yes	--	yes	--	--
ACVCSD	yes	--	--	--	--
ACVCSD adjacent	yes	--	yes	--	--
CCMVCD	yes	--	--	--	--
CCMVCD adjacent	yes	--	--	--	--
MSMVCD	yes	--	--	yes	--
MSMVCD adjacent	yes	yes	--	yes	--
NCMAD	yes	--	--	yes	--
NCMAD adjacent	yes	yes	--	yes	--
NSVMAD	--	--	yes	--	--
NSVMAD adjacent	yes	--	yes	--	--
SMCMVCD	yes	--	yes	--	--
SMCMVCD adjacent	yes	--	yes	--	--
SCCVCD	yes	--	yes	--	--
SCCVCD adjacent	yes	--	yes	--	--
SCMAD	yes	--	--	--	yes
SCMAD adjacent	yes	--	--	yes	yes

#### 2.1.1 Sacramento-San Joaquin Province

##### 2.1.1.1 *Central Valley Subprovince*

The Central Valley Subprovince is drained by the Sacramento and San Joaquin rivers. Species native to this region are distinct with respect to morphology, physiology, and life-history patterns, reflecting an evolutionary history of adaptation to a unique climate characterized by extended droughts as well as massive floods (Moyle 2002). The hot Mediterranean climate of the Central Valley is characterized by hot, dry summers and cool, damp winters. The rainy season occurs from mid-Autumn through spring, with the

northern half of the Central Valley receiving greater precipitation than the semidesert southern half. The four main fish assemblages that occur in the Central Valley Subprovince are (1) the rainbow trout assemblage, (2) the California roach assemblage, (3) the pikeminnow-hardhead-sucker assemblage, and (4) the deep-bodied assemblage.

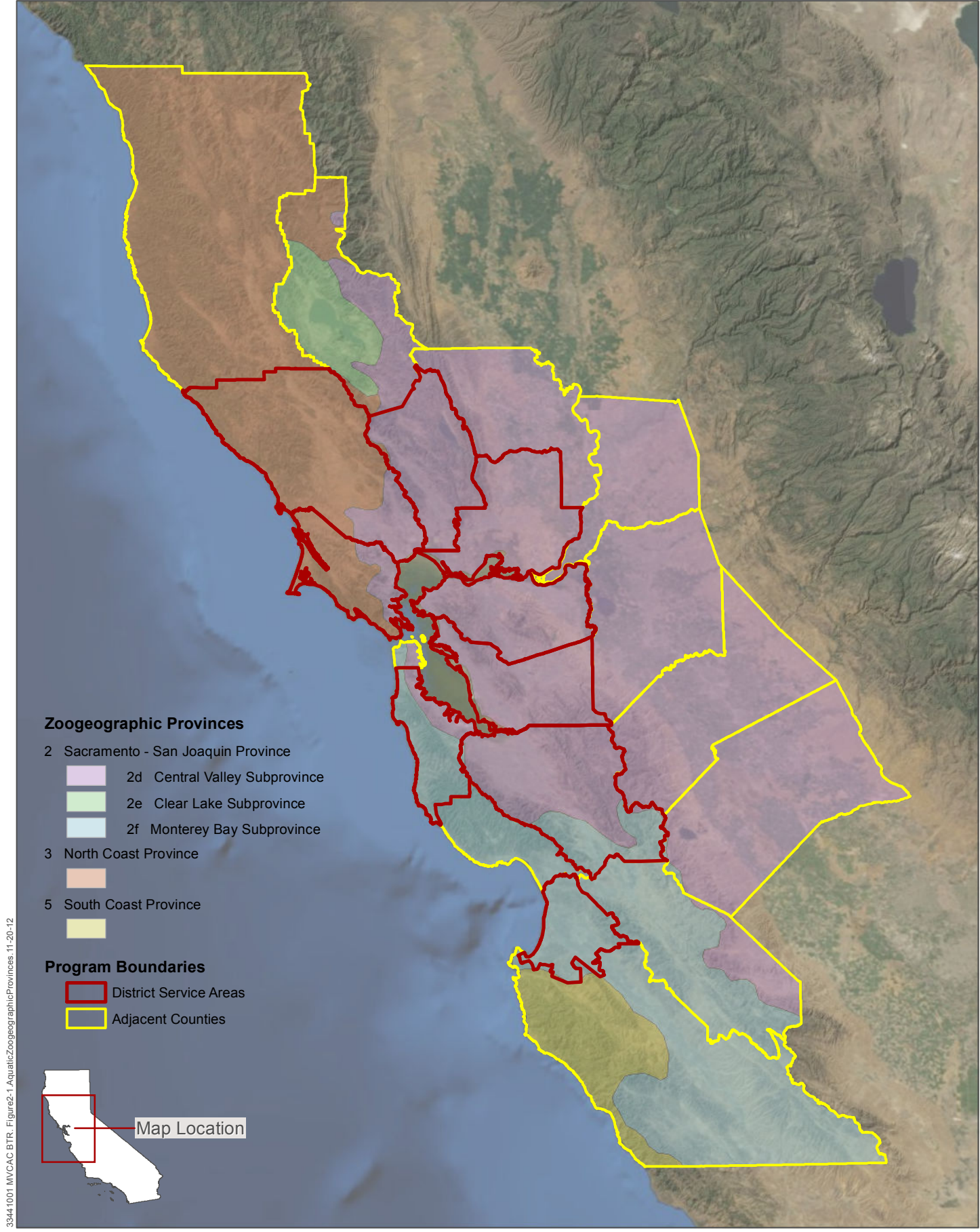
#### **2.1.1.1.1 San Francisco Estuary**

The Sacramento-San Joaquin River Delta lies near the confluence of the Sacramento and San Joaquin rivers between the towns of Hood, Vernalis, and Martinez. The Delta is the transition zone between freshwater river habitats of the Central Valley rivers and the successively more saline habitats of Suisun, San Pablo, and San Francisco bays. These habitats are affected by the tides, which cause diurnal changes in flow patterns and water quality, as well as river outflow, which cause more seasonal changes in habitat. The Delta has been substantially modified from its historic condition by levees, agriculture, toxic contaminants from municipal, industrial, and agricultural sources, and water diversions. The estuary is home to a diverse array of native and introduced species, some of which reside in the estuary throughout the year, and others that use the estuary seasonally. These species include winter-run and spring-run Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley steelhead (*Oncorhynchus mykiss*), green sturgeon (*Acipenser medirostris*), delta smelt (*Hypomesus transpacificus*), and longfin smelt (*Spirinchus thaleichthys*), all of which are listed by either the federal or California Endangered Species Acts.

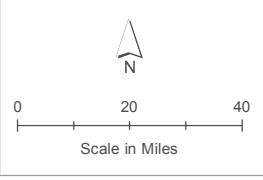
The fish fauna that currently characterizes this system (including native and nonnative species) can be most easily described with respect to feeding guilds: planktivores, small benthic predators, bottom-feeding omnivores, and piscivores. The main planktivores in the estuary include the native delta and longfin smelt, hitch (*Lavinia exilicauda*), and several introduced species. Small benthic predators include native prickly sculpin (*Cottus asper*), tule perch (*Hysterocarpus traski*), starry flounder (*Platichthys stellatus*), juvenile white sturgeon (*Acipenser transmontanus*), juvenile Sacramento splittail (*Pogonichthys macrolepidotus*), and Pacific staghorn sculpin (*Leptocottus armatus*), as well as introduced species. Bottom-feeding omnivores include native adult Sacramento splittail, and Sacramento sucker (*Catostomus occidentalis*) and the introduced common carp (*Cyprinus carpio*). The most abundant piscivores in the system are introduced species: striped bass (*Morone saxatilis*), white catfish (*Ameiurus catus*), channel catfish (*Ictalurus punctatus*), and largemouth bass (*Micropterus salmoides*), which often prey on smaller migratory fishes such as juvenile salmon and steelhead (Moyle 2002).

#### **2.1.1.1.2 Central Valley Floor**

The Central Valley floor is composed of warm waterways including sluggish river channels, swamps, sloughs, and long stretches of open water. The Central Valley floor fish fauna is composed primarily of species from the deep-bodied fish assemblage. Native deep-bodied fishes, such as Sacramento perch (*Archoplites interruptus*) and tule perch, and juvenile fishes occupy the stagnant backwaters, while specialized adult cyprinids (hitch, Sacramento blackfish [*Orthodon microlepidotus*], and splittail) inhabit the long stretches of open water. Large Sacramento pikeminnows (*Ptychocheilus grandis*) and suckers are also abundant, migrating upstream to spawn in tributaries. Anadromous salmon, steelhead, and sturgeon pass through this zone on their way upstream to spawn (Moyle 2002). This domain is now dominated by introduced species.



33441001 MVCAC BTR, Figure 2-1, Aquatic Zoogeographic Provinces, 11-20-12



Source: Chris Mari van Dyck, 2000

INTEGRATED MOSQUITO & VECTOR MANAGEMENT PROGRAMS

**Aquatic Zoogeographic Provinces**

Figure 2-1



### **2.1.1.1.3 Central Valley Foothills**

Central Valley foothill streams and rivers ascend from the valley floor to the Sierra and Coast Range mountains. These streams and rivers are home to three fish assemblages as defined by Moyle (2002). From lowest to highest elevation, they are the pikeminnow-hardhead-sucker assemblage, the California roach assemblage, and the rainbow trout assemblage. The pikeminnow-hardhead-sucker assemblage occurs just above the valley floor at elevations of 80 to 1,500 feet. This assemblage typically inhabits streams with average summer flows of >300 liters/second, with deep, rocky pools and wide shallow riffles. Water quality and habitat complexity is usually high, although some streams may become intermittent during summer, and summer water temperatures may exceed 25°C. Sacramento pikeminnow and Sacramento sucker are generally the most abundant fishes of this assemblage, while hardhead (*Mylopharodon conocephalus*) are confined to cooler waters in reaches with deep, rock-bottomed pools.

The California roach assemblage overlaps substantially in elevation with the pikeminnow-hardhead-sucker assemblage, although it does not extend to the lowest elevations. This assemblage is found in small, warm tributaries to larger streams that flow through open foothill woodlands of oak and foothill pine. These streams are typically intermittent during summer, resulting in the formation of stagnant pools that can exceed 30°C during the day. In the winter and spring these streams are swift and vulnerable to flooding. These streams provide habitat for the California roach (*Lavinia symmetricus*), which is capable of withstanding high temperature and low oxygen levels due to its small size.

The rainbow trout assemblage overlaps with the upper elevations of the pikeminnow-hardhead-sucker and California roach assemblage and extends to the highest elevations. These streams are characterized by swift, permanent flows, steep gradients, and cool temperatures. The water is well oxygenated and cover is abundant. Sculpin (*Cottus* spp.), Sacramento sucker, and speckled dace (*Rhinichthys osculus*) are often part of this assemblage. Introduced brook trout (*Salvelinus fontinalis*) and brown trout (*Salmo trutta*) are often found in this assemblage as well, although they generally do not occur at the lower elevations.

### **2.1.1.1.4 Central Valley Reservoirs**

Dams constructed to store water in the Central Valley of California now provide habitat for a mix of exotic and native species. The nature of the fish fauna in a given reservoir is determined by its elevation, size, location, and water quality. California reservoirs range from clear, oligotrophic, cold-water impoundments at high elevations to turbid, eutrophic, warm-water impoundments at low elevations, but most are found at middle elevations in the foothills. These reservoirs usually provide habitat for warm-water fishes in surface and edge waters and salmonids in deeper, cooler water.

### **2.1.1.2 Clear Lake Subprovince**

The Clear Lake Subprovince includes Clear Lake, located in a small drainage basin in the Coast Range at an approximately 1,319-foot elevation, and the surrounding watershed. The native fish fauna primarily consists of species found in quiet waters of the Central Valley floor (Moyle 2002). The lake historically supported populations of many native species from the deep-bodied fish assemblage of the Central Valley. These fish were variants adapted to lake environments. Today only four natives, hitch, blackfish, tule perch, and prickly sculpin, have large populations, and many introduced species have come to dominate the lake's fauna. The streams in this subprovince provide a home for Sacramento pikeminnow, Sacramento sucker, California roach, and rainbow trout (*Oncorhynchus mykiss*).

### **2.1.1.3 Monterey Bay Subprovince**

The Monterey Bay Subprovince is composed of three major streams that flow into Monterey Bay, the San Lorenzo, Pajaro, and Salinas rivers, as well as the small coastal drainages from Santa Cruz to San Francisco (Moyle 2002). This subprovince had nearly the full complement of species from the Central Valley floor, excluding hardhead and splittail, as well as saltwater dispersant fishes including the Pacific

lamprey (*Lampetra tridentata*), threespine stickleback (*Gasterosteus aculeatus*), prickly sculpin, steelhead, and Coho salmon (*Oncorhynchus kisutch*) (Moyle 2002).

### **2.1.2 North Coast Province**

The North Coast Province consists of coastal drainages from the Golden Gate in San Francisco Bay to the Smith River on the Oregon border, excluding the mouth of the lower Klamath River (Moyle 2002). North Coast streams are highly variable, ranging from warm, intermittent streams to permanent, cold-flowing streams. Because these streams drain low mountain ranges and do not develop snowpacks, their flow patterns largely reflect rainfall. As a consequence, they may be raging torrents in winter and spring, and small trickling streams in summer. Coastal streams and rivers within this province have largely independent zoogeographic histories, but are very similar with respect to their faunal assemblages. The Russian River is unique in this region in that it provides a home to much of the Sacramento-San Joaquin freshwater dispersant fauna. In general, however, anadromous and other saltwater dispersant fishes dominate the fauna in the North Coast Province.

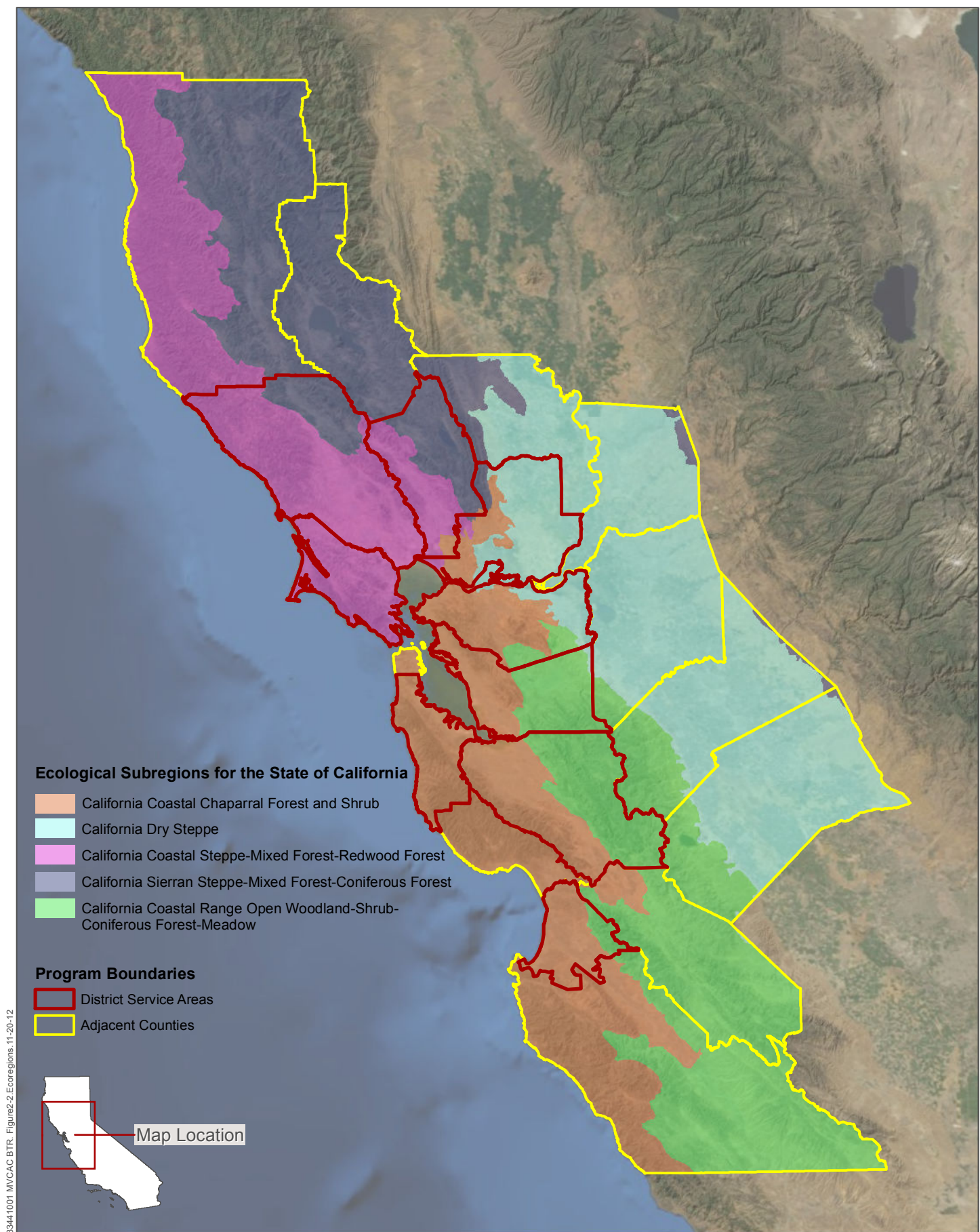
Three intergrading fish assemblages are observed in this area: resident trout, anadromous fishes, and estuarine fishes. Most of the fish in this subprovince are anadromous or saltwater dispersant species, but a few freshwater fish from the Central Valley are also observed here. The resident trout assemblage occupies the uppermost reaches of larger watersheds, typically above natural barriers to migration. The water is cold, swift, and well-oxygenated. This area is typically dominated by rainbow trout. The anadromous fish assemblage (steelhead, Coho, and lamprey) is distributed as far upstream as fishes can migrate and downstream to reaches influenced by tidal action. Streams in this area are cold and fast moving; however, pools become increasingly large and frequent as streams approach the ocean. Long stretches of shallow riffles over rock, gravel, or sand between pools there are used by anadromous salmon for spawning. Lamprey, three-spine stickleback, prickly and coast-range sculpin (*Cottus aleuticus*), California roach and Sacramento sucker are also present. The estuarine fish assemblage occupies areas of streams affected by daily tides. Consequently, these fish experience reversing currents, temperature fluctuation, and salinity gradients daily. Species found in the estuarine areas include threespine stickleback, prickly sculpin, coast-range sculpin, staghorn sculpin, topsmelt (*Atherinops affinis*), starry flounder, and tidewater goby (*Eucyclogobius newberryi*) (Moyle 2002).

### **2.1.3 South Coast Province**

The South Coast Province includes 10 large watersheds and many smaller coastal drainages from Baja California north to Monterey Bay. This province has somewhat limited fish fauna with a relatively long, complex history due to the arid conditions and active geological history that characterize these regions (Moyle 2002). Except for streams within the Los Angeles Basin, most of this province has been dominated by salt water dispersants, including anadromous rainbow trout and Pacific lamprey. Multiple euryhaline marine species are found in lagoons and lower reaches of streams within the South Coast Province, but the tidewater goby and California killifish (*Fundulus parvipinnis*) are two species that are found only in these habitats (Moyle 2002).

## **2.2 Terrestrial Habitats**

Due to the extent of the Program Areas, terrestrial habitats are described at the province level (McNab and Ayers 1996). The Program Areas include portions of five provinces (Figure 2-2), all of which occur in one or more of the District Program Areas. The provinces for each district and its boundary counties are provided in Table 2-2.



**Ecological Subregions for the State of California**

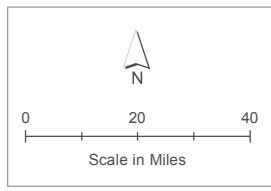
- California Coastal Chaparral Forest and Shrub
- California Dry Steppe
- California Coastal Steppe-Mixed Forest-Redwood Forest
- California Sierran Steppe-Mixed Forest-Coniferous Forest
- California Coastal Range Open Woodland-Shrub-Coniferous Forest-Meadow

**Program Boundaries**

- District Service Areas
- Adjacent Counties



33441001 MVCAC BTR, Figure 2-2, Ecoregions, 11-20-12



Source: US Forest Service, Pacific Southwest Region, Ecological Subregions for the State of California

**Ecoregions in Program Areas**

Figure 2-2





**Table 2-2 Ecoregion Provinces by District and Adjacent Counties**

District	California Dry Steppe	California Coastal Chaparral, Forest, and Scrub	California Coastal Steppe, Mixed Forest, Redwood Forest	California Sierran Steppe, Mixed Forest, Coniferous Forest	California Coastal Range Open Woodland, Shrub, Coniferous Forest, Meadow
ACMAD	yes	yes	--	--	yes
ACMAD adjacent	yes	yes	--	--	yes
ACVCSD	yes	yes	--	--	yes
ACVCSD adjacent	yes	yes	--	--	yes
CCMVCD	yes	yes	--	--	yes
CCMVCD adjacent	yes	yes	--	--	yes
MSMVCD	--	--	yes	yes	--
MSMVCD adjacent	--	yes	yes	yes	--
NCMAD	--	yes	yes	yes	--
NCMAD adjacent	yes	yes	yes	yes	--
NSVMAD	--	yes	--	--	yes
NSVMAD adjacent	--	yes	--	--	yes
SMCMVCD	--	yes	--	--	--
SMCMVCD adjacent	--	yes	--	--	yes
SCCVCD	--	yes	--	--	yes
SCCVCD adjacent	yes	yes	--	--	yes
SCMAD	yes	yes	yes	yes	--
SCMAD adjacent	yes	yes	yes	yes	--

### 2.2.1 California Dry Steppe

The California Dry Steppe province once covered the Central Valley of California. Although much of the Central Valley is now subject to agricultural uses and grazing, it was originally dominated by native grasses and wildflowers, including bunchgrasses (McNab and Ayers 1996). While remnant stands of native grasslands remain, much of the uncultivated land in this valley is now dominated by exotic species such as wild oats (*Avena* spp.), brome grasses (*Bromus* spp.), filarees (*Erodium* spp.), Italian ryegrass (*Lolium perenne* ssp. *multiflorum*), and both exotic and native fescues (*Vulpia* spp.). Native wildflowers and some native grasses persist among the exotic species. Rivers in the Sacramento Valley and northern San Joaquin Valley are fringed with riparian vegetation, while freshwater marshes line the lower reaches of the San Joaquin and Sacramento rivers. Portions of this province are in the ACMAD, ACVCSD, CCMVCD and the SCMAD. Additionally, portions of this province are in adjacent counties for the ACMAD, ACVCSD, CCMVCD, NCMAD, SCCVCD, and SCMAD.

### **2.2.2 California Coastal Chaparral, Forest, and Scrub**

The lands along the central and southern coasts of California, as well as the seaward side of the Coast Ranges in this area, are part of the California Coastal Chaparral, Forest, and Scrub province (McNab and Ayers 1996). A variety of plant communities are found in this province. Representative plant communities include coastal scrubs dominated by coyote bush (*Baccharis pilularis*), California sagebrush (*Artemisia californica*), and bush lupine (*Lupinus* spp.) or sages (*Salvia* spp.) and chaparral types dominated by chamise (*Adenostoma fasciculatum*) and various manzanitas (*Arctostaphylos* spp.) and ceanothus (*Ceanothus* spp.). Gentler slopes support live oak and white oak woodlands and forests and coastal plains and valleys support grassland communities. Riparian forests and willow scrub grow along streams (Holland 1986). However, much of the coastal plain and valley floors have been converted to agriculture or urban uses. Portions of this province are in all districts except the MSVCD. Additionally, portions of this province are in adjacent counties for all nine districts.

### **2.2.3 California Coastal Steppe, Mixed Forest, and Redwood Forest Province**

The California Coastal Chaparral, Forest, and Scrub province covers the lands along the north coast of California and the seaward side of the North Coast Ranges (McNab and Ayers 1996). Inland slopes support a mixed evergreen forest dominated by coast live oak (*Quercus agrifolia*), tan oak (*Lithocarpus densiflorus*), madrone (*Arbutus menziesii*), and Douglas fir. Redwood forests (*Sequoia sempervirens*) are typically found on the seaward slopes of coastal northwestern California. Associated species include Douglas fir (*Pseudotsuga menziesii*) and other conifers (Holland 1986). Oaks may form distinct patches of oak woodland (Holland 1986). Portions of this province are in the MSMVCD, NCMAD, and SCMAD, as well as adjacent counties for these three districts.

### **2.2.4 Sierran Steppe–Mixed Forest–Coniferous Forest–Alpine Meadow Province**

The Sierran Steppe–Mixed Forest–Coniferous Forest–Alpine Meadow province covers most of interior Northern California, as well as the Sierra Nevada, and extends into southern Oregon (MacNab and Ayers 1996). Shrub and conifer communities cover the lower slopes and foothills, from about 1,500 to 4,000 feet. On higher slopes, foothill pine and blue oak often dominate, forming open woodlands. Chaparral covers extensive areas. Montane forests are found between about 2,000 and 6,000 feet in the Cascades. The dominant trees are ponderosa pine (*Pinus ponderosa*), Jeffrey pine (*Pinus jeffreyi*), Douglas fir, firs (*Abies* spp.), and incense cedar (*Calocedrus decurrens*), but several other conifers also occur. Dense chaparral communities of manzanita, buckbrush, and buckthorn may carpet open slopes or provide understory in open forests (Holland 1986). Other communities are found in the Sierra Nevada and at higher elevations. They are not described in this section because they are outside the Program Area.

Portions of this province are in the MSMVCD, NCMAD, and SCMAD, as well as adjacent counties for these three districts.

### **2.2.5 California Coastal Range Open Woodland-Shrub-Coniferous Forest–Meadow Province**

The California Coastal Range Open Woodland-Shrub-Coniferous Forest–Meadow province covers the lands along the interior of the Central and South Coast ranges of California, including part of the Transverse Ranges of Southern California (MacNab and Ayers 1996). This province also supports live oak forests, woodlands, and chaparral, but the conditions are drier than in the California Coastal Chaparral, Forest, and Scrub province. Interior live oaks (*Quercus wislizenii*) and other oaks are found here, in addition to coast live oak and madrone (Holland 1986). Interior valleys support grassland and coastal scrub communities. As in the neighboring provinces, a riparian forest grows along streams. At higher elevations and near the ocean, chaparral may be interspersed with coniferous forests.

Portions of this province are in the ACMAD, ACVCSD, CCMVCD, NSVMAD, SMCMVCD, SCCVCD, and SCMAD. Additionally, portions of this province are in adjacent counties for these seven districts and the SMCMVCD.

## 2.3 Sensitive Natural Communities

Sensitive Natural Communities include both occurrences of certain rarer community types, or specific stands of ecological importance for other community types. Approximately 50 types of natural communities that are tracked in the California Natural Diversity Database (CDFG 2012) occur in the Program Area. These types include dune, scrub, chaparral, native grassland, wildflower, alkali, vernal pool, bog, seep, fen, marsh, riparian scrub, riparian woodland, riparian forest, and nonriparian forests and woodlands.

## 2.4 Special Status Species

Many special-status species occur in the Program Area, including 157 species that are listed as endangered or threatened under the federal or California Endangered Species Acts (CDFG 2012). A full list of these species and brief summaries of their status and habitats is provided in Attachment A, Lists of Species.

## 2.5 Regulatory Setting

This section focuses on the regulations primarily addressing plant and animal species. Regulations governing pesticide use are contained in Sections 6.1.3 and 7.1.4 of the Draft PEIR.

### 2.5.1 Federal

#### 2.5.1.1 ***Endangered Species Act of 1973 (16 USC Section 1531 et seq.; 50 CFR Parts 17 and 222)***

This law includes provisions for protection and management of species that are federally listed as threatened or endangered and designated critical habitat for these species. This law prohibits “take” of federally listed species, except as authorized under an incidental take permit or incidental take statement. The United States Fish and Wildlife Service (USFWS) is the administering agency for this authority for freshwater species. The National Marine Fisheries Service (NMFS) is the administering agency for anadromous species.

#### 2.5.1.2 ***Magnusson-Stevenson Fishery Conservation and Management Act 1996 (Public Law 94-265)***

This law provides for the conservation and management of all fish resources within the exclusive economic zone of the U.S. and supports and encourages the implementation and enforcement of international fisheries agreements for conservation and management of highly migratory species. It called for the establishment of Regional Fisheries Management Councils to develop, implement, monitor, and revise fish management plans to promote domestic commercial and recreational fishing. Specifically to this Program, it calls for the protection of essential fish habitat in review of projects conducted under federal permits, licenses, or other authorities that affect or have the potential to affect such habitat. The NMFS is responsible for the administration of this act.

#### 2.5.1.3 ***Migratory Bird Treaty Act (16 USC Section(s) 703-711; 50 CFR Subchapter B)***

This law includes provisions for protection of migratory birds, including basic prohibitions against any taking not authorized by federal regulation. The administering agency is the USFWS.

#### **2.5.1.4 *Bald and Golden Eagles Protection Act (16 USC Section(s) 668; 50 CFR Part 22)***

This act makes it illegal to import, export, take (which includes molest or disturb<sup>1</sup>), sell, purchase, or barter any bald eagle or golden eagle or part thereof. The golden eagle, however, is accorded somewhat lighter protection under this act than the bald eagle. The administering agency is the USFWS.

#### **2.5.1.5 *Clean Water Act of 1977 [33 USC Section(s) 1251-1376; 30 CFR Section(s) 330.5 (a)(26)]***

These sections provide for the protection of wetlands. The administering agency for the above authority is the United States Army Corps of Engineers (USACE).

#### **2.5.1.6 *Executive Order 11990, Protection of Wetlands (May 24, 1977)***

This order provides for the protection of wetlands. The administering agency for the above authority is the USACE.

#### **2.5.1.7 *Stipulated Injunction and Order, Protection of California Red-Legged Frog from Pesticides***

On October 20, 2006, the U.S. District Court for the Northern District of California imposed no-use buffer zones around California red-legged frog upland and aquatic habitats for certain pesticides. This injunction and order will remain in effect for each pesticide listed in the injunction until the USEPA goes through formal 7(A)(2) consultation with the USFWS on each of the 66 active ingredients, and the USFWS issues a Biological Opinion including a "not likely to adversely affect" statement for the pesticides. Under the injunction and order, no-use buffer zones of 60 feet for ground applications and 200 feet for aerial applications apply from the edge of the following California red-legged frog habitats as defined by the USFWS and the Center for Biological Diversity: Aquatic Feature, Aquatic Breeding Habitat, Nonbreeding Aquatic Habitat, and Upland Habitat. These habitats are found in 33 counties of California.

A series of documents that define Interim Measures for Use of Pesticides for various counties in California have been prepared by the CDFG. Interim measures have been defined for all of the counties in the Program Area.

### **2.5.2 State**

#### **2.5.2.1 *Porter-Cologne Water Quality Control Act of 1970***

This law provides the California State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) with authority to establish Water Quality Control Plans (Basin Plans) that are reviewed and revised periodically. The SWRCB and the RWQCBs carry out the Federal Clean Water Act, including the National Pollutant Discharge Elimination System (NPDES) permitting process for point source discharges and the CWA Section 303 water quality standards program. The administering agencies are the SWRCB and the RWQCBs.

#### **2.5.2.2 *California Fish and Wildlife Code Section 1600 et seq.***

This law provides for protection and conservation of fish and wildlife resources with respect to any project that may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake. The administering agency is the California Department of Fish and Wildlife (CDFW).

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<sup>1</sup> "Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

**2.5.2.3 California Endangered Species Act of 1984 (California Fish and Wildlife Code Sections 2050 2098)**

This law provides for the protection and management of species and subspecies listed by the State of California as endangered or threatened, or designated as candidates for such listing. They are listed at 14 CCR Section 670.5. This law prohibits “take” of state-listed or candidate species, except as otherwise authorized by the Fish and Wildlife Code. (The term “take” is defined by Section 86 of the Fish and Wildlife Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” This definition is different in some respects from the definition of “take” under the Federal Endangered Species Act.) The administering agency is the CDFW.

**2.5.2.4 California Fish and Wildlife Code §3503**

This law prohibits take, possession, or needless destruction of any bird egg or nest, except as otherwise provided by the Fish and Wildlife Code or regulation made pursuant thereto. The administering agency is the CDFW.

**2.5.2.5 California Fish and Wildlife Code §3503.5**

This law prohibits take, possession, or destruction of any bird of prey (birds in the order of Falconiformes or Strigiformes), except as otherwise provided by the Fish and Wildlife Code or regulation adopted pursuant thereto. The administering agency is the CDFW.

**2.5.2.6 California Fish and Wildlife Code §3511, 4700, and 5050**

These laws prohibit take or possession of birds, mammals, and reptiles listed as “fully protected,” except as provided by the Fish and Wildlife Code. The administering agency is the CDFW.

**2.5.2.7 California Fish and Wildlife Code Section 5650**

This law protects water quality from substances or materials deleterious to fish, plant life, or bird life. It prohibits such substances or materials from being placed in waters or places where they can pass into waters of the state, except as authorized pursuant to, and in compliance with, the terms and conditions of permits or authorizations of the State Water Resources Control Board or a Regional Water Quality Control Board such as a waste discharge requirement issued pursuant to California Water Code Section 13263, a waiver issued pursuant to Water Code Section 13269(a), or permit pursuant to Water Code Section 13160. The administering agency for Fish and Wildlife Code Section 5650 is the CDFW.

**2.5.2.8 Natural Community Conservation Planning Act (California Fish and Wildlife Code §2800 to 2835)**

This law provides for the development of Natural Community Conservation Plans (NCCP) to provide for regional or area-wide protection and perpetuation of natural wildlife diversity, while allowing compatible and appropriate development and growth. The administering agency is the CDFW.

**2.5.2.9 Native Plant Protection Act; California Fish and Wildlife Code §1900 et seq.**

This law provides for the preservation, protection, and enhancement of endangered or rare native plants of the state. The Native Plant Protection Act allows for the designation of endangered and rare native plant species and states that no person shall take any native plant, or any part or product thereof that the commission has determined to be an endangered native plant or rare native plant, except as otherwise provided in the act. The administering agency is the CDFW.

**2.5.2.10 California Food and Agricultural Code, Section(s) 12976 and Section(s) 12981**

This code states that no pesticide application should be made or continued when a reasonable possibility exists of damage to nontarget crops, animals, or other public or private property. The administering agency for the above authority is the California Department of Pesticide Regulation (CDPR).

**2.5.2.11 California Food and Agricultural Code, Section(s) 29102**

This code provides for the protection of bees from pesticide use through notification of beekeepers and the establishment of citrus bee protection areas. Prohibited applications to citrus within a citrus/bee protection area include any pesticide toxic to bees, except those exempted in a subsequent subsection during a citrus bloom period, unless the need for control of lepidoptera larvae or citrus thrips has been established by written recommendation of a representative of the University of California, Agricultural Extension Service, or a licensed agricultural pest control adviser. The recommendation should state either that the citrus planting does not meet the citrus bloom period criteria, or why alternatives less hazardous to bees would not be effective. The administering agency for the above authority is the CDPR.

**2.5.3 Local**

Local governing bodies may pass ordinances that regulate or restrict pesticide use within their jurisdictional areas. For example, a city council may pass an ordinance that restricts pesticide use in municipal buildings and in public parks, and a school district board can decree that certain pesticides cannot be used in schools. Local governing bodies may pass ordinances that regulate or restrict pesticide use in their own operations. However, these restrictions do not apply to state operations and would not be applicable to treatments proposed by the Districts under the Program because California state law preempts local regulation and restriction of pesticide use. The individual districts will work with the local entities and property owners to implement best management practices for the protection of public health.

### 3 References

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- McNab, W.H., and P.E. Avers, compilers. 1996. Ecological Subregions of the United States. USDA Forest Service WO-WSA-5. Website (<http://www.fs.fed.us/land/pubs/ecoregions/index.html>) accessed November 12, 2012.
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Integrated Mosquito and Vector  
Management Programs

ATTACHMENT

A

LIST OF SPECIAL-STATUS SPECIES  
OCCURRING IN THE PROGRAM  
AREAS



**Table A-1 CNDDDB Occurrences for Special-status Plant Species by District and Adjacent Program Areas**

Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
bristlecone fir <i>Abies bracteata</i>	RPR, 1B	lower montane coniferous forest. rocky sites in Monterey and San Luis Obispo Counties. 210-1600 m.												•						
pink sand-verbena <i>Abronia umbellata</i> var. <i>breviflora</i>	RPR, 1B	coastal dunes and coastal strand. foredunes and interdunes with sparse cover. <i>Abronia umbellata</i> var. <i>breviflora</i> is usually the plant closest to the ocean. 0-12 m.							•	•		•								
San Mateo thorn-mint <i>Acanthomintha duttonii</i>	FE, SE, RPR, 1B	chaparral, valley and foothill grassland, coastal scrub. extant populations only known from very uncommon serpentinite vertisol clays; in relatively open areas. 50-200 m.														•	•			
red-flowered bird's-foot-trefoil <i>Acmispon rubriflorus</i>	RPR, 1B	valley and foothill grassland, cismontane woodland. most recent sighting from sterile, red soils-volcanic mudflow deposits. 200-425 m.														•				
Blasdale's bent grass <i>Agrostis blasdalei</i>	RPR, 1B	coastal dunes, coastal bluff scrub, coastal prairie. includes <i>agrostis blasdalei</i> var. <i>marinensis</i> , state-listed rare. sandy or gravelly soil close to rocks; often in nutrient-poor soil with sparse vegetation. 5-150 m.							•	•		•		•		•	•	•		
Henderson's bent grass <i>Agrostis hendersonii</i>	RPR 3	valley and foothill grassland, vernal pools. little information exists; moist places in grassland or vernal pool habitat. 70-305 m.														•				
vernal pool bent grass <i>Agrostis lacuna-vernalis</i>	RPR, 1B	vernal pools. in mima mound areas or on the margins of vernal pools. 115-145 m.												•						
grass alisma <i>Alisma gramineum</i>	RPR 2	marshes and swamps. freshwater marsh. 390-1800 m.								•										
Hickman's onion <i>Allium hickmanii</i>	RPR, 1B	closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland, coastal prairie. sandy loam, damp ground and vernal swales; mostly in grassland though can be assoc. with chaparral or woodland. 20-200 m											•	•						
Franciscan onion <i>Allium peninsulare</i> var. <i>franciscanum</i>	RPR, 1B	cismontane woodland, valley and foothill grassland. clay soils; often on serpentine. dry hillsides. 100-300 m.							•	•		•				•	•			
Sharsmith's onion <i>Allium sharsmithiae</i>	RPR, 1B	cismontane woodland. rocky, serpentine slopes. 400-1200 m.	•		•			•	•			•				•				
Sonoma alopecurus <i>Alopecurus aequalis</i> var. <i>sonomensis</i>	FE, RPR, 1B	freshwater marshes and swamps, riparian scrub. wet areas, marshes, and riparian banks with other wetland species. 5-360 m.							•			•								
Napa false indigo <i>Amorpha californica</i> var. <i>napensis</i>	RPR, 1B	broadleaved upland forest, chaparral, cismontane woodland. openings in forest or woodland or in chaparral. 150-2000 m							•	•	•	•		•						•
large-flowered fiddleneck <i>Amsinckia grandiflora</i>	FE, SE, RPR, 1B	cismontane woodland, valley and foothill grassland. annual grassland in various soils. 275-550 m.	•	•	•	•	•	•								•				
bent-flowered fiddleneck <i>Amsinckia lunaris</i>	RPR, 1B	cismontane woodland, valley and foothill grassland. 50-500 m.	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•		•
scabrid alpine tarplant <i>Anisocarpus scabridus</i>	RPR, 1B	upper montane coniferous forest. open stony ridges, metamorphic scree slopes of mountain peaks, and cliffs in or near red fir forest. 1650-2300 m.								•		•								
slender silver moss <i>Anomobryum julaceum</i>	RPR 2	broadleaved upland forest, lower montane coniferous forest, north coast coniferous forest. moss, which grows on damp rocks and soil; acidic substrates. usually seen on roadcuts. 100-1000 m.		•		•	•		•			•		•		•		•		

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**Table A-1 CNDDDB Occurrences for Special-status Plant Species by District and Adjacent Program Areas**

Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
McDonald's rockcress <i>Arabis mcdonaldiana</i>	FE, SE, RPR, 1B	lower montane coniferous forest, upper montane coniferous forest. rocky outcrops, ridges, slopes, and flats on serpentine. 135-1455 m.								•										
Anderson's manzanita <i>Arctostaphylos andersonii</i>	RPR, 1B	broadleaved upland forest, chaparral, north coast coniferous forest. open sites, redwood forest. 180-800 m.		•		•								•	•	•	•	•		
Mt. Diablo manzanita <i>Arctostaphylos auriculata</i>	RPR, 1B	chaparral. in canyons and on slopes. on sandstone. 120-500 m.		•		•	•													
Baker's manzanita <i>Arctostaphylos bakeri</i> ssp. <i>bakeri</i>	SR, RPR, 1B	broadleaved upland forest, chaparral. entire species state-listed rare. often on serpentine. this is the state-listed rare taxon, also known as a. bakeri in title 14. 75-230 m.							•			•								
The Cedars manzanita <i>Arctostaphylos bakeri</i> ssp. <i>sublaevis</i>	SR, RPR, 1B	chaparral, closed-cone coniferous forest. entire species listed state rare. in serpentine chaparral and sargent cypress woodland; typically in canyons and on slopes. 275-600 m.							•			•								
Sonoma canescent manzanita <i>Arctostaphylos canescens</i> ssp. <i>sonomensis</i>	RPR, 1B	chaparral, lower montane coniferous forest. sometimes found on serpentine. 180-1700 m.							•	•		•								
Arroyo de la Cruz manzanita <i>Arctostaphylos cruzensis</i>	RPR, 1B	broadleaved upland forest, coastal bluff scrub, closed-cone coniferous forest, chaparral, coastal scrub, and grassland. on sandy soils in several different habitat types from chaparral to coastal scrub to woodland. 60-310 m.							•			•		•						
Vine Hill manzanita <i>Arctostaphylos densiflora</i>	SE, RPR, 1B	chaparral. acid marine sand. 50-100 m.							•			•								
Little Sur manzanita <i>Arctostaphylos edmundsii</i>	RPR, 1B	coastal bluff scrub, chaparral. includes a. edmundsii var. parvifolia, state-listed rare. forming mounds on sandy terraces on ocean bluffs. 30-105 m.												•						
Franciscan manzanita <i>Arctostaphylos franciscana</i>	RPR, 1B	chaparral. serpentine outcrops in chaparral. 60-300 m.																•		
Gabilan Mountains manzanita <i>Arctostaphylos gabilanensis</i>	RPR, 1B	chaparral, cismontane woodland. granitic substrates. 300-700 m.											•	•		•				
Schreiber's manzanita <i>Arctostaphylos glutinosa</i>	RPR, 1B	closed-cone coniferous forest, chaparral. mudstone or diatomaceous shale outcrops; often with pinus attenuata. 170-690 m.												•		•		•		
Hooker's manzanita <i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i>	RPR, 1B	chaparral, coastal scrub, closed-cone coniferous forest, cismontane woodland. sandy soils, sandy shales, sandstone outcrops. 85-300 m.											•	•		•		•		
San Bruno Mountain manzanita <i>Arctostaphylos imbricata</i>	SE, RPR, 1B	chaparral, coastal scrub. mostly known from a few sandstone outcrops in chaparral. 275-365 m.														•	•			
Konocti manzanita <i>Arctostaphylos manzanita</i> ssp. <i>elegans</i>	RPR, 1B	chaparral, cismontane woodland, lower montane coniferous forest. volcanic soils. 395-1400 m.							•	•	•	•								•
Contra Costa manzanita <i>Arctostaphylos manzanita</i> ssp. <i>laevigata</i>	RPR, 1B	chaparral. rocky slopes. 500-1100 m.		•		•	•													
Mt. Tamalpais manzanita <i>Arctostaphylos montana</i> ssp. <i>montana</i>	RPR, 1B	chaparral, valley and foothill grassland. serpentine slopes in chaparral and grassland. 160-760 m.							•			•								

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Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
Presidio manzanita <i>Arctostaphylos montana</i> ssp. <i>ravenii</i>	FE, SE, RPR, 1B	chaparral, coastal prairie, coastal scrub. open, rocky serpentine slopes. 20-215 m.																●		
Montara manzanita <i>Arctostaphylos montaraensis</i>	RPR, 1B	chaparral, coastal scrub. slopes and ridges. 150-500 m.														●	●			
Toro manzanita <i>Arctostaphylos montereyensis</i>	RPR, 1B	chaparral, cismontane woodland, coastal scrub. sandy soil, usually with chaparral associates. 30-730 m.											●	●						
pygmy manzanita <i>Arctostaphylos nummularia</i> ssp. <i>mendocinoensis</i>	RPR, 1B	closed-cone coniferous forest. acidic, sandy-clay soils in dwarf coniferous forest. 90-200 m.								●										
Ohlone manzanita <i>Arctostaphylos ohloneana</i>	RPR, 1B	coastal scrub, closed cone coniferous forests. Monterey shale. 450-530 m.												●		●		●		
Pacific manzanita <i>Arctostaphylos pacifica</i>	SE, RPR, 1B	coastal scrub.																		
Pajaro manzanita <i>Arctostaphylos pajaroensis</i>	RPR, 1B	chaparral. sandy soils. 30-760 m.															●	●		
pallid manzanita <i>Arctostaphylos pallida</i>	FT, SE, RPR, 1B	broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub. grows on uplifted marine terraces on siliceous shale or thin chert. may require fire. 185-465 m.	●	●	●	●	●	●											●	
sandmat manzanita <i>Arctostaphylos pumila</i>	RPR, 1B	closed-cone coniferous forest, chaparral, cismontane woodland, coastal dunes, coastal scrub. on sandy soil with other chaparral associates. 3-205 m.												●		●				
Kings Mountain manzanita <i>Arctostaphylos regismontana</i>	RPR, 1B	broadleaved upland forest, chaparral, north coast coniferous forest. granitic or sandstone outcrops. 305-730 m.		●		●											●	●	●	●
Bonny Doon manzanita <i>Arctostaphylos silvicola</i>	RPR, 1B	chaparral, closed-cone coniferous forest, lower montane coniferous forest. only known from zayante (inland marine) sands in Santa Cruz County. 120-390 m.																●	●	●
Rincon Ridge manzanita <i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	RPR, 1B	chaparral. highly restricted endemic to red rhyolites in Sonoma County. 75-310 m.							●	●	●	●								●
Raiche's manzanita <i>Arctostaphylos stanfordiana</i> ssp. <i>raichei</i>	RPR, 1B	chaparral, lower montane coniferous forest. on periphery of mcNab cypress grove on serpentine. slopes and ridges. 450-1000 m.								●		●								
Marin manzanita <i>Arctostaphylos virgata</i>	RPR, 1B	broadleaved upland forest, closed-cone coniferous forest, chaparral, north coast coniferous forest. only known from about 20 eos in Marin County. on sandstone or granitic soil. 60-700 m.							●			●								
marsh sandwort <i>Arenaria paludicola</i>	FE, SE, RPR, 1B	marshes and swamps. growing up through dense mats of typha, juncus, scirpus, etc. in freshwater marsh. 10-170 m.																	●	●
Indian Valley spineflower <i>Aristocapsa insignis</i>	RPR, 1B	cismontane woodland. 300-600 m.																		●
Humboldt milk-vetch <i>Astragalus agnicidus</i>	SE, RPR, 1B	broadleaved upland forest, redwood forest. disturbed openings in partially timbered forest lands; also along ridgelines; south aspects. 575-750 m.								●										

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Clara Hunt's milk-vetch <i>Astragalus claranus</i>	FE, ST, RPR, 1B	cismontane woodland, valley and foothill grassland, chaparral. open grassy hillsides, esp. on exposed shoulders in thin, volcanic clay soil moist in spring. 75-235 m.							•	•	•	•								•
coastal marsh milk-vetch <i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	RPR, 1B	coastal dunes, coastal salt marshes. mesic sites in dunes or along streams or coastal salt marshes. 0-30 m.							•			•				•	•			
Jepson's milk-vetch <i>Astragalus rattanii</i> var. <i>jepsonianus</i>	RPR, 1B	cismontane woodland, valley and foothill grassland, chaparral. commonly on serpentine in grassland or openings in chaparral. 320-700 m.								•	•	•								•
Ferris' milk-vetch <i>Astragalus tener</i> var. <i>ferrisiae</i>	RPR, 1B	meadows, valley and foothill grassland. subalkaline flats on overflow land in the Central Valley; usually seen in dry, adobe soil. 5-75 m.										•								•
alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	RPR, 1B	alkali playa, valley and foothill grassland, vernal pools. low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 1-170 m.	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•		•
coastal dunes milk-vetch <i>Astragalus tener</i> var. <i>titi</i>	FE, SE, RPR, 1B	coastal bluff scrub, coastal dunes. moist, sandy depressions of bluffs or dunes along and near the pacific ocean; one site on a clay terrace. 1-50 m.												•						
heartscale <i>Atriplex cordulata</i> var. <i>cordulata</i>	RPR, 1B	chenopod scrub, valley and foothill grassland, meadows. alkaline flats and scalds in the Central Valley, sandy soils. 1-150(600)m.	•	•	•	•	•	•				•								•
Lost Hills crownscale <i>Atriplex coronata</i> var. <i>vallicola</i>	RPR, 1B	chenopod scrub, valley and foothill grassland, vernal pools. in powdery, alkaline soils that are vernal moist with frankenia, atriplex spp. and distichlis. 0-605 m.																		•
brittlescale <i>Atriplex depressa</i>	RPR, 1B	chenopod scrub, meadows, playas, valley and foothill grassland, vernal pools. usually in alkali scalds or alk. clay in meadows or annual grassland; rarely associate with riparian, marshes, or v.p.'s. 1-320 m.	•	•	•	•	•	•				•								•
San Joaquin spearscale <i>Atriplex joaquinana</i>	RPR, 1B	chenopod scrub, alkali meadow, valley and foothill grassland. in seasonal alkali wetlands or alkali sink scrub with distichlis spicata, frankenia, etc. 1-250 m.	•	•	•	•	•	•		•	•	•		•	•	•		•	•	•
lesser saltscale <i>Atriplex minuscula</i>	RPR, 1B	chenopod scrub, playas, valley and foothill grassland. in alkali sink and grassland in sandy, alkaline soils. 20-100 m.	•		•			•												•
vernal pool smallscale <i>Atriplex persistens</i>	RPR, 1B	vernal pools. alkaline vernal pools. 10-115 m.										•								•
subtle orache <i>Atriplex subtilis</i>	RPR, 1B	valley and foothill grassland. little info available. madrono vol. 44 no. 2 only source currently. 40-100 m.																		•
San Simeon baccharis <i>Baccharis plummerae</i> ssp. <i>glabrata</i>	RPR, 1B	coastal scrub. in open shrub-grassland associations. 90-375 m.												•						
big-scale balsamroot <i>Balsamorhiza macrolepis</i>	RPR, 1B	valley and foothill grassland, cismontane woodland. sometimes on serpentine. 35-1000 m.	•	•	•	•		•	•	•	•	•			•	•		•	•	•
Sonoma sunshine <i>Blennosperma bakeri</i>	FE, SE, RPR, 1B	vernal pools, valley and foothill grassland. vernal pools and swales. 10-100 m.							•			•								
Point Reyes blennosperma <i>Blennosperma nanum</i> var. <i>robustum</i>	SR, RPR, 1B	coastal prairie, coastal scrub. on open coastal hills in sandy soil. 10-145 m.							•	•		•								

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**Table A-1 CNDDB Occurrences for Special-status Plant Species by District and Adjacent Program Areas**

Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
big tarplant <i>Blepharizonia plumosa</i>	RPR, 1B	valley and foothill grassland. dry hills and plains in annual grassland. clay to clay-loam soils; usually on slopes and often in burned areas. 15-455 m.	•	•	•	•	•	•				•				•			•	
Mount Day rockcress <i>Boechera rubicundula</i>	RPR, 1B	chaparral. rocky slopes. 1200 m.													•			•		
Snow Mountain rockcress <i>Boechera ultraalsa</i>	RPR, 1B	upper montane coniferous forest. rocky sites. 1800 m.								•		•								
rattlesnake fern <i>Botrypus virginianus</i>	RPR 2	bogs and fens, lower montane coniferous forest, meadows and seeps, riparian forest. 715-1355 m.								•										
watershield <i>Brasenia schreberi</i>	RPR 2	freshwater marshes and swamps. aquatic from water bodies both natural and artificial in California.		•		•		•		•		•								•
narrow-anthered brodiaea <i>Brodiaea leptandra</i>	RPR, 1B	broadleaved upland forest, chaparral, lower montane coniferous forest. 110-915 m.							•	•	•	•								•
Indian Valley brodiaea <i>Brodiaea rosea</i>	SE, RPR, 1B	closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland, meadows. serpentine gravelly creek bottoms, and in meadows and swales. 335-1450 m.								•		•								
Thurber's reed grass <i>Calamagrostis crassiglumis</i>	RPR 2	coastal scrub, freshwater marsh. usually in marshy swales surrounded by grassland or coastal scrub. 10-45 m.							•	•		•								
leafy reed grass <i>Calamagrostis foliosa</i>	SR, RPR 4	coastal bluff scrub, north coast coniferous forest. rocky cliffs and ocean-facing bluffs. 0-1220 m. state-listed rare. element occurrences archived; cnps list 4.								•										
round-leaved filaree <i>California macrophylla</i>	RPR, 1B	cismontane woodland, valley and foothill grassland. clay soils. 15-1200 m.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
late-flowered mariposa-lily <i>Calochortus fimbriatus</i>	RPR, 1B	chaparral, cismontane woodland. dry, open coastal woodland, chaparral; on serpentine. 270-1910 m.												•						
Mt. Diablo fairy-lantern <i>Calochortus pulchellus</i>	RPR, 1B	chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. on wooded and brushy slopes. 200-800 m.	•	•	•	•	•	•											•	
The Cedars fairy-lantern <i>Calochortus raichei</i>	RPR, 1B	closed-cone coniferous forest, chaparral. on serpentine. usually on shaded slopes, but also on barrens and talus. 200-490 m.							•			•								
Tiburon mariposa-lily <i>Calochortus tiburonensis</i>	FT, ST, RPR, 1B	valley and foothill grassland. on open, rocky, slopes in serpentine grassland. 50-150 m.							•	•	•	•								•
Hoover's calycadenia <i>Calycadenia hooveri</i>	RPR, 1B	cismontane woodland, valley and foothill grassland. on exposed, rocky, barren soil. 65-260 m.														•				
small-flowered calycadenia <i>Calycadenia micrantha</i>	RPR, 1B	chaparral, valley and foothill grassland, meadows and seeps, lower montane coniferous forest. rocky talus or scree; sparsely vegetated areas. occasionally on roadsides; sometimes on serpentine. 5-1500 m.								•		•		•						
dwarf calycadenia <i>Calycadenia villosa</i>	RPR, 1B	chaparral, cismontane woodland, valley and foothill grassland, meadows and seeps. open, dry meadows, hillsides, gravelly outwashes. 215-1275 m.																		
Santa Cruz Mountains pussypaws <i>Calyptridium parryi</i> var. <i>hesseae</i>	RPR, 1B	chaparral, cismontane woodland. sandy or gravelly openings. 305-1530 m.		•		•								•	•	•		•		
coast range bindweed <i>Calystegia collina</i> ssp. <i>tridactylosa</i>	RPR, 1B	chaparral, cismontane woodland. rocky, gravelly openings in serpentine. 0-600 m.								•		•								

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coastal bluff morning-glory <i>Calystegia purpurata</i> ssp. <i>saxicola</i>	RPR, 1B	coastal dunes, coastal scrub. 15-105 m.		•		•	•		•	•		•								
San Benito evening-primrose <i>Camissonia benitensis</i>	FT, RPR, 1B	chaparral, cismontane woodland. on gravelly serpentine alluvial terraces. 750-1280 m.												•		•				
Hardham's evening-primrose <i>Camissoniopsis hardhamiae</i>	RPR, 1B	chaparral, cismontane woodland. decomposed carbonate. 330-500 m.												•						
swamp harebell <i>Campanula californica</i>	RPR, 1B	bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, freshwater marsh, n coast coniferous forest. bogs and marshes in a variety of habitats; uncommon where it occurs. 1-405 m.							•	•		•				•		•		
chaparral harebell <i>Campanula exigua</i>	RPR, 1B	chaparral. rocky sites, usually on serpentine in chaparral. 300-1250 m.	•	•	•	•	•	•						•	•	•		•		
Sharsmith's harebell <i>Campanula sharsmithiae</i>	RPR, 1B	chaparral. serpentine barrens. 490-855 m.		•		•									•	•		•		
seaside bittercress <i>Cardamine angulata</i>	RPR 2	north coast coniferous forest, lower montane coniferous forest. wet areas, streambanks. 65-915 m.																		
white sedge <i>Carex albida</i>	FE, SE, RPR, 1B	freshwater marsh, bogs and fens, meadows and seeps. wet meadows and marshes. 35-55 m.							•			•								
California sedge <i>Carex californica</i>	RPR 2	bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, marshes and swamps. meadows, drier areas of swamps, marsh margins. 90-250 m.								•										
bristly sedge <i>Carex comosa</i>	RPR 2	marshes and swamps. lake margins, wet places; site below sea level is on a delta island. -5-1005 m.		•		•	•	•	•	•		•		•		•	•	•		•
porcupine sedge <i>Carex hystericina</i>	RPR 2	marshes and swamps. wet places, such as stream edges. 610-915 m.								•		•								
Klamath sedge <i>Carex klamathensis</i>	RPR, 1B	meadows and seeps, chaparral, cismontane woodland. serpentine. 1000-1140 m.								•		•								
lagoon sedge <i>Carex lenticularis</i> var. <i>limnophila</i>	RPR 2	bogs and fens, marshes and swamps, north coast coniferous forest. lakeshores, beaches. 0-6 m.								•										
bristle-stalked sedge <i>Carex leptalea</i>	RPR 2	bogs and fens, meadows, marshes and swamps. mostly known from bogs and wet meadows. 0-790 m.																		
livid sedge <i>Carex livida</i>	RPR 1A	bogs and fens. historically known from a sphagnum bog in California. 120 m.							•	•		•								
Lyngbye's sedge <i>Carex lyngbyei</i>	RPR 2	marshes and swamps (brackish or freshwater). 0 m.							•	•		•								
San Luis Obispo sedge <i>Carex obispoensis</i>	RPR, 1B	closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland. usually in transition zone on sand, clay, or serpentine; in seeps. 5-790 m.												•						
deceiving sedge <i>Carex saliniformis</i>	RPR, 1B	coastal prairie, coastal scrub, meadows and seeps, marshes and swamps (coastal salt). mesic sites. 3-230 m.							•	•		•		•		•		•		
green yellow sedge <i>Carex viridula</i> ssp. <i>viridula</i>	RPR 2	bogs and fens, marshes and swamps (freshwater), north coast coniferous forest. mesic sites. 0-1600 m.								•										

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Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
Muir's tarplant <i>Carlquistia muirii</i>	RPR, 1B	chaparral, lower montane coniferous forest, upper montane coniferous forest. crevices of granite ledges and dry sandy soils. 1100-2500 m.												•						
Oregon coast paintbrush <i>Castilleja affinis</i> ssp. <i>litoralis</i>	RPR 2	coastal bluff scrub, coastal dunes, coastal scrub. sandy sites. 15-100 m.								•										
Tiburon paintbrush <i>Castilleja affinis</i> ssp. <i>neglecta</i>	FE, ST, RPR, 1B	valley and foothill grassland. rocky serpentine sites. 75-400 m.		•		•			•	•	•	•			•			•		•
Humboldt Bay owl's-clover <i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i>	RPR, 1B	coastal salt marsh. in coastal saltmarsh with spartina, distichlis, salicornia, jaumea. 0-3 m.							•	•		•								
pink johnny-nip <i>Castilleja ambigua</i> ssp. <i>insalutata</i>	RPR, 1B	coastal bluff scrub, coastal prairie. 0-100 m.											•	•						
succulent owl's-clover <i>Castilleja campestris</i> ssp. <i>succulenta</i>	FT, SE, RPR, 1B	vernal pools, valley and foothill grassland. moist places, often in acidic soils. 25-750 m.		•		•		•								•				
Mendocino Coast paintbrush <i>Castilleja mendocinensis</i>	RPR, 1B	coastal bluff scrub, coastal scrub, coastal prairie, closed-cone coniferous forest, coastal dunes. often on sea bluffs or cliffs in coastal bluff scrub or prairie. 0-160 m.							•	•		•								
pink creamsacs <i>Castilleja rubicundula</i> ssp. <i>rubicundula</i>	RPR, 1B	chaparral, meadows and seeps, valley and foothill grassland. openings in chaparral or grasslands. on serpentine. 20-900 m.		•		•				•	•	•			•			•		•
Pitkin Marsh paintbrush <i>Castilleja uliginosa</i>	SE, RPR 1A	freshwater marsh. last known remaining plant died in 1987; was known from overgrown freshwater marsh. 60 m.							•			•								
Lemmon's jewel-flower <i>Caulanthus lemmonii</i>	RPR, 1B	pinyon-juniper woodland, valley and foothill grassland. 80-1220 m.	•	•	•	•		•						•		•				
Rincon Ridge ceanothus <i>Ceanothus confusus</i>	RPR, 1B	closed-cone coniferous forest, chaparral, cismontane woodland. known from volcanic or serpentine soils, dry shrubby slopes. 75-1065 m.							•	•	•	•								•
Calistoga ceanothus <i>Ceanothus divergens</i>	RPR, 1B	chaparral, cismontane woodland. rocky, serpentine or volcanic sites. 165-950 m.							•	•	•	•								•
Coyote ceanothus <i>Ceanothus ferrisiae</i>	FE, RPR, 1B	chaparral, valley and foothill grassland, coastal scrub. serpentine sites in the Mt. Hamilton range. 120-455 m.		•		•									•			•		
Vine Hill ceanothus <i>Ceanothus foliosus</i> var. <i>vineatus</i>	RPR, 1B	chaparral. sandy, acidic soil in chaparral. 45-85 m.							•			•								
Mt. Vision ceanothus <i>Ceanothus gloriosus</i> var. <i>porrectus</i>	RPR, 1B	closed-cone coniferous forest, coastal prairie, coastal scrub, valley and foothill grassland. low shrub in a variety of habitats on Pt. Reyes; sandy soils. 25-305 m.							•			•								
Mason's ceanothus <i>Ceanothus masonii</i>	SR, RPR, 1B	chaparral. serpentine ridges or slopes in chaparral or transition zone. 230-500 m.							•			•								
holly-leaved ceanothus <i>Ceanothus purpureus</i>	RPR, 1B	chaparral. rocky, volcanic slopes. 120-640 m.							•	•	•	•							•	•
Sonoma ceanothus <i>Ceanothus sonomensis</i>	RPR, 1B	chaparral. sandy, serpentine or volcanic soils. 210-800 m.							•	•	•	•								•
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congdonii</i>	RPR, 1B	valley and foothill grassland. alkaline soils, sometimes described as heavy white clay. 1-230 m.	•	•	•	•	•	•				•	•	•	•	•	•	•	•	•

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pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	RPR, 1B	coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland. vernal mesic, often alkaline sites. 2-420 m.							•	•	•	•				•	•		•	•
Hoover's spurge <i>Chamaesyce hooveri</i>	FT, RPR, 1B	vernal pools, valley and foothill grassland. vernal pools on volcanic mudflow or clay substrate. 25-130 m.														•				
dwarf soaproot <i>Chlorogalum pomeridianum</i> var. <i>minus</i>	RPR, 1B	chaparral, valley and foothill grassland. serpentine. 240-970 m.							•	•		•								
Santa Lucia purple amole <i>Chlorogalum purpureum</i> var. <i>purpureum</i>	FT, RPR, 1B	cismontane woodland, valley and foothill grassland. often in grassy areas with blue oaks in foothill woodland. 300-330 m.												•						
Point Reyes bird's-beak <i>Chloropyron maritimum</i> ssp. <i>palustre</i>	RPR, 1B	coastal salt marsh. usually in coastal salt marsh with salicornia, distichlis, jaumea, spartina, etc. 0-15 m.	•	•	•	•		•	•			•			•	•	•	•		
hispid bird's-beak <i>Chloropyron molle</i> ssp. <i>hispidum</i>	RPR, 1B	meadows, playas, valley and foothill grassland. in damp alkaline soils, especially in alkaline meadows and alkali sinks with distichlis. 10-155 m.	•		•			•				•				•			•	
soft bird's-beak <i>Chloropyron molle</i> ssp. <i>molle</i>	FE, SR, RPR, 1B	coastal salt marsh. in coastal salt marsh with Distichlis, Salicornia, Frankenia, etc. 0-3 m.		•		•	•	•	•	•	•	•							•	•
palmate-bracted bird's-beak <i>Chloropyron palmatum</i>	FE, SE, RPR, 1B	chenopod scrub, valley and foothill grassland. usually on Pescadero silty clay which is alkaline, with Distichlis, Frankenia, etc. 5-155 m.	•	•	•	•		•				•				•				•
Hernandez spineflower <i>Chorizanthe biloba</i> var. <i>immemora</i>	RPR, 1B	chaparral, cismontane woodland. sandy and gravelly soils on the east slope of the Diablo Range. 695-750 m.												•		•				
Brewer's spineflower <i>Chorizanthe breweri</i>	RPR, 1B	chaparral, cismontane woodland, coastal scrub, closed-cone coniferous forest. rocky or gravelly serpentine sites; usually in barren areas. 45-800 m.												•						
San Francisco Bay spineflower <i>Chorizanthe cuspidata</i> var. <i>cuspidata</i>	RPR, 1B	coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub. closely related to c. pungens. sandy soil on terraces and slopes. 5-550 m.	•		•			•	•			•				•	•	•		
woolly-headed spineflower <i>Chorizanthe cuspidata</i> var. <i>villosa</i>	RPR, 1B	coastal scrub, coastal dunes, coastal prairie. sandy places near the beach. 3-60 m.							•			•								
Howell's spineflower <i>Chorizanthe howellii</i>	FE, ST, RPR, 1B	coastal dunes, coastal prairie, coastal scrub. sand dunes, sandy slopes, and sandy areas in coastal prairie. 0-35 m.								•										
Ben Lomond spineflower <i>Chorizanthe pungens</i> var. <i>hartwegiana</i>	FE, RPR, 1B	lower montane coniferous forest. zayante coarse sands in maritime ponderosa pine sandhills. 120-470 m.												•		•		•		
Monterey spineflower <i>Chorizanthe pungens</i> var. <i>pungens</i>	FT, RPR, 1B	coastal dunes, chaparral, cismontane woodland, coastal scrub. sandy soils in coastal dunes or more inland within chaparral or other habitats. 0-150 m.											•	•		•		•		
straight-awned spineflower <i>Chorizanthe rectispina</i>	RPR, 1B	chaparral, cismontane woodland, coastal scrub. often on granite in chaparral. 85-1035 m.												•						
Scotts Valley spineflower <i>Chorizanthe robusta</i> var. <i>hartwegii</i>	FE, RPR, 1B	meadows, valley and foothill grassland. in grasslands with mudstone and sandstone outcrops. 230-245 m.														•		•		

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robust spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i>	FE, RPR, 1B	cismontane woodland, coastal dunes, coastal scrub. sandy terraces and bluffs or in loose sand. 3-120 m.	•	•	•	•		•	•			•	•	•	•	•	•	•		
Sonoma spineflower <i>Chorizanthe valida</i>	FE, SE, RPR, 1B	coastal prairie. sandy soil. 10-50 m.							•			•								
Bolander's water-hemlock <i>Cicuta maculata</i> var. <i>bolanderi</i>	RPR 2	marshes, fresh or brackish water. 0-200 m.		•		•	•	•				•							•	•
Franciscan thistle <i>Cirsium andrewsii</i>	RPR, 1B	coastal bluff scrub, broadleaved upland forest, coastal scrub. sometimes serpentine seeps. 0-135 m.		•		•	•		•			•				•	•	•		
slough thistle <i>Cirsium crassicaule</i>	RPR, 1B	chenopod scrub, marshes and swamps, riparian scrub. sloughs, riverbanks, and marshy areas. 3-100 m.		•		•		•												
Mt. Hamilton fountain thistle <i>Cirsium fontinale</i> var. <i>campylon</i>	RPR, 1B	cismontane woodland, chaparral, valley and foothill grassland. in seasonal and perennial drainages on serpentine. 95-890 m.	•	•	•	•		•							•	•		•		
fountain thistle <i>Cirsium fontinale</i> var. <i>fontinale</i>	FE, SE, RPR, 1B	valley and foothill grassland, chaparral. serpentine seeps and grassland. 90-180 m.														•	•			
Suisun thistle <i>Cirsium hydrophilum</i> var. <i>hydrophilum</i>	FE, RPR, 1B	salt marsh. grows with scirpus, distichlis near small watercourses within saltmarsh. 0-1 m.										•							•	
Mt. Tamalpais thistle <i>Cirsium hydrophilum</i> var. <i>vaseyi</i>	RPR, 1B	broadleaved upland forest, chaparral, meadows and seeps. serpentine seeps and streams in chaparral and woodland. 240-620 m.							•			•								
compact cobwebby thistle <i>Cirsium occidentale</i> var. <i>compactum</i>	RPR, 1B	chaparral, coastal dunes, coastal prairie, coastal scrub. on dunes and on clay in chaparral; also in grassland. 5-155 m.												•				•		
lost thistle <i>Cirsium praeteriens</i>	RPR 1A	little information exists on this plant; it was collected from the Palo Alto area at the turn of the 20th century. although not seen since 1901, this <i>Cirsium</i> is thought to be quite distinct from other <i>Cirsiums</i> according to D. Keil. 0-100 m.		•		•									•	•	•	•		
Whitney's farewell-to-spring <i>Clarkia amoena</i> ssp. <i>whitneyi</i>	RPR, 1B	coastal bluff scrub, coastal scrub. 10-100 m.								•										
Raiche's red ribbons <i>Clarkia concinna</i> ssp. <i>raichei</i>	RPR, 1B	coastal bluff scrub. highly exposed rocky bluffs with a near-vertical slope. 0-100 m.							•			•								
Presidio clarkia <i>Clarkia franciscana</i>	FE, SE, RPR, 1B	coastal scrub, valley and foothill grassland. serpentine outcrops in grassland or scrub. 20-335 m.	•		•			•								•		•		
Vine Hill clarkia <i>Clarkia imbricata</i>	FE, SE, RPR, 1B	chaparral, valley and foothill grassland. acidic, sandy soil. 50-75 m.							•			•								
Jolon clarkia <i>Clarkia jolonensis</i>	RPR, 1B	cismontane woodland. 500 m.											•	•						
beaked clarkia <i>Clarkia rostrata</i>	RPR, 1B	cismontane woodland, valley and foothill grassland. north-facing slopes; sometimes on sandstone. 60-460 m.														•				
San Antonio collinsia <i>Collinsia antonina</i>	RPR, 1B	chaparral, cismontane woodland. shale substrates. 280-365 m.												•						
round-headed Chinese-houses <i>Collinsia corymbosa</i>	RPR, 1B	coastal dunes. 0-20 m.																•		

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**Table A-1 CNDDB Occurrences for Special-status Plant Species by District and Adjacent Program Areas**

Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
San Francisco collinsia <i>Collinsia multicolor</i>	RPR, 1B	closed-cone coniferous forest, coastal scrub. on decomposed shale (mudstone) mixed with humus. 30-250 m.		•		•			•			•	•	•	•	•	•	•		
Oregon goldthread <i>Coptis laciniata</i>	RPR 2	north coast coniferous forest, meadows and seeps. mesic sites such as moist streambanks. 0-1000 m.								•										
Mt. Diablo bird's-beak <i>Cordylanthus nidularius</i>	SR, RPR, 1B	chaparral. grassy or rocky areas within serpentine chaparral. 600-800 m.		•		•	•													
seaside bird's-beak <i>Cordylanthus rigidus</i> ssp. <i>littoralis</i>	SE, RPR, 1B	closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, coastal dunes. sandy, often disturbed sites, usually within chaparral or coastal scrub. 0-215 m.											•	•						
Pennell's bird's-beak <i>Cordylanthus tenuis</i> ssp. <i>capillaris</i>	FE, SR, RPR, 1B	closed-cone coniferous forest, chaparral. in open or disturbed areas on serpentine within forest or chaparral. 45-230 m.							•			•								
serpentine cryptantha <i>Cryptantha dissita</i>	RPR, 1B	chaparral. serpentine outcrops. 330-730 m.							•	•	•	•								•
deep-scarred cryptantha <i>Cryptantha excavata</i>	RPR, 1B	cismontane woodland. sandy, gravelly, dry streambanks. 100-500 m.								•										
Hoover's cryptantha <i>Cryptantha hooveri</i>	RPR 1A	valley and foothill grassland. in coarse sand. ?-150 m.		•		•	•													•
Mariposa cryptantha <i>Cryptantha mariposae</i>	RPR, 1B	chaparral. on serpentine outcrops. 200-650 m.																		•
Jepson's dodder <i>Cuscuta jepsonii</i>	RPR, 1B	north coast coniferous forest. streamsides. 1200-2300 m.								•		•								
Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	RPR 2	marshes and swamps (freshwater). freshwater marsh. 15-280 m.						•	•			•								•
Mendocino dodder <i>Cuscuta pacifica</i> var. <i>papillata</i>	RPR, 1B	coastal dunes. interdune depressions. annual parasitic vine observed on Gnaphalium, Silene and Lupinus. 0-50 m.							•	•		•								
tear drop moss <i>Dacryophyllum falcifolium</i>	RPR, 1B	coast redwood forest, north coast coniferous forest. limestone substrates and rock outcrops. 50-275 m.												•		•			•	
Livermore tarplant <i>Deinandra bacigalupii</i>	RPR, 1B	meadows and seeps. alkaline meadows. 150-185 m.	•		•			•												•
Hall's tarplant <i>Deinandra halliana</i>	RPR, 1B	cismontane woodland, chenopod scrub, valley and foothill grassland. reported from a variety of substrates incl. clay, sand, and alkaline soils. 300-950 m.												•		•				
Baker's larkspur <i>Delphinium bakeri</i>	FE, SE, RPR, 1B	coastal scrub, grasslands. only site occurs on nw-facing slope, on decomposed shale. historically known from grassy areas along fence lines too. 90-205 m.							•			•								
Hospital Canyon larkspur <i>Delphinium californicum</i> ssp. <i>interius</i>	RPR, 1B	cismontane woodland, chaparral. in wet, boggy meadows, openings in chaparral and in canyons. 225-1060 m.	•	•	•	•	•	•						•	•	•			•	
Hutchinson's larkspur <i>Delphinium hutchinsoniae</i>	RPR, 1B	broadleaved upland forest, chaparral, coastal prairie, coastal scrub. on semi-shaded, slightly moist slopes, usually west-facing. 0-365 m.											•	•						
golden larkspur <i>Delphinium luteum</i>	FE, SR, RPR, 1B	chaparral, coastal prairie, coastal scrub. north-facing rocky slopes. 0-100 m.							•			•								

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Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
recurved larkspur <i>Delphinium recurvatum</i>	RPR, 1B	chenopod scrub, valley and foothill grassland, cismontane woodland. on alkaline soils; often in valley saltbush or valley chenopod scrub. 3-685 m.	•	•	•	•	•	•				•		•		•			•	
umbrella larkspur <i>Delphinium umbraculorum</i>	RPR, 1B	cismontane woodland. mesic sites. 400-1600 m.												•						
Norris' beard moss <i>Didymodon norrisii</i>	RPR 2	cismontane woodland, lower montane coniferous forest. moss from seasonally wet sheet drainages on exposed rock slabs or terraces that completely dry in summer. less frequent		•		•	•		•	•		•		•		•		•		
western leatherwood <i>Dirca occidentalis</i>	RPR, 1B	broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. on brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodland communities. 30-550 m.	•	•	•	•	•	•	•			•			•	•	•	•		
dwarf downingia <i>Downingia pusilla</i>	RPR 2	valley and foothill grassland (mesic sites), vernal pools. vernal lake and pool margins with a variety of associates. in several types of vernal pools. 1-485 m.		•		•		•	•	•	•	•				•			•	•
Santa Clara Valley dudleya <i>Dudleya abramsii</i> ssp. <i>setchellii</i>	FE, RPR, 1B	valley and foothill grassland, cismontane woodland. on rocky serpentine outcrops and on rocks within grassland or woodland. 80-335 m.		•		•									•			•		
Koch's cord moss <i>Entosthodon kochii</i>	RPR, 1B	cismontane woodland, valley and foothill grasslands. moss growing on soil on river banks. known from serpentine on the plumas nf. 500-1000 m.							•	•		•								
Snow Mountain willowherb <i>Epilobium nivium</i>	RPR, 1B	upper montane coniferous forest, chaparral. in crevices of rocky outcrops, and dry talus and shale slopes. 785-2500 m.								•		•								
Oregon fireweed <i>Epilobium oregonum</i>	RPR, 1B	bogs and fens, meadows, lower montane coniferous forest, upper montane coniferous forest. in and near springs and bogs; at least sometimes on serpentine. 500-2610 m.								•										
Brandegee's eriastrum <i>Eriastrum brandegeae</i>	RPR, 1B	chaparral, cismontane woodland. on barren volcanic soils; often in open areas. 425-840 m.								•		•								
yellow-flowered eriastrum <i>Eriastrum luteum</i>	RPR, 1B	broadleafed upland forest, cismontane woodland, chaparral. on bare sandy decomposed granite slopes. 360-1000 m.												•						
Tracy's eriastrum <i>Eriastrum tracyi</i>	SR, RPR 3	chaparral, cismontane woodland. gravelly shale or clay; often in open areas. 315-760 m.		•		•				•		•			•	•		•		
Eastwood's goldenbush <i>Ericameria fasciculata</i>	RPR, 1B	closed-cone coniferous forest, chaparral (maritime), coastal scrub, coastal dunes. in sandy openings. 30-275 m.											•	•						
Greene's narrow-leaved daisy <i>Erigeron greenei</i>	RPR, 1B	chaparral. serpentine and volcanic substrates, generally in shrubby vegetation. 75-1060 m.							•	•	•	•								•
serpentine daisy <i>Erigeron serpentinus</i>	RPR, 1B	chaparral. serpentine seeps. 60-670 m.							•			•								
supple daisy <i>Erigeron supplex</i>	RPR, 1B	coastal bluff scrub, coastal prairie. usually in grassy sites. 10-50 m.							•	•		•								
lone buckwheat <i>Eriogonum apricum</i> var. <i>apricum</i>	FE, SE, RPR, 1B	chaparral. in gravelly openings on lone formation soil. 80-150 m.						•												•
Butterworth's buckwheat <i>Eriogonum butterworthianum</i>	SR, RPR, 1B	chaparral, valley and foothill grassland. dry sandstone outcrops and crevices. 585-740 m.												•						

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The Cedars buckwheat <i>Eriogonum cedrorum</i>	RPR, 1B	closed-cone coniferous forest. serpentine. barren rock and talus steep slopes. 365-550 m.							•			•								
Eastwood's buckwheat <i>Eriogonum eastwoodianum</i>	RPR, 1B	cismontane woodland. shale, including diatomaceous shale. 500-1000 m.												•						
Kellogg's buckwheat <i>Eriogonum kelloggii</i>	FC, SE, RPR, 1B	lower montane coniferous forest, chaparral. rocky, serpentine sites. 925-1220 m.								•										
Tiburon buckwheat <i>Eriogonum luteolum</i> var. <i>caninum</i>	RPR, 1B	chaparral, valley and foothill grassland, cismontane woodland, coastal prairie. serpentine soils; sandy to gravelly sites. 0-700 m.	•		•			•	•			•				•				
Snow Mountain buckwheat <i>Eriogonum nervulosum</i>	RPR, 1B	chaparral. dry serpentine outcrops, balds, and barrens. 300-2100 m.							•	•	•	•								•
Pinnacles buckwheat <i>Eriogonum nortonii</i>	RPR, 1B	chaparral, valley and foothill grassland. sandy soils; often on recent burns; western Santa lucias. 390-975 m.											•	•		•				
Ben Lomond buckwheat <i>Eriogonum nudum</i> var. <i>decurrens</i>	RPR, 1B	chaparral, cismontane woodland, lower montane coniferous forest. ponderosa pine sandhills in Santa Cruz County. 50-800 m.		•		•								•	•	•	•	•		
Antioch Dunes buckwheat <i>Eriogonum nudum</i> var. <i>psychicola</i>	RPR, 1B	interior dunes. grows on the antioch dunes (interior dune system) with lupinus albifrons, gutierrezia californica, and introduced grasse		•		•	•													
Temblor buckwheat <i>Eriogonum temblorense</i>	RPR, 1B	valley and foothill grassland. barren clay or sandstone substrates. 300-1000 m.												•						
Mt. Diablo buckwheat <i>Eriogonum truncatum</i>	RPR, 1B	chaparral, coastal scrub, valley and foothill grassland. dry, exposed clay or sandy substrates. 3-350 m.		•		•	•					•								•
San Mateo woolly sunflower <i>Eriophyllum latilobum</i>	FE, SE, RPR, 1B	cismontane woodland. often on roadcuts; found on and off of serpentine. 45-150 m.														•	•			
Hoover's button-celery <i>Eryngium aristulatum</i> var. <i>hooveri</i>	RPR, 1B	vernal pools. alkaline depressions, vernal pools, roadside ditches and other wet places near the coast. 5-45 m.	•	•	•	•		•						•	•	•	•	•		
Loch Lomond button-celery <i>Eryngium constancei</i>	FE, SE, RPR, 1B	vernal pools. volcanic ash flow vernal pools. 625-855 m.							•	•		•								
Tuolumne button-celery <i>Eryngium pinnatisectum</i>	RPR, 1B	vernal pools, cismontane woodland, lower montane coniferous forest. volcanic soils; vernal pools and mesic sites within other natural communities. 250-450 m.						•												•
Delta button-celery <i>Eryngium racemosum</i>	SE, RPR, 1B	riparian scrub. seasonally inundated floodplain on clay. 3-75 m.		•		•	•	•									•			
spiny-sepaled button-celery <i>Eryngium spinosepalum</i>	RPR, 1B	vernal pools, valley and foothill grassland. some sites on clay soil of granitic origin; vernal pools, within grassland. 100-420 m.														•				
sand-loving wallflower <i>Erysimum ammophilum</i>	RPR, 1B	chaparral (maritime), coastal dunes, coastal scrub. sandy openings. 0-130 m.											•	•		•	•	•		
Contra Costa wallflower <i>Erysimum capitatum</i> var. <i>angustatum</i>	FE, SE, RPR, 1B	inland dunes. stabilized dunes of sand and clay near Antioch along the San Joaquin river. 3-20 m.		•		•	•													
Menzies' wallflower <i>Erysimum menziesii</i> ssp. <i>menziesii</i>	FE, SE, RPR, 1B	coastal dunes. localized on dunes and coastal strand. 0-35 m.								•				•						
Yadon's wallflower <i>Erysimum menziesii</i> ssp. <i>yadonii</i>	FE, SE, RPR, 1B	coastal dunes. foredunes. 0-15 m.												•						

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Santa Cruz wallflower <i>Erysimum teretifolium</i>	FE, SE, RPR, 1B	lower montane coniferous forest, chaparral. inland marine sands (Zayante coarse sand). 120-610 m.											•	•		•		•		
giant fawn lily <i>Erythronium oregonum</i>	RPR 2	cismontane woodland, meadows and seeps. openings. sometimes on serpentine; rocky sites. 100-500 m.								•										
coast fawn lily <i>Erythronium revolutum</i>	RPR 2	bogs and fens, broadleaved upland forest, north coast coniferous forest. 0-1065 m.								•										
diamond-petaled California poppy <i>Eschscholzia rhombipetala</i>	RPR, 1B	valley and foothill grassland. alkaline, clay slopes and flats. 0-975 m.	•	•	•	•	•	•								•				
minute pocket moss <i>Fissidens pauperculus</i>	RPR, 1B	north coast coniferous forest. moss growing on damp soil along the coast. in dry streambeds and on stream banks. 10-100 m.							•	•		•		•		•		•		
Hillsborough chocolate lily <i>Fritillaria biflora</i> var. <i>ineziana</i>	RPR, 1B	cismontane woodland, valley and foothill grassland. probably on serpentine; most recent site is in serpentine grassland. 90-160 m.														•	•			
talus fritillary <i>Fritillaria falcata</i>	RPR, 1B	chaparral, cismontane woodland, lower montane coniferous forest. on shale, granite, or serpentine talus. 300-1525 m.	•	•	•	•		•						•	•	•		•		
Marin checker lily <i>Fritillaria lanceolata</i> var. <i>tristulis</i>	RPR, 1B	coastal bluff scrub, coastal scrub, coastal prairie. occurrences reported from canyons and riparian areas as well as rock outcrops; often on serpentine. 30-300 m.							•			•								
fragrant fritillary <i>Fritillaria liliacea</i>	RPR, 1B	coastal scrub, valley and foothill grassland, coastal prairie. often on serpentine; various soils reported though usually clay, in grassland. 3-410 m.	•	•	•	•	•	•	•			•	•	•	•	•	•	•	•	•
adobe-lily <i>Fritillaria pluriflora</i>	RPR, 1B	chaparral, cismontane woodland, foothill grassland. usually on clay soils; sometimes serpentine. 55-820 m.								•	•	•							•	•
Roderick's fritillary <i>Fritillaria roderickii</i>	SE, RPR, 1B	coastal bluff scrub, coastal prairie, valley and foothill grassland. grassy slopes, mesas. 15-610 m.							•	•		•								
San Benito fritillary <i>Fritillaria viridea</i>	RPR, 1B	chaparral. serpentine slopes. 200-1525 m.												•		•				
Cone Peak bedstraw <i>Galium californicum</i> ssp. <i>luciense</i>	RPR, 1B	broadleaved upland forest, lower montane coniferous forest, cismontane woodland. in forest duff or gravelly talus of pine and oak forest, in partial shade. 875-1525 m.												•						
Santa Lucia bedstraw <i>Galium clementis</i>	RPR, 1B	lower montane coniferous forest, upper montane coniferous forest. forming soft mats in shady rocky patches; on granite or serpentine; mostly on exposed peaks. 1130-1780 m.												•						
Hardham's bedstraw <i>Galium hardhamiae</i>	RPR, 1B	closed-cone coniferous forest. on serpentine with cupressus sargentii. 390-975 m.												•						
Mendocino gentian <i>Gentiana setigera</i>	RPR, 1B	lower montane coniferous forest, meadows. meadows, seeps and bogs. usually or always on serpentine. 490-1065 m.								•										
blue coast gilia <i>Gilia capitata</i> ssp. <i>chamissonis</i>	RPR, 1B	coastal dunes, coastal scrub. 2-200 m.							•			•							•	
Pacific gilia <i>Gilia capitata</i> ssp. <i>pacifica</i>	RPR, 1B	coastal bluff scrub, coastal prairie, valley and foothill grassland. 5-300 m.								•										
woolly-headed gilia <i>Gilia capitata</i> ssp. <i>tomentosa</i>	RPR, 1B	coastal bluff scrub. rocky outcrops on the coast. 15-155 m.							•			•								
dark-eyed gilia <i>Gilia millefoliata</i>	RPR, 1B	coastal dunes. 2-20 m.							•	•		•						•		

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Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
sand gilia <i>Gilia tenuiflora</i> ssp. <i>arenaria</i>	FE, ST, RPR, 1B	coastal dunes, coastal scrub, chaparral (maritime), cismontane woodland. bare, wind-sheltered areas often near dune summit or in the hind dunes; 2 records from pleistocene inland dunes. 0-245 m.												•	•		•	•		
delicate bluecup <i>Githopsis tenella</i>	RPR, 1B	chaparral, cismontane woodland. mesic sites. 1100-1900 m.												•						
American manna grass <i>Glyceria grandis</i>	RPR 2	meadows. wet meadows, ditches, streams, and ponds in valleys and lower elevations in the mountains. 15-1980 m.								•										
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	SE, RPR, 1B	marshes and swamps (freshwater), vernal pools. clay soils; usually in vernal pools, sometimes on lake margins. 5-2400 m.		•		•		•		•		•					•		•	•
San Francisco gumplant <i>Grindelia hirsutula</i> var. <i>maritima</i>	RPR 3	coastal scrub, coastal bluff scrub, valley and foothill grassland. sandy or serpentine slopes, sea bluffs. 15-400 m.															•	•	•	
Guggolz's harmonia <i>Harmonia guggolziorum</i>	RPR, 1B	chaparral. open areas on serpentine. 160-195 m.								•										
Hall's harmonia <i>Harmonia hallii</i>	RPR, 1B	chaparral. serpentine hills and ridges. open, rocky areas within chaparral. 500-900 m.								•	•	•								•
Diablo helianthella <i>Helianthella castanea</i>	RPR, 1B	broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. usually in chaparral/oak woodland interface in rocky, azonal soils. often in partial shade. 25-1150 m.	•	•	•	•	•	•	•			•					•	•	•	
white seaside tarplant <i>Hemizonia congesta</i> ssp. <i>congesta</i>	RPR, 1B	coastal scrub, valley and foothill grassland. grassy valleys and hills, often in fallow fields. 25-200 m.							•	•		•					•	•	•	
short-leaved evax <i>Hesperovax sparsiflora</i> var. <i>brevifolia</i>	RPR, 1B	coastal bluff scrub, coastal dunes. sandy bluffs and flats. 0-200 m.							•	•		•		•			•	•	•	
Santa Cruz cypress <i>Hesperocyparis abramsiana</i> var. <i>abramsiana</i>	FE, SE, RPR, 1B	closed-cone coniferous forest, lower montane coniferous forest. restricted to the Santa Cruz mountains, on sandstone and granitic-derived soils; often with p. attenuata, redwoods. 300-800 m.												•			•		•	
Butano Ridge cypress <i>Hesperocyparis abramsiana</i> var. <i>butanoensis</i>	FE, SE, RPR, 1B	closed-cone coniferous forest, lower montane coniferous forest, chaparral. sandstone. 400-490 m.															•	•		
Gowen cypress <i>Hesperocyparis goveniana</i>	FT, RPR, 1B	closed-cone coniferous forest. coastal terraces; usually in sandy soils; sometimes with Monterey pine, bishop pine. 100-125 m.												•						
Monterey cypress <i>Hesperocyparis macrocarpa</i>	RPR, 1B	closed-cone coniferous forest. granitic soils. 10-30 m.												•						
pygmy cypress <i>Hesperocyparis pygmaea</i>	RPR, 1B	closed-cone coniferous forest. on podzol-like Blacklock soil in pygmy cypress forest community. 35-305 m.							•	•		•								
glandular western flax <i>Hesperolinon adenophyllum</i>	RPR, 1B	chaparral, cismontane woodland, valley and foothill grassland. serpentine soils; generally found in serpentine chaparral. 425-1315 m.								•		•								
two-carpellate western flax <i>Hesperolinon bicarpellatum</i>	RPR, 1B	serpentine chaparral. serpentine barrens at edge of chaparral. 150-820 m.							•	•	•	•								•

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**Table A-1 CNDDB Occurrences for Special-status Plant Species by District and Adjacent Program Areas**

Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
Brewer's western flax <i>Hesperolinon breweri</i>	RPR, 1B	chaparral, cismontane woodland, valley and foothill grassland. often in rocky serpentine soil in serpentine chaparral and serpentine grassland. 30-885 m.		•		•	•			•	•	•							•	•
Marin western flax <i>Hesperolinon congestum</i>	FT, ST, RPR, 1B	chaparral, valley and foothill grassland. in serpentine barrens and in serpentine grassland and chaparral. 30-365 m.							•			•				•	•	•		
Lake County western flax <i>Hesperolinon didymocarpum</i>	SE, RPR, 1B	chaparral, cismontane woodland, valley and foothill grassland. serpentine soil in open grassland and near chaparral. 330-365 m.								•		•								
drymaria-like western flax <i>Hesperolinon drymarioides</i>	RPR, 1B	closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland. serpentine soils, mostly within chaparral. 390-1000 m.								•	•	•								•
Tehama County western flax <i>Hesperolinon tehamense</i>	RPR, 1B	chaparral, cismontane woodland. serpentine barrens in chaparral. 225-1155 m.	•		•			•		•	•	•				•				•
woolly rose-mallow <i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	RPR, 1B	marshes and swamps (freshwater). moist, freshwater-soaked river banks and low peat islands in sloughs; in Calif., known from the delta watershed. 0-150 m.		•		•	•	•		•		•							•	•
Loma Prieta hoita <i>Hoita strobilina</i>	RPR, 1B	chaparral, cismontane woodland, riparian woodland. serpentine; mesic sites.	•	•	•	•	•	•						•	•	•		•		
Santa Cruz tarplant <i>Holcarpha macradenia</i>	FT, SE, RPR, 1B	coastal prairie, valley and foothill grassland. light, sandy soil or sandy clay; often with nonnatives. 10-260 m.	•	•	•	•	•	•	•			•	•	•		•		•		
Bolander's horkelia <i>Horkelia bolanderi</i>	RPR, 1B	lower montane coniferous forest, chaparral, meadows, valley and foothill grassland. grassy margins of vernal pools and meadows. 450-850 m.								•		•								
Kellogg's horkelia <i>Horkelia cuneata</i> var. <i>sericea</i>	RPR, 1B	closed-cone coniferous forest, coastal scrub, chaparral. old dunes, coastal sandhills; openings. 10-200 m.	•		•			•	•			•	•	•		•	•	•		
Point Reyes horkelia <i>Horkelia marinensis</i>	RPR, 1B	coastal dunes, coastal prairie, coastal scrub. sandy flats and dunes near coast; in grassland or scrub plant communities. 5-30 m.							•	•		•		•		•	•	•		
thin-lobed horkelia <i>Horkelia tenuiloba</i>	RPR, 1B	coastal scrub, chaparral. sandy soils; mesic openings. 45-500 m.							•	•		•								
water howellia <i>Howellia aquatilis</i>	FT, RPR 2	freshwater marshes and swamps, lower montane coniferous forest. in clear ponds with other aquatics and surrounded by ponderosa pine forest and sometimes riparian associates. 3-1375 m								•										
California satintail <i>Imperata brevifolia</i>	RPR 2	coastal scrub, chaparral, riparian scrub, mojavean scrub, meadows and seeps (alkali). mesic sites, alkali seeps, riparian areas. 0-500 m.								•		•								
Carquinez goldenbush <i>Isocoma arguta</i>	RPR, 1B	valley and foothill grassland. alkaline soils, flats, lower hills. on low benches near drainages and on tops and sides of mounds in swale habitat. 1-20 m.		•		•	•					•							•	
Northern California black walnut <i>Juglans hindsii</i>	RPR, 1B	riparian forest, riparian woodland. few extant native stands remain; widely naturalized. deep alluvial soil associated with a creek or stream. 0-395 m.		•		•	•	•		•	•	•							•	•
Ahart's dwarf rush <i>Juncus leiospermus</i> var. <i>ahartii</i>	RPR, 1B	vernal pools. restricted to the edges of vernal pools. 30-100 m.						•												•

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Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
Santa Lucia dwarf rush <i>Juncus luciensis</i>	RPR, 1B	vernal pools, meadows, lower montane coniferous forest, chaparral, great basin scrub. vernal pools, ephemeral drainages, wet meadow habitats and streamsides. 300-2040 m.								•	•			•		•				•
knotted rush <i>Juncus nodosus</i>	RPR 2	meadows, marshes and swamps. mesic sites and lake margins. 1130-1700 m.														•				
hair-leaved rush <i>Juncus supiniformis</i>	RPR 2	marshes and swamps, bogs and fens. 20-100 m.								•										
small groundcone <i>Kopsiopsis hookeri</i>	RPR 2	north coast coniferous forest. open woods, shrubby places, generally on gaultheria shallon. 90-885 m.							•	•		•								
forked hare-leaf <i>Lagophylla dichotoma</i>	RPR, 1B	valley and foothill grassland, cismontane woodland. in openings. gravelly roadsides to loam soil to dry clay; not known from serpentine. 50-760 m.												•		•				
Burke's goldfields <i>Lasthenia burkei</i>	FE, SE, RPR, 1B	vernal pools, meadows and seeps. most often in vernal pools and swales. 15-580 m.							•	•	•	•								•
Baker's goldfields <i>Lasthenia californica</i> ssp. <i>bakeri</i>	RPR, 1B	closed-cone coniferous forest, coastal scrub. openings. 60-520 m.							•	•		•								
perennial goldfields <i>Lasthenia californica</i> ssp. <i>macrantha</i>	RPR, 1B	coastal bluff scrub, coastal dunes, coastal scrub. 5-520 m.							•	•		•				•	•			
Contra Costa goldfields <i>Lasthenia conjugens</i>	FE, RPR, 1B	valley and foothill grassland, vernal pools, cismontane woodland. extirpated from most of its range; extreme. endangered. vernal pools, swales, low depressions, in open grassy areas. 1-445 m.	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•
Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	RPR, 1B	coastal salt marshes, playas, valley and foothill grassland, vernal pools. usually found on alkaline soils in playas, sinks, and grasslands. 1-1400 m.										•				•				•
Delta tule pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	RPR, 1B	freshwater and brackish marshes. often found with typha, aster lentus, rosa calif., juncus spp., scirpus, etc. usually on marsh and slough edges.		•		•	•	•	•	•	•	•							•	•
marsh pea <i>Lathyrus palustris</i>	RPR 2	bogs and fens, lower montane coniferous forest, marshes and swamps, north coast coniferous forest, coastal prairie, coastal scrub. moist coastal areas. 1-100 m.								•										
beach layia <i>Layia carnosa</i>	FE, SE, RPR, 1B	coastal dunes. hugely reduced in range along California's north coast dunes. on sparsely vegetated, semi-stabilized dunes, usually behind foredunes. 0-75 m.							•			•		•			•	•		
rayless layia <i>Layia discoidea</i>	RPR, 1B	chaparral, cismontane woodland, lower montane coniferous forest. on serpentine alluvium and serpentine talus. 785-1585 m.												•		•				
pale-yellow layia <i>Layia heterotricha</i>	RPR, 1B	cismontane woodland, pinyon-juniper woodland, valley and foothill grassland. alkaline or clay soils; open areas. 270-1365 (2675)m.												•		•				
Munz's tidy-tips <i>Layia munzii</i>	RPR, 1B	chenopod scrub, valley and foothill grassland. hillsides, in white-grey alkaline clay soils, with grasses and chenopod scrub associates. 45-760 m.																		
Colusa layia <i>Layia septentrionalis</i>	RPR, 1B	chaparral, cismontane woodland, valley and foothill grassland. scattered colonies in fields and grassy slopes in sandy or serpentine soil. 145-1095 m.							•	•	•	•								•

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legenere <i>Legenere limosa</i>	RPR, 1B	vernal pools. many historical occurrences are extirpated. in beds of vernal pools. 1-880 m.	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•
Panoche pepper-grass <i>Lepidium jaredii</i> ssp. <i>album</i>	RPR, 1B	valley and foothill grassland. white or grey clay lenses on steep slopes; incidental in alluvial fans and washes. clay and gypsum-rich soils. 65-910 m.												•		•				
Heckard's pepper-grass <i>Lepidium latipes</i> var. <i>heckardii</i>	RPR, 1B	valley and foothill grassland, vernal pools. grassland, and sometimes vernal pool edges. alkaline soils. 3-30 m.						•				•				•			•	•
coast yellow leptosiphon <i>Leptosiphon croceus</i>	RPR, 1B	coastal bluff scrub, coastal prairie. 10-150 m.							•			•				•	•			
Jepson's leptosiphon <i>Leptosiphon jepsonii</i>	RPR, 1B	chaparral, cismontane woodland. open to partially shaded grassy slopes. on volcanics or the periphery of serpentine substrates. 100-500 m.							•	•	•	•								•
rose leptosiphon <i>Leptosiphon rosaceus</i>	RPR, 1B	coastal bluff scrub. 0-100 m.							•			•				•	•	•		
Mt. Hamilton coreopsis <i>Leptosyne hamiltonii</i>	RPR, 1B	cismontane woodland. on steep shale talus with open southwestern exposure. 530-1300 m.	•	•	•	•		•							•	•		•		
Crystal Springs lessingia <i>Lessingia arachnoidea</i>	RPR, 1B	coastal sage scrub, valley and foothill grassland, cismontane woodland. grassy slopes on serpentine; sometimes on roadsides. 60-200 m.							•			•				•	•			
San Francisco lessingia <i>Lessingia germanorum</i>	FE, SE, RPR, 1B	coastal scrub. from remnant dunes. open sandy soils relatively free of competing plants. 20-125 m.														•	•	•		
smooth lessingia <i>Lessingia micradenia</i> var. <i>glabrata</i>	RPR, 1B	chaparral. serpentine; often on roadsides. 120-485 m.																		
Tamalpais lessingia <i>Lessingia micradenia</i> var. <i>micradenia</i>	RPR, 1B	chaparral, valley and foothill grassland. usually on serpentine, in serpentine grassland or serpentine chaparral. often on roadsides. 100-305 m.							•			•								
Stebbins' lewisia <i>Lewisia stebbinsii</i>	RPR, 1B	upper montane coniferous forest, lower montane coniferous forest. relatively barren exposed ridges and slopes in nutrient poor soils (mostly serpentine). 1680-2050 m.								•										
Mason's lilaeopsis <i>Lilaeopsis masonii</i>	SR, RPR, 1B	freshwater and brackish marshes, riparian scrub. tidal zones, in muddy or silty soil formed through river deposition or river bank erosion. 0-10 m.	•	•	•	•	•	•	•	•	•	•				•			•	•
coast lily <i>Lilium maritimum</i>	RPR, 1B	closed-cone coniferous forest, coastal prairie, coastal scrub, broadleaved upland forest, north coast coniferous forest. historically in sandy soil, often on raised hummocks or bogs; today mostly in roadside ditches. 10-335 m.							•	•		•								
Pitkin Marsh lily <i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	FE, SE, RPR, 1B	cismontane woodland, meadows and seeps, freshwater marsh. saturated, sandy soils with grasses and shrubs. 35-65 m.							•			•								
Baker's meadowfoam <i>Limnanthes bakeri</i>	RPR, 1B	freshwater marsh, valley and foothill grassland, meadows and seeps, vernal pools. seasonally moist or saturated sites within grassland; also in swales, roadside ditches and margins of marshy areas. 175-910 m								•										

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Point Reyes meadowfoam <i>Limnanthes douglasii</i> ssp. <i>sulphurea</i>	SE, RPR, 1B	fresh. marsh, vernal pools, coastal prairie, meadows and seeps, cismontane woodland. vernal wet depressions in open rolling, coastal prairies and meadows; typically in dark clay soil. 10-120 m.							•			•				•	•			
Sebastopol meadowfoam <i>Limnanthes vinculans</i>	FE, SE, RPR, 1B	mesic meadows, vernal pools, valley and foothill grassland. swales, wet meadows and marshy areas in valley oak savanna; on poorly drained soils of clays and sandy loam. 15-115 m.							•	•	•	•								•
Delta mudwort <i>Limosella australis</i>	RPR 2	riparian scrub, freshwater marsh, brackish marsh. probably the rarest of the suite of delta rare plants. usually on mud banks of the delta in marshy or scrubby riparian associations; often with <i>lilaeopsis masonii</i> . 0-3 m.		•		•	•	•											•	•
Mt. Hamilton lomatium <i>Lomatium observatorium</i>	RPR, 1B	cismontane woodland. open to partially shaded openings in pinus coulteri-oak woodland. sedimentary franciscan rocks and volcanics. 1219-1330 m.														•				
Anthony Peak lupine <i>Lupinus antoninus</i>	RPR, 1B	upper montane coniferous forest, lower montane coniferous forest. open areas with surrounding forest; rocky sites. 1210-2285 m.								•		•								
Milo Baker's lupine <i>Lupinus milo-bakeri</i>	ST, RPR, 1B	cismontane woodland, valley and foothill grassland. in roadside ditches, dry gravelly areas along roads, and along small streams. 360-440 m.								•										
Cobb Mountain lupine <i>Lupinus sericatus</i>	RPR, 1B	chaparral, cismontane woodland, lower montane coniferous forest. in stands of knobcone pine-oak woodland, on open wooded slopes in gravelly soils; sometimes on serpentine. 180-1500 m.							•	•	•	•								
Tidestrom's lupine <i>Lupinus tidestromii</i>	FE, SE, RPR, 1B	coastal dunes. includes <i>Lupinus tidestromii</i> var. <i>tidestromii</i> , state-listed endangered. partially stabilized dunes, immediately near the ocean. 0-35 m.							•			•		•						
showy golden madia <i>Madia radiata</i>	RPR, 1B	valley and foothill grassland, cismontane woodland, chenopod scrub. mostly on adobe clay in grassland or among shrubs. 25-1125 m.		•		•	•	•						•	•	•		•		
Abbott's bush-mallow <i>Malacothamnus abbottii</i>	RPR, 1B	riparian scrub. among willows near rivers and along roadsides. 135-525 m.												•						
Indian Valley bush-mallow <i>Malacothamnus aboriginum</i>	RPR, 1B	cismontane woodland, chaparral. granitic outcrops and sandy bare soil, often in disturbed soils. 150-1700 m.		•		•								•	•	•	•	•		
arcuate bush-mallow <i>Malacothamnus arcuatus</i>	RPR, 1B	chaparral. gravelly alluvium. 80-355 m.		•		•								•	•	•	•	•		
Davidson's bush-mallow <i>Malacothamnus davidsonii</i>	RPR, 1B	coastal scrub, riparian woodland, chaparral. sandy washes. 180-855 m.												•		•	•			
Hall's bush-mallow <i>Malacothamnus hallii</i>	RPR, 1B	chaparral. some populations on serpentine. 10-550 m.		•		•	•			•		•			•	•	•	•		
Mendocino bush-mallow <i>Malacothamnus mendocinensis</i>	RPR, 1B	cismontane woodland. open, roadside banks. label location info inconsistent with elevation info. 420-575 m?								•										
Carmel Valley bush-mallow <i>Malacothamnus palmeri</i> var. <i>involutus</i>	RPR, 1B	cismontane woodland, chaparral. talus hilltops and slopes, sometimes on serpentine. burn dependent. 30-1100 m.												•	•		•			

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**Table A-1 CNDDB Occurrences for Special-status Plant Species by District and Adjacent Program Areas**

Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
Arroyo Seco bush-mallow <i>Malacothamnus palmeri</i> var. <i>lucianus</i>	RPR, 1B	chaparral, meadows and seeps. gravel banks and sandstone rocks on west-facing slopes in full sun. 10-915 m.												•						
Santa Lucia bush-mallow <i>Malacothamnus palmeri</i> var. <i>palmeri</i>	RPR, 1B	chaparral. dry rocky slopes, mostly near summits, but occasionally extending down canyons to the sea. 60-365 m.												•						
Carmel Valley malacothrix <i>Malacothrix saxatilis</i> var. <i>arachnoidea</i>	RPR, 1B	chaparral. rock outcrops or steep rocky roadcuts. 25-1215 m.												•						
Oregon meconella <i>Meconella oregana</i>	RPR, 1B	coastal prairie, coastal scrub. open, moist places. 250-500 m.		•		•	•								•			•		
northern microseris <i>Microseris borealis</i>	RPR 2	bogs and fens, meadows and seeps, lower montane coniferous forest. 940-2000 m.								•										
marsh microseris <i>Microseris paludosa</i>	RPR, 1B	closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 5-300 m.							•	•		•	•	•		•	•	•		
elongate copper moss <i>Mielichhoferia elongata</i>	RPR 2	cismontane woodland. commonly called "copper mosses". moss growing on very acidic, metamorphic rock or substrate; usually in higher portions in fens. often on substrates natu							•	•		•		•		•		•		
Merced monardella <i>Monardella leucocephala</i>	RPR 1A	valley and foothill grassland. known from riverbeds, moist sandy depressions; requires moist subalkaline sands assoc with low elev grassland. 35-100 m.														•				
Palmer's monardella <i>Monardella palmeri</i>	RPR, 1B	cismontane woodland, chaparral. on serpentine, often found associated with sargent cypress forests. 200-800 m.												•						
San Joaquin woollythreads <i>Monolopia congdonii</i>	FE, RPR, 1B	chenopod scrub and valley and foothill grassland. alkaline or loamy plains; sandy soils, often with grasses and within chenopod scrub. 60-800 m.										•		•		•				•
woodland woollythreads <i>Monolopia gracilens</i>	RPR, 1B	chaparral, valley and foothill grasslands (serpentine), cismontane woodland, broadleaved upland forests, north coast con grassy sites, in openings; sandy to rocky soils. often seen on serpentine after burns but may have only weak affinity to	•	•	•	•	•	•					•	•	•	•	•	•		
Lime Ridge navarretia <i>Navarretia gowenii</i>	RPR, 1B	chaparral on calcium carbonate-rich soil with high clay content. 180-305 m		•		•	•									•				
Baker's navarretia <i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	RPR, 1B	cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. vernal pools and swales; adobe or alkaline soils. 5-950 m.							•	•	•	•							•	•
few-flowered navarretia <i>Navarretia leucocephala</i> ssp. <i>pauciflora</i>	FE, ST, RPR, 1B	vernal pools. volcanic ash flow, and volc substrate vernal pools. 400-855 m.								•	•	•								•
many-flowered navarretia <i>Navarretia leucocephala</i> ssp. <i>plieantha</i>	FE, SE, RPR, 1B	vernal pools. volcanic ash flow vernal pools. 30-950 m.							•	•		•								
small pincushion navarretia <i>Navarretia myersii</i> ssp. <i>deminuta</i>	RPR, 1B	vernal pools. known from only one site in lake County in vernal pool habitat on clay-loam soil; also in roadside depressions. 355 m.								•		•								
pincushion navarretia <i>Navarretia myersii</i> ssp. <i>myersii</i>	RPR, 1B	vernal pools, valley and foothill grassland. clay soils within nonnative grassland. 20-330 m.						•								•				•

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Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
shining navarretia <i>Navarretia nigelliformis</i> ssp. <i>radians</i>	RPR, 1B	cismontane woodland, valley and foothill grassland, vernal pools. apparently in grassland, and not necessarily in vernal pools. 200-1000 m.	•	•	•	•	•	•						•		•				
prostrate vernal pool navarretia <i>Navarretia prostrata</i>	RPR, 1B	coastal scrub, valley and foothill grassland, vernal pools. alkaline soils in grassland, or in vernal pools. mesic, alkaline sites. 15-700 m.	•	•	•	•		•						•	•	•		•		
Marin County navarretia <i>Navarretia rosulata</i>	RPR, 1B	closed-cone coniferous forest, chaparral. dry, open rocky places; can occur on serpentine. 200-635 m.							•	•	•	•								•
Robbins' nemacladus <i>Nemacladus secundiflorus</i> var. <i>robbinsii</i>	RPR, 1B	chaparral, valley and foothill grassland. dry, sandy or gravelly slopes. 350-1700 m.												•		•				
Colusa grass <i>Neostapfia colusana</i>	FT, SE, RPR, 1B	vernal pools. usually in large, or deep vernal pool bottoms; adobe soils. 5-110 m.										•				•			•	•
Antioch Dunes evening-primrose <i>Oenothera deltoides</i> ssp. <i>howellii</i>	FE, SE, RPR, 1B	interior dunes. remnant river bluffs and sand dunes east of Antioch. 0-30 m.		•		•	•	•												•
Wolf's evening-primrose <i>Oenothera wolffii</i>	RPR, 1B	coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest. sandy substrates; usually mesic sites. 3-800 m.								•										
northern adder's-tongue <i>Ophioglossum pusillum</i>	RPR 2	marshes and swamps, meadows and seeps. marsh edges, low pastures, grassy roadside ditches. also described as in "open swamp." 1000-2000 m.								•										
San Joaquin Valley Orcutt grass <i>Orcuttia inaequalis</i>	FT, SE, RPR, 1B	vernal pools. 30-755 m.										•				•			•	
hairy Orcutt grass <i>Orcuttia pilosa</i>	FE, SE, RPR, 1B	vernal pools. 25-125 m.														•				
slender Orcutt grass <i>Orcuttia tenuis</i>	FT, SE, RPR, 1B	vernal pools. 30-1735 m.						•		•		•								•
Sacramento Orcutt grass <i>Orcuttia viscida</i>	FE, SE, RPR, 1B	vernal pools. 30-100 m.						•												•
Kellman's bristle moss <i>Orthotrichum kellmanii</i>	RPR, 1B	chaparral, cismontane oak woodland. sandstone outcrops with high calcium concentrations from eroded boulders out of non-calcareous sandstone bedrock. rock o												•		•	•	•		
seacoast ragwort <i>Packera bolanderi</i> var. <i>bolanderi</i>	RPR 2	coastal scrub, north coast coniferous forest. 30-650 m.								•										
Geysers panicum <i>Panicum acuminatum</i> var. <i>thermale</i>	SE, RPR, 1B	closed-cone coniferous forest, riparian forest, valley and foothill grassland. usually around moist, warm soil in the vicinity of hot springs. 305-825 m.							•			•								
Dudley's lousewort <i>Pedicularis dudleyi</i>	SR, RPR, 1B	chaparral, north coast coniferous forest, valley and foothill grassland. deep shady woods of older coast redwood forests; also in maritime chaparral. 100-490 m.												•		•	•	•		
Sonoma beardtongue <i>Penstemon newberryi</i> var. <i>sonomensis</i>	RPR, 1B	chaparral. crevices in rock outcrops and talus slopes. 180-1390 m.							•	•	•	•								•
white-rayed pentachaeta <i>Pentachaeta bellidiflora</i>	FE, SE, RPR, 1B	valley and foothill grassland. open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. 35-620 m.							•			•		•		•	•	•		

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San Benito pentachaeta <i>Pentachaeta exilis</i> ssp. <i>aeolica</i>	RPR, 1B	cismontane woodland, valley and foothill grassland. grassy areas. 635-855 m.		•		•								•	•	•		•		
Merced phacelia <i>Phacelia ciliata</i> var. <i>opaca</i>	RPR, 1B	valley and foothill grassland. adobe or clay soils of valley floors, open hills, or alkaline flats. 60-150 m.														•				
North Coast phacelia <i>Phacelia insularis</i> var. <i>continentis</i>	RPR, 1B	coastal bluff scrub, coastal dunes. open maritime bluffs, sandy soil. 10-160 m.							•	•		•								
Mt. Diablo phacelia <i>Phacelia phacelioides</i>	RPR, 1B	chaparral, cismontane woodland. adjacent to trails, on rock outcrops and talus slopes; sometimes on serpentine. 500-1370 m.		•		•	•							•	•	•		•		
Bolander's beach pine <i>Pinus contorta</i> ssp. <i>bolanderi</i>	RPR, 1B	closed-cone coniferous forest. podzol-like soils with Mendocino cypress and bishop pine; within pygmy cypress forest. 35-250 m.								•										
Monterey pine <i>Pinus radiata</i>	RPR, 1B	closed-cone coniferous forest, cismontane woodland. three primary stands are native to California. dry bluffs and slopes. 25-185 m.											•	•		•	•	•		
white-flowered rein orchid <i>Piperia candida</i>	RPR, 1B	north coast coniferous forest, lower montane coniferous forest, broadleaved upland forest. coast ranges from Santa Cruz County north; on serpentine. forest duff, mossy banks, rock outcrops and muskeg. 0-1200 m.		•		•			•	•		•		•	•	•	•	•		
Point Reyes rein orchid <i>Piperia elegans</i> ssp. <i>decurtata</i>	RPR, 1B	coastal bluff scrub. 15-185 m.							•			•								
Yadon's rein orchid <i>Piperia yadonii</i>	FE, RPR, 1B	closed-cone coniferous forest, chaparral, coastal bluff scrub. on sandstone and sandy soil, but poorly drained and often dry. 10-415 m.											•	•						
Choris' popcornflower <i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	RPR, 1B	chaparral, coastal scrub, coastal prairie. mesic sites. 15-100 m.	•		•			•						•	•	•	•	•		
San Francisco popcornflower <i>Plagiobothrys diffusus</i>	SE, RPR, 1B	valley and foothill grassland, coastal prairie. historically from grassy slopes with marine influence. 60-485 m.	•		•			•						•	•	•	•	•		
hairless popcornflower <i>Plagiobothrys glaber</i>	RPR 1A	meadows and seeps, marshes and swamps. coastal salt marshes and alkaline meadows. 5-180 m.	•	•	•	•		•						•	•	•		•		
bearded popcornflower <i>Plagiobothrys hystriculis</i>	RPR, 1B	vernal pools, valley and foothill grassland. wet sites. 10-50 m.								•	•	•							•	•
Mayacamas popcornflower <i>Plagiobothrys lithocaryus</i>	RPR 1A	meadows? valley and foothill grassland, cismontane woodland, chaparral? moist sites. 285-450 m.								•		•								
Petaluma popcornflower <i>Plagiobothrys mollis</i> var. <i>vestitus</i>	RPR 1A	valley and foothill grassland, coastal salt marsh? wet sites in grassland, possibly coastal marsh margins. 10-50 m.							•			•								
Calistoga popcornflower <i>Plagiobothrys strictus</i>	FE, ST, RPR, 1B	broadleaved upland forest, meadows and seeps, valley and foothill grassland, vernal pools. alkaline sites near thermal springs and on margins of vernal pools in heavy, dark, adobe-like clay. 90-160 m.								•	•									•
hooked popcornflower <i>Plagiobothrys uncinatus</i>	RPR, 1B	chaparral, cismontane woodland, valley and foothill grassland, coastal bluff scrub. sandstone outcrops and canyon sides; often in burned or disturbed areas. 300-820 m.												•		•				
warty popcorn-flower <i>Plagiobothrys verrucosus</i>	RPR 2	chaparral. shale substrate. 610-760 m.		•		•									•	•		•		

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North Coast semaphore grass <i>Pleuropogon hooverianus</i>	ST, RPR, 1B	broadleaved upland forest, meadows and seeps, north coast coniferous forest. wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments; 10-1150 m.							•	•		•								
Napa blue grass <i>Poa napensis</i>	FE, SE, RPR, 1B	meadows and seeps, valley and foothill grassland. moist alkaline meadows fed by runoff from nearby hot springs. 100-125 m.									•									•
Santa Lucia mint <i>Pogogyne clareana</i>	SE, RPR, 1B	riparian woodland. tributaries of the Nacimiento River, in moist sandy soil. 300-490 m.																		
Oregon polemonium <i>Polemonium carneum</i>	RPR 2	coastal prairie, coastal scrub, lower montane coniferous forest. 0-1830 m.	•		•			•	•			•				•	•	•		
Scotts Valley polygonum <i>Polygonum hickmanii</i>	FE, SE, RPR, 1B	valley and foothill grassland. Purisima sandstone or mudstone with a thin soil layer, vernal moist due to runoff. 210-250 m.												•		•		•		
Marin knotweed <i>Polygonum marinense</i>	RPR 3	marshes and swamps. coastal salt marshes and brackish marshes. 0-10 m.							•	•	•	•							•	•
Nuttall's ribbon-leaved pondweed <i>Potamogeton epihydrus</i>	RPR 2	marshes and swamps. shallow water, ponds, lakes, streams, irrigation ditches. 400-2110 m.								•										
eel-grass pondweed <i>Potamogeton zosteriformis</i>	RPR 2	marshes and swamps. ponds, lakes, streams. 0-1860 m.		•		•	•			•		•								
Hickman's cinquefoil <i>Potentilla hickmanii</i>	FE, SE, RPR, 1B	coastal bluff scrub, closed-cone coniferous forest, meadows and seeps, marshes and swamps. freshwater marshes, seeps, and small streams in open or forested areas along the coast. 5-125 m.											•	•		•	•			
Cunningham Marsh cinquefoil <i>Potentilla uliginosa</i>	RPR 1A	freshwater marshes and swamps. found in permanent, oligotrophic wetlands. 30-40 m.							•			•								
Hartweg's golden sunburst <i>Pseudobahia bahiifolia</i>	FE, SE, RPR, 1B	valley and foothill grassland, cismontane woodland. clay soils, predominantly on the northern slopes of knolls, but also along shady creeks or near vernal pools. 15-150 m.														•				
dwarf alkali grass <i>Puccinellia pumila</i>	RPR 2	meadows and seeps, marshes and swamps. mineral spring meadows and coastal salt marshes. 1-10 m.								•										
Tamalpais oak <i>Quercus parvula</i> var. <i>tamalpaisensis</i>	RPR, 1B	lower montane coniferous forest. 100-750 m.							•			•								
white beaked-rush <i>Rhynchospora alba</i>	RPR 2	bogs and fens, marshes and swamps. freshwater marshes and sphagnum bogs. 60-2000 m.							•	•		•								
California beaked-rush <i>Rhynchospora californica</i>	RPR, 1B	bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps. freshwater seeps and open marshy areas. 45-1000 m.							•	•	•	•								•
brownish beaked-rush <i>Rhynchospora capitellata</i>	RPR 2	lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest. mesic sites. 455-2000 m.							•			•								
round-headed beaked-rush <i>Rhynchospora globularis</i>	RPR 2	marshes and swamps. freshwater marsh. 45-60 m.							•			•								
pine rose <i>Rosa pinetorum</i>	RPR, 1B	closed-cone coniferous forest. 2-300 m.											•	•		•		•		

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Sanford's arrowhead <i>Sagittaria sanfordii</i>	RPR, 1B	marshes and swamps. in standing or slow-moving freshwater ponds, marshes, and ditches. 0-610 m.		•		•		•				•							•	•
great burnet <i>Sanguisorba officinalis</i>	RPR 2	bogs and fens, meadows and seeps, broadleafed upland forest, marshes and swamps, north coast coniferous forest, ripar. forest. rocky serpentine seepage areas and along stream borders. 60-1400 m.								•										
adobe sanicle <i>Sanicula maritima</i>	SR, RPR, 1B	meadows and seeps, valley and foothill grassland, chaparral, coastal prairie. moist clay or ultramafic soils. 30-240 m.	•		•			•						•		•		•		
rock sanicle <i>Sanicula saxatilis</i>	SR, RPR, 1B	broadleafed upland forest, chaparral, valley and foothill grassland. bedrock outcrops and talus slopes in chaparral or oak woodland habitat. 615-1215 m.		•		•	•								•			•		
marsh skullcap <i>Scutellaria galericulata</i>	RPR 2	marshes and swamps, lower montane coniferous forest, meadows and seeps. swamps and wet places. 0-2100 m.		•		•	•	•							•			•		•
side-flowering skullcap <i>Scutellaria lateriflora</i>	RPR 2	meadows and seeps, marshes and swamps. wet meadows and marshes. in the delta, often found on logs. -3-500 m.		•		•	•	•												•
Lake County stonecrop <i>Sedella leiocarpa</i>	FE, SE, RPR, 1B	valley and foothill grassland, vernal pools, cismontane woodland. level areas that are seasonally wet and dry out in late spring; substrate usually of volcanic origin. 365-790 m.								•		•								
Red Mountain stonecrop <i>Sedum laxum</i> ssp. <i>eastwoodiae</i>	FC, RPR, 1B	lower montane coniferous forest. serpentine soils among rocks. 600-1200 m.								•										
chaparral ragwort <i>Senecio aphanactis</i>	RPR 2	cismontane woodland, coastal scrub. drying alkaline flats. 20-575 m.	•	•	•	•	•	•				•		•		•		•	•	
Point Reyes checkerbloom <i>Sidalcea calycosa</i> ssp. <i>rhizomata</i>	RPR, 1B	marshes and swamps. freshwater marshes near the coast. 5-75(245)m.							•	•		•								
Hickman's checkerbloom <i>Sidalcea hickmanii</i> ssp. <i>hickmanii</i>	RPR, 1B	chaparral. grassy openings in chaparral, and on dry ridges. 330-1640 m.												•						
Napa checkerbloom <i>Sidalcea hickmanii</i> ssp. <i>napensis</i>	RPR, 1B	chaparral. rhyolitic substrates. 415-610 m.							•	•	•	•								•
Lake Pillsbury checkerbloom <i>Sidalcea hickmanii</i> ssp. <i>pillsburiensis</i>	RPR, 1B	chaparral. openings in chaparral on Franciscan soils. 700 m.								•		•								
Marin checkerbloom <i>Sidalcea hickmanii</i> ssp. <i>viridis</i>	RPR, 1B	chaparral. serpentine or volcanic soils; sometimes appears after burns. 0-430 m.							•			•								
Keck's checkerbloom <i>Sidalcea keckii</i>	FE, RPR, 1B	cismontane woodland, valley and foothill grassland grassy slopes in blue oak woodland. 180-425 m.								•	•	•				•			•	•
Siskiyou checkerbloom <i>Sidalcea malviflora</i> ssp. <i>patula</i>	RPR, 1B	coastal prairie, broadleafed upland forest. open coastal forest. 15-65 m.								•										
purple-stemmed checkerbloom <i>Sidalcea malviflora</i> ssp. <i>purpurea</i>	RPR, 1B	broadleafed upland forest, coastal prairie. 15-65 m.							•	•		•								
marsh checkerbloom <i>Sidalcea oregana</i> ssp. <i>hydrophila</i>	RPR, 1B	meadows and seeps, riparian forest. wet soil of streambanks, meadows. 545-2300 m.							•	•	•	•								•
Kenwood Marsh checkerbloom <i>Sidalcea oregana</i> ssp. <i>valida</i>	FE, SE, RPR, 1B	marshes and swamps. edges of freshwater marshes. 115-150 m.							•			•								

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**Table A-1 CNDDB Occurrences for Special-status Plant Species by District and Adjacent Program Areas**

Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
Red Mountain catchfly <i>Silene campanulata</i> ssp. <i>campanulata</i>	SE, RPR 4	lower montane coniferous forest, chaparral. state-listed endangered, but cnps list 4; eo's mostly archived. rocky dry shallow serpentine soil. 420-1200 m. element occurrences archived; cnps list 4.								•										
San Francisco champion <i>Silene verecunda</i> ssp. <i>verecunda</i>	RPR, 1B	coastal scrub, valley and foothill grassland, coastal bluff scrub, chaparral, coastal prairie. often on mudstone or shale; one site on serpentine. 30-645 m.												•		•	•	•		
prairie wedge grass <i>Sphenopholis obtusata</i>	RPR 2	cismontane woodland, meadows and seeps. open moist sites, along rivers and springs, alkaline desert seeps. 360-2325 m.														•				
Santa Cruz microseris <i>Stebbinsoseris decipiens</i>	RPR, 1B	broadleaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub. open areas in loose or disturbed soil, usu. derived from sandstone, shale or serp., on seaward slopes. 10-500 m.							•			•	•	•		•	•	•		
Metcalf Canyon jewel-flower <i>Streptanthus albidus</i> ssp. <i>albidus</i>	FE, RPR, 1B	valley and foothill grassland. relatively open areas in dry grassy meadows on serpentine soils; also on serpentine balds. 45-245 m.		•		•									•			•		
most beautiful jewel-flower <i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	RPR, 1B	chaparral, valley and foothill grassland, cismontane woodland. serpentine outcrops, on ridges and slopes. 120-730 m.	•	•	•	•	•	•					•	•	•	•		•		
Tamalpais jewel-flower <i>Streptanthus batrachopus</i>	RPR, 1B	closed-cone coniferous forest, chaparral. talus serpentine outcrops. 410-650 m.							•			•								
Socrates Mine jewel-flower <i>Streptanthus brachiatus</i> ssp. <i>brachiatus</i>	RPR, 1B	chaparral, closed-cone coniferous forest. serpentine areas and serpentine chaparral. 480-970 m.							•	•	•	•								•
Freed's jewel-flower <i>Streptanthus brachiatus</i> ssp. <i>hoffmanii</i>	RPR, 1B	chaparral, cismontane woodland. serpentine rock outcrops, primarily in geothermal development areas. 480-1030 m.							•	•		•								
Mt. Hamilton jewel-flower <i>Streptanthus callistus</i>	RPR, 1B	chaparral, cismontane woodland. open talus slopes on shale with grey pine and/or black oak. 600-790 m.													•			•		
Hoffman's bristly jewel-flower <i>Streptanthus glandulosus</i> ssp. <i>hoffmanii</i>	RPR, 1B	chaparral, cismontane woodland, valley and foothill grassland. moist, steep rocky banks, in serpentine and non-serpentine soil. 120-475 m.							•			•								
Tiburon jewel-flower <i>Streptanthus glandulosus</i> ssp. <i>niger</i>	FE, SE, RPR, 1B	valley and foothill grassland. shallow, rocky serpentine slopes. 30-150 m.							•			•								
Mount Tamalpais bristly jewel-flower <i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i>	RPR, 1B	chaparral, valley and foothill grassland. serpentine slopes. 150-800 m.							•			•								
green jewel-flower <i>Streptanthus hesperidis</i>	RPR, 1B	chaparral, cismontane woodland. openings in chaparral or woodland; serpentine, rocky sites. 130-760 m.								•	•	•								•
Mt. Diablo jewel-flower <i>Streptanthus hispidus</i>	RPR, 1B	valley and foothill grassland, chaparral. talus or rocky outcrops. 275-970 m.		•		•	•													
Arburua Ranch jewel-flower <i>Streptanthus insignis</i> ssp. <i>lyonii</i>	RPR, 1B	coastal scrub. serpentine slopes, also on non-serpentine. 230-850 m.														•				

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**Table A-1 CNDDDB Occurrences for Special-status Plant Species by District and Adjacent Program Areas**

Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
early jewel-flower <i>Streptanthus vernalis</i>	RPR, 1B	chaparral, closed-cone coniferous forest. on serpentine. 610 m.							•	•		•								
slender-leaved pondweed <i>Stuckenia filiformis</i>	RPR 2	marshes and swamps. shallow, clear water of lakes and drainage channels. 15-2310 m.	•	•	•	•	•	•				•			•	•	•	•	•	
Mason's neststraw <i>Stylocline masonii</i>	RPR, 1B	chenopod scrub, pinyon-juniper woodland. sandy washes. 100-1200 m.												•						
California seablite <i>Suaeda californica</i>	FE, RPR, 1B	marshes and swamps. margins of coastal salt marshes. 0-5 m.	•	•	•	•	•	•							•	•		•		
Suisun Marsh aster <i>Symphotrichum lentum</i>	RPR, 1B	marshes and swamps (brackish and freshwater). most often seen along sloughs with phragmites, scirpus, blackberry, typha, etc. 0-3m.		•		•	•	•		•	•	•							•	•
robust false lupine <i>Thermopsis robusta</i>	RPR, 1B	north coast coniferous forest, broadleaved upland forest. ridgetops; sometimes on serpentine. 360-1290 m.								•										
alpine crisp moss <i>Tortella alpicola</i>	RPR 2	cismontane woodland. moss on volcanic rock (in California). wide ecological tolerance: shaded or exposed, wet or dry, low to high elevations.								•		•								
California screw moss <i>Tortula californica</i>	RPR, 1B	chenopod scrub, valley and foothill grassland. moss growing on sandy soil. 10-1460 m.												•						
beaked tracyina <i>Tracyina rostrata</i>	RPR, 1B	cismontane woodland, valley and foothill grassland. open grassy meadows within oak woodland and grassland habitats. 150-500 m.							•	•		•								
Wright's trichocoronis <i>Trichocoronis wrightii</i> var. <i>wrightii</i>	RPR 2	marshes and swamps, riparian forest, meadows and seeps, vernal pools. mud flats of vernal lakes, drying river beds, alkali meadows. 5-435 m.		•		•		•								•				
cylindrical trichodon <i>Trichodon cylindricus</i>	RPR 2	broadleaved upland forest, upper montane coniferous forest. moss growing in openings on sandy or clay soils on roadsides, stream banks, trails or in fields. 50-1500 m.								•		•								
Napa bluecurls <i>Trichostema ruygtii</i>	RPR, 1B	cismontane woodland, chaparral, valley and foothill grassland, vernal pools, lower montane coniferous forest. often in open, sunny areas. also has been found in vernal pools. 30-590 m.								•	•	•							•	•
showy rancheria clover <i>Trifolium amoenum</i>	FE, RPR, 1B	valley and foothill grassland, coastal bluff scrub. sometimes on serpentine soil, open sunny sites, swales. most recently sited on roadside and eroding cliff face. 5-560 m.							•	•	•	•				•	•		•	•
Santa Cruz clover <i>Trifolium buckwestiorum</i>	RPR, 1B	coastal prairie, broadleaved upland forest, cismontane woodland. moist grassland. 60-545 m.							•	•		•	•	•		•		•		
saline clover <i>Trifolium hydrophilum</i>	RPR, 1B	marshes and swamps, valley and foothill grassland, vernal pools. mesic, alkaline sites. 0-300 m.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Pacific Grove clover <i>Trifolium polyodon</i>	SR, RPR, 1B	closed-cone coniferous forest, meadows and seeps, coastal prairie. along small springs and seeps in grassy openings. 5-120 m.											•	•						
Monterey clover <i>Trifolium trichocalyx</i>	FE, SE, RPR, 1B	closed-cone coniferous forest. poorly drained, low nutrient soil underlain with hardpan; also openings and burned areas. 120-205 m.								•				•						
San Francisco owl's-clover <i>Triphysaria floribunda</i>	RPR, 1B	coastal prairie, valley and foothill grassland. on serpentine and nonserpentine substrate (such as at Pt. Reyes). 10-160 m.							•			•					•	•		

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Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
coastal triquetrella <i>Triquetrella californica</i>	RPR, 1B	coastal bluff scrub, coastal scrub valley and foothill grasslands. grows within 30 m from the coast in coastal scrub, grasslands and in open gravels on roadsides, hillsides, rocky slopes,		•		•	•		•	•		•					•	•		•
Cook's triteleia <i>Triteleia ixioides</i> ssp. <i>cookii</i>	RPR, 1B	cismontane woodland, closed-cone coniferous forest. streamsides, wet ravines; on serpentine and in serpentine seeps. sometimes near cypresses. ?-500 m.												•						
caper-fruited tropidocarpum <i>Tropidocarpum capparideum</i>	RPR, 1B	valley and foothill grassland. alkaline clay. 0-455 m.	•	•	•	•	•	•						•		•				
Greene's tuctoria <i>Tuctoria greenei</i>	FE, SR, RPR, 1B	vernal pools, valley and foothill grassland. dry bottoms of vernal pools in open grasslands. 30-1065 m.						•								•				
Crampton's tuctoria or Solano grass <i>Tuctoria mucronata</i>	FE, SE, RPR, 1B	vernal pools, valley and foothill grassland. clay bottoms of drying vernal pools and lakes in valley grassland. 5-10 m.		•		•						•							•	•
oval-leaved viburnum <i>Viburnum ellipticum</i>	RPR 2	chaparral, cismontane woodland, lower montane coniferous forest. 215-1400 m.		•		•	•		•	•	•	•								•
alpine marsh violet <i>Viola palustris</i>	RPR 2	coastal scrub, bogs and fens. swampy, shrubby places in coastal scrub or coastal bogs. 0-15 m.								•										

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**Table A-2 CNDDDB Occurrences for Special-status Wildlife Species by District and Adjacent Program Areas**

Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
<b>Invertebrates</b>																				
Lange's metalmark butterfly <i>Apodemia mormo langei</i>	FE	inhabits stabilized dunes along the San Joaquin river. endemic to Antioch Dunes, Contra Costa County. primary host plant is <i>Eriogonum nudum var auriculatum</i> ; feeds on nectar of other wildflowers, as well as host plant.		•		•	•													
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	FE	endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.										•				•			•	•
longhorn fairy shrimp <i>Branchinecta longiantenna</i>	FE	endemic to the eastern margin of the central coast mountains in seasonally astatic grassland vernal pools. inhabit small, clear-water depressions in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales.	•	•	•	•	•	•								•				
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT	endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	•	•	•	•	•	•		•	•	•		•		•			•	•
San Bruno elfin butterfly <i>Callophrys mossii bayensis</i>	FE	coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. colonies are located on steep, north-facing slopes within the fog belt. larval host plant is <i>Sedum spathulifolium</i> .		•		•	•		•			•				•	•			
Ohlone tiger beetle <i>Cicindela ohlone</i>	FE	remnant native grasslands with California oatgrass and purple needlegrass in Santa Cruz County. substrate is poorly-drained clay or sandy clay soil over bedrock of Santa Cruz mudstone.											•			•		•		
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT	occurs only in the Central Valley of California, in association with blue elderberry ( <i>Sambucus mexicana</i> ). prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.		•		•		•		•	•	•				•			•	•
Delta green ground beetle <i>Elaphrus viridis</i>	FT	restricted to the margins of vernal pools in the grassland area between Jepson Prairie and Travis AFB. prefers the sandy mud substrate where it slopes gently into the water, with low-growing vegetation, 25-100% cover.										•							•	
Smith's blue butterfly <i>Euphilotes enoptes smithi</i>	FE	most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz Counties. hostplant: <i>Eriogonum latifolium</i> and <i>Eriogonum parvifolium</i> are utilized as both larval and adult foodplants.											•	•		•		•		
Bay checkerspot butterfly <i>Euphydryas editha bayensis</i>	FT	restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. <i>Plantago erecta</i> is the primary host plant; <i>Orthocarpus densiflorus</i> and <i>O. purpurascens</i> are the secondary host plants.	•	•	•	•	•	•						•	•	•	•	•		
vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE	inhabits vernal pools and swales in the Sacramento valley containing clear to highly turbid water. pools commonly found in grass bottomed swales of unplowed grasslands. some pools are mud-bottomed and highly turbid.	•	•	•	•	•	•				•				•			•	•
Mission blue butterfly <i>Plebejus icarioides missionensis</i>	FE	inhabits grasslands of the San Francisco peninsula. three larval host plants: <i>Lupinus albifrons</i> , <i>L. variicolor</i> , and <i>L. formosus</i> , of which <i>L. albifrons</i> is favored.							•			•				•	•	•		

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**Table A-2 CNDDB Occurrences for Special-status Wildlife Species by District and Adjacent Program Areas**

Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
lotis blue butterfly <i>Plebejus idas lotis</i>	FE	inhabits wet meadows or poorly-drained sphagnum-willow bogs, where soils are waterlogged and acidic; north coastal California. inhabits upper edges of peat bog between peat and surrounding low willows; hostplant is <i>Lotus formosissimus</i> .								•										
Mount Hermon (=barbate) June beetle <i>Polyphylla barbata</i>	FE	known only from sand hills in vicinity of Mt. Hermon, Santa Cruz County.												•		•		•		
callippe silverspot butterfly <i>Speyeria callippe callippe</i>	FE	restricted to the northern coastal scrub of the San Francisco peninsula. hostplant is <i>Viola pedunculata</i> . most adults found on e-facing slopes; males congregate on hilltops in search of females.														•	•	•		
Behren's silverspot butterfly <i>Speyeria zerebe behrensii</i>	FE	restricted to the pacific side of the coast ranges, from point arena to Cape Mendocino, Mendocino County inhabits coastal terrace prairie habitat. foodplant is <i>Viola</i> sp.							•	•		•								
Myrtle's silverspot <i>Speyeria zerebe myrtleae</i>	FE	restricted to the foggy, coastal dunes/hills of the point reyes peninsula; extirpated from coastal San Mateo County. larval foodplant thought to be <i>Viola adunca</i> .							•			•				•	•			
California freshwater shrimp <i>Syncaris pacifica</i>	FE, SE,	endemic to Marin, Napa, and Sonoma Counties. found in low elevation, low gradient streams where riparian cover is moderately shallow pools away from main streamflow. winter: undercut banks with exposed roots. summer: leafy branches touching water.							•	•	•	•								•
Zayante band-winged grasshopper <i>Trimerotropis infantilis</i>	FE	isolated sandstone deposits in the Santa Cruz Mountains (the Zayante Sand Hills ecosystem) mostly on sand parkland habitat but also in areas with well-developed ground cover and in sparse chaparral with grass.		•		•								•	•	•		•		

**Fish**

Sacramento perch <i>Archoplites interruptus</i>	SSC	historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. prefers warm water. aquatic vegetation is essential for young. tolerates wide range of physio-chemical water conditions.		•		•	•													•
Kern brook lamprey <i>Entosphenus hubbsi</i>	SSC	San Joaquin river system and kern river. gravel-bottomed areas for spawning and muddy-bottomed areas where ammocoetes can burrow and feed.														•				
tidewater goby <i>Eucyclogobius newberryi</i>	FE, SSC	brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the smith river. found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	•		•			•	•	•		•	•	•		•	•	•		
Delta smelt <i>Hypomesus transpacificus</i>	FT, SE	Sacramento-San Joaquin Delta. seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. seldom found at salinities > 10 ppt. most often at salinities < 2ppt.		•		•		•				•							•	•
Russian River tule perch <i>Hysterothorax traski pomo</i>	SSC	low elevation streams of the Russian River system. requires clear, flowing water with abundant cover. they also require deep (> 1 m) pool habitat.							•			•								
Clear Lake hitch <i>Lavinia exilicauda chi</i>	SSC	found only in Clear Lake, Lake County, and associated ponds. spawns in streams flowing into clear lake. adults found in the limnetic zone. juveniles found in the nearshore shallow-water habitat hiding in the vegetation.								•		•								
Navarro roach <i>Lavinia symmetricus navarroensis</i>	SSC	habitat generalists. found in warm intermittent streams as well as cold, well-aerated streams.							•	•		•								

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Gualala roach <i>Lavinia symmetricus parvipinnis</i>	SSC	found only in the Gualala River.							•	•		•								
San Joaquin roach <i>Lavinia symmetricus</i> ssp. 1	SSC	tributaries to the San Joaquin river from the Cosumnes River south.														•				
Tomales roach <i>Lavinia symmetricus</i> ssp. 2	SSC	tributaries to Tomales Bay.							•			•								
hardhead <i>Mylopharodon conocephalus</i>	SSC	low to mid-elevation streams in the Sacramento-San Joaquin drainage. also present in the Russian River. clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. not found where exotic centrarchids predominate.		•		•		•	•			•				•	•	•		
pink salmon <i>Oncorhynchus gorbuscha</i>	SSC	most spawn in intertidal or lower reaches of streams and rivers in September and October move further upstream in Sacramento river. optimal temperature is 5.6 to 14.4°C. embryos and alevins require fast-flowing, well oxygenated water for development and survival.								•										
Coho salmon - central California coast ESU <i>Oncorhynchus kisutch</i>	FE, SE	federal listing = populations between Punta Gorda and San Lorenzo River. state listing = populations south of Punta Gorda. require beds of loose, silt-free, coarse gravel for spawning. also need cover, cool water and sufficient dissolved oxygen.							•	•		•		•		•		•		
Coho salmon - southern Oregon / northern California ESU <i>Oncorhynchus kisutch</i>	FT, ST, SSC	federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California. state listing refers to populations between the Oregon border and Punta Gorda, California.																		
summer-run steelhead trout <i>Oncorhynchus mykiss irideus</i>	SSC	northern California coastal streams south to Middle Fork Eel River. within range of Klamath Mountains Province DPS and northern California DPS. cool, swift, shallow water and clean loose gravel for spawning, and suitably large pools in which to spend the summer.								•										
steelhead - central California coast DPS <i>Oncorhynchus mykiss irideus</i>	FT	from Russian River, south to Soquel Creek and to, but not including, Pajaro River. also San Francisco and San Pablo Bay basins.							•	•	•	•		•		•	•	•		•
steelhead - northern California DPS <i>Oncorhynchus mykiss irideus</i>	FT, SSC	coastal basins from redwood creek south to the Gualala River, inclusive. does not include summer-run steelhead.								•										
steelhead - south/central California coast DPS <i>Oncorhynchus mykiss irideus</i>	FT, SSC	fed listing refers to runs in coastal basins from the Pajaro River south to, but not including, the Santa Maria River.		•		•								•	•	•		•		
Chinook salmon - Sacramento River winter-run ESU <i>Oncorhynchus tshawytscha</i>	FE, SE	Sacramento river below Keswick Dam. spawns in the Sacramento river but not in tributary streams. requires clean, cold water over gravel beds with water temperatures between 6 and 14 c for spawning.										•								•
Chinook salmon - Central Valley spring-run ESU <i>Oncorhynchus tshawytscha</i>	FT, ST	adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. water temps >27 c is lethal to adults federal listing refers to pops spawning in Sacramento river and tributaries.										•								•
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	SSC	endemic to the lakes and rivers of the Central Valley, but now confined to the delta, Suisun Bay and associated marshes. slow moving river sections, dead end sloughs. requires flooded vegetation for spawning and foraging for young.		•		•		•	•			•				•			•	•

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Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2
longfin smelt <i>Spirinchus thaleichthys</i>	ST, SSC	euryhaline, nektonic and anadromous. found in open waters of estuaries, mostly in middle or bottom of water column. prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.							•			•								
<b>Amphibians</b>																				
California tiger salamander <i>Ambystoma californiense</i>	FT, ST, SSC	Central Valley DPS federally listed as threatened. Santa Barbara and Sonoma Counties DPS federally listed as endangered. need underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding	•	•	•	•		•	•			•	•	•	•	•	•	•	•	•
Santa Cruz long-toed salamander <i>Ambystoma macrodactylum croceum</i>	FE, SE,	wet meadows near sea level in a few restricted locales in Santa Cruz and Monterey Counties. aquatic larvae prefer shallow (<12 inches) water, using clumps of vegetation or debris for cover. adults use mammal burr											•	•		•		•		
arroyo toad <i>Anaxyrus californicus</i>	FE, SSC	semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc. rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.												•						
Pacific tailed frog <i>Ascaphus truei</i>	SSC	occurs in montane hardwood-conifer, redwood, Douglas-fir and ponderosa pine habitats. restricted to perennial montane streams. tadpoles require water below 15 degrees C.																		
northern leopard frog <i>Lithobates pipiens</i>	SSC	native range is east of Sierra Nevada-Cascade crest. near permanent or semi-permanent water in a variety of habitats. highly aquatic species. shoreline cover, submerged and emergent aquatic vegetation are important habitat characteristics														•				
northern red-legged frog <i>Rana aurora</i>	SSC	humid forests, woodlands, grasslands, and streambanks in northwestern California, usually near dense riparian cover. generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.								•										
foothill yellow-legged frog <i>Rana boylei</i>	SSC	partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. need at least some cobble-sized substrate for egg-laying. need at least 15 weeks to attain metamorphosis.	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•
California red-legged frog <i>Rana draytonii</i>	FT, SSC	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 estivation habitat.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
southern torrent salamander <i>Rhyacotriton variegatus</i>	SSC	coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. old growth forest. cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rock within trickling water.								•										
western spadefoot <i>Spea hammondi</i>	SSC	occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. vernal pools are essential for breeding and egg-laying.	•	•	•	•		•				•		•		•				•
Coast Range newt <i>Taricha torosa</i>	SSC	coastal drainages from Mendocino County to San Diego County. lives in terrestrial habitats and will migrate over 1 km to breed in ponds, reservoirs and slow moving streams.											•	•		•				

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<b>Reptiles</b>																				
black legless lizard <i>Anniella pulchra nigra</i>	SSC	sand dunes and sandy soils in the Monterey Bay and Morro Bay regions. inhabit sandy soil/dune areas with bush lupine and mock heather as dominant plants. moist soil is essential.												•	•		•		•	
silvery legless lizard <i>Anniella pulchra pulchra</i>	SSC	sandy or loose loamy soils under sparse vegetation. soil moisture is essential. they prefer soils with a high moisture content.		•		•	•	•						•	•		•			
western pond turtle <i>Emys marmorata</i>	SSC	a thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, be need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
blunt-nosed leopard lizard <i>Gambelia sila</i>	FE, SE	resident of 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; they do not excavate their own burrows.														•		•		
San Joaquin whipsnake <i>Masticophis flagellum ruddocki</i>	SSC	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.	•	•	•	•	•	•							•		•			
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	FT, ST	typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna and woodland habitats. mostly south-facing slopes and ravines, with rock outcrops, deep crevices or abundant rodent burrows, where shrubs form a	•	•	•	•	•	•								•	•		•	
coast horned lizard <i>Phrynosoma blainvillii</i>	SSC	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.	•	•	•	•	•	•						•	•	•	•		•	
giant garter snake <i>Thamnophis gigas</i>	FT, ST	prefers freshwater marsh and low gradient streams. has adapted to drainage canals and irrigation ditches. this is the most aquatic of the garter snakes in California.		•		•		•					•				•		•	•
two-striped garter snake <i>Thamnophis hammondi</i>	SSC	coastal California from vicinity of Salinas to northwest Baja California. from sea to about 7,000 ft elevation. highly aquatic, found in or near permanent fresh water. often along streams with rocky beds and riparian growth.													•		•			
San Francisco garter snake <i>Thamnophis sirtalis tetrataenia</i>	FE, SE	vicinity of freshwater marshes, ponds and slow moving streams in San Mateo County and extreme northern Santa Cruz County. prefers dense cover and water depths of at least one foot. upland areas near water are also very important.													•		•	•	•	
<b>Birds</b>																				
northern goshawk <i>Accipiter gentilis</i>	SSC	within, and in vicinity of, coniferous forest. uses old nests, and maintains alternate sites. usually nests on north slopes, near water. red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.												•		•				
tricolored blackbird <i>Agelaius tricolor</i>	SSC	highly colonial species, most numerous in Central Valley and vicinity. largely endemic to California. requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	•	•	•	•		•	•	•	•	•	•	•	•	•	•		•	•
grasshopper sparrow <i>Ammodramus savannarum</i>	SSC	dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. favors native grasslands with a mix of grasses, forbs and scattered shrubs. loosely colonial when nesting.								•	•		•						•	

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golden eagle <i>Aquila chrysaetos</i>	FP	rolling foothills, mountain areas, sage-juniper flats, and desert. cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	•	•	•	•	•	•		•	•	•	•	•	•	•		•	•	•
short-eared owl <i>Asio flammeus</i>	SSC	found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. tule patches/tall grass needed for nesting/daytime seclusion. nests on dry ground in depression concealed in vegetation.		•		•	•					•	•	•		•	•		•	
long-eared owl <i>Asio otus</i>	SSC	riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.												•		•	•			
burrowing owl <i>Athene cunicularia</i>	SSC	open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
marbled murrelet <i>Brachyramphus marmoratus</i>	FT, SE	feeds near-shore; nests inland along coast from Eureka to Oregon border and from half moon bay to Santa Cruz. nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.												•		•		•		
Swainson's hawk <i>Buteo swainsoni</i>	SSC	breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	•	•	•	•	•	•		•	•	•				•			•	•
western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT, SSC	sandy beaches, salt pond levees and shores of large alkali lakes. needs sandy, gravelly or friable soils for nesting.	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•		•
mountain plover <i>Charadrius montanus</i>	SSC	short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms short vegetation, bare ground and flat topography. prefers grazed areas and areas with burrowing rodents.										•		•		•			•	•
northern harrier <i>Circus cyaneus</i>	SSC	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; nest built of a large mound of sticks in wet areas.	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FC, SE	riparian forest nester, along the broad, lower flood-bottoms of larger river systems. nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.		•		•		•	•	•		•		•		•				•
yellow rail <i>Coturnicops noveboracensis</i>	SSC	summer resident in eastern Sierra Nevada in Mono County. fresh-water marshlands.														•				
black swift <i>Cypseloides niger</i>	SSC	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; foraging		•		•			•	•	•	•		•	•	•	•	•		•
yellow warbler <i>Dendroica petechia brewsteri</i>	SSC	riparian plant associations. prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging. also nests in montane shrubbery in open conifer forests.	•	•	•	•		•	•	•		•		•		•				
white-tailed kite <i>Elanus leucurus</i>	FP	rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

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American peregrine falcon <i>Falco peregrinus anatum</i>	SSC	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 in an open site.	•	•	•	•		•		•	•	•		•	•	•	•	•	•	•
tufted puffin <i>Fratercula cirrhata</i>	SSC	open-ocean bird; nests along the coast on islands, islets, or (rarely) mainland cliffs. requires sod or earth into which the birds can burrow, on island cliffs or grassy island slopes.							•	•		•		•						
saltmarsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	SSC	resident of the San Francisco Bay region, in fresh and salt water marshes. requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•
California condor <i>Gymnogyps californianus</i>	FE, SE	require vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. deep canyons containing clefts in the rocky walls provide nesting sites. forages up to 100 miles from roost/nest.												•		•				
bald eagle <i>Haliaeetus leucocephalus</i>	SE	ocean shore, lake margins, and rivers for both nesting and wintering. most nests within 1 mile of water. nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. roosts communally in winter	•	•	•	•	•	•		•	•	•		•		•				•
yellow-breasted chat <i>Icteria virens</i>	SSC	summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	•	•	•	•		•		•		•		•		•			•	
loggerhead shrike <i>Lanius ludovicianus</i>	SSC	broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.		•		•	•	•	•			•				•				
California black rail <i>Laterallus jamaicensis coturniculus</i>	ST	inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. needs water depths of about 1 inch that does not fluctuate during the year and dense vegetation for nesting habitat.	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•
Suisun song sparrow <i>Melospiza melodia maxillaris</i>	SSC	resident of brackish-water marshes surrounding Suisun Bay. inhabits cattails, tules and other sedges, and salicornia; also known to frequent tangles bordering sloughs.		•		•	•	•				•				•			•	•
Alameda song sparrow <i>Melospiza melodia pusillula</i>	SSC	resident of salt marshes bordering south arm of San Francisco Bay. inhabits salicornia marshes; nests low in grindelia bushes (high enough to escape high tides) and in salicornia.	•	•	•	•	•	•							•	•	•	•		
San Pablo song sparrow <i>Melospiza melodia samuelis</i>	SSC	resident of salt marshes along the north side of San Francisco and San Pablo Bays. inhabits tidal sloughs in the salicornia marshes; nests in grindelia bordering slough channels.		•		•	•		•	•	•	•							•	•
ashy storm-petrel <i>Oceanodroma homochroa</i>	SSC	colonial nester on off-shore islands. usually nests on driest part of islands. forages over open ocean. nest sites on islands are in crevices beneath loosely piled rocks or driftwood, or in caves.							•	•		•							•	
California brown pelican <i>Pelecanus occidentalis californicus</i>	SSC, FP	colonial nester on coastal islands just outside the surf line. nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. roost												•						
purple martin <i>Progne subis</i>	SSC	inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine. nests in old woodpecker cavities mostly, also in human-made structures. nest often located in tall, isolated tree/snag.						•		•	•	•		•						•

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California clapper rail <i>Rallus longirostris obsoletus</i>	FE, SE	salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•
bank swallow <i>Riparia riparia</i>	ST	colonial nester; nests primarily in riparian and other lowland habitats west of the desert. requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•		•
black skimmer <i>Rynchops niger</i>	SSC	nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. nesting colonies usually less than 200 pairs.	•		•			•								•				
California least tern <i>Sternula antillarum browni</i>	FE, SE	nests along the coast from San Francisco Bay south to northern Baja California. colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	•	•	•	•	•	•				•			•	•	•	•	•	
least Bell's vireo <i>Vireo bellii pusillus</i>	FE, SE	summer resident of southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. nests placed along margins of bushes or on twigs projecting into pathways, usually willow, baccharis, mesquite.		•		•						•		•	•	•		•		•
yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>	SSC	nests in freshwater emergent wetlands with dense vegetation and deep water. often along borders of lakes or ponds. nests only where large insects such as odonata are abundant, nesting timed with maximum emergence of aquatic insects.		•		•	•	•				•				•				•

**Mammals**

Nelson's antelope squirrel <i>Ammospermophilus nelsoni</i>	ST	western San Joaquin valley from 200-1200 ft elev. on dry, sparsely vegetated loam soils. dig burrows or use k-rat burrows. need widely scattered shrubs, forbs and grasses in broken terrain with gullies and washes													•		•			
pallid bat <i>Antrozous pallidus</i>	SSC	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.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Point Arena mountain beaver <i>Aplodontia rufa nigra</i>	FE, SSC	coastal areas of point arena with springs or seepages. north-facing slopes of ridges and gullies with friable soils and thickets of undergrowth.								•										
Point Reyes mountain beaver <i>Aplodontia rufa phaea</i>	SSC	coastal area of Point Reyes in areas of springs or seepages. north-facing slopes of hills and gullies in areas overgrown with sword ferns and thimbleberries.							•			•								
Sonoma tree vole <i>Arborimus pomo</i>	SSC	north coast fog belt from Oregon border to Sonoma County in Douglas-fir, redwood and montane hardwood-conifer forests. feeds almost exclusively on Douglas-fir needles. will occasionally take needles of grand fir, hemlock or spruce.							•	•		•								
Guadalupe fur-seal <i>Arctocephalus townsendi</i>	FT, ST	breeds on Isla De Guadalupe off of Mexico, occasionally found on San Miguel, San Nicolas, and San Clemente Islands. prefers shallow, nearshore island water, with cool and sheltered rocky areas for haul-outs.																•		
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	SSC	throughout California in a wide variety of habitats. most common in mesic sites. roosts in the open, hanging from walls and ceilings. roosting sites limiting. extremely sensitive to human disturbance.	•		•			•	•	•	•	•		•		•		•		•

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giant kangaroo rat <i>Dipodomys ingens</i>	FE, SE,	annual grasslands on the western side of the San Joaquin valley, marginal habitat in alkali scrub. need level terrain and sandy loam soils for burrowing.												•		•				
big-eared kangaroo rat <i>Dipodomys venustus elephantinus</i>	SSC	chaparral-covered slopes of the southern part of the Gabilian Range, in the vicinity of the Pinnacles. forages under shrubs and in the open. burrows for cover and for nesting.												•						
southern sea otter <i>Enhydra lutris nereis</i>	FT	nearshore marine environments from about Ano Nuevo, San Mateo County to Point Sal, Santa Barbara County needs canopies of giant kelp and bull kelp for rafting and feeding. prefers rocky substrates with abundant invertebrates.							•			•								
Steller (=northern) sea-lion <i>Eumetopias jubatus</i>	FT	breeds on Ano Nuevo, San Miguel and Farallon Islands, pt. St. George, and Sugarloaf. hauls-out on islands and rocks. needs haul-out and breeding sites with unrestricted access to water, near aquatic food supply and with no human disturbance.																•		
western mastiff bat <i>Eumops perotis californicus</i>	SSC	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.	•	•	•	•		•						•		•				
California wolverine <i>Gulo gulo</i>	FC, ST	found in the north coast mountains and the Sierra Nevada. found in a wide variety of high elevation habitats. needs water source. uses caves, logs, burrows for cover and den area. hunts in more open areas. can travel long distances								•										
western red bat <i>Lasiurus blossevillii</i>	SSC	roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.		•		•	•	•	•	•	•	•		•		•			•	•
Humboldt marten <i>Martes americana humboldtensis</i>	SSC	occurs only in the coastal redwood zone from the Oregon border south to Sonoma County. associated with late-successional coniferous forests, prefer forests with low, overhead cover.								•		•								
Pacific fisher <i>Martes pennanti (pacifica) DPS</i>	FC, SSC	intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. uses cavities, snags, logs and rocky areas for cover and denning. needs large areas of mature, dense forest.								•		•								
San Pablo vole <i>Microtus californicus sanpabloensis</i>	SSC	saltmarshes of San Pablo Creek, on the south shore of San Pablo Bay. constructs burrow in soft soil. feeds on grasses, sedges and herbs. forms a network of runways leading from the burrow																		
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	SSC	forest habitats of moderate canopy and moderate to dense understory. may prefer chaparral and redwood habitats. constructs nests of shredded grass, leaves and other material. may be limited by availability of nest-building materials.	•	•	•	•	•	•						•	•	•		•		
riparian (=San Joaquin Valley) woodrat <i>Neotoma fuscipes riparia</i>	FE, SSC	riparian areas along the San Joaquin, Stanislaus and Tuolumne Rivers. need areas with mix of brush and trees. need suitable nesting sites in trees, snags or logs.						•								•				
Monterey dusky-footed woodrat <i>Neotoma macrotis luciana</i>	SSC	forest habitats of moderate canopy and moderate to dense understory. also in chaparral habitats. nests constructed of grass, leaves, sticks, feathers, etc. population may be limited by availability of nest materials												•		•				
big free-tailed bat <i>Nyctinomops macrotis</i>	SSC	low-lying arid areas in southern California. need high cliffs or rocky outcrops for roosting sites. feeds principally on large moths.	•	•	•	•	•	•								•	•			

FC = federal candidate species  
FE = federally listed as endangered

FP = California Fully Protected species  
FT = federally listed as threatened

SE = listed by California as endangered  
SSC = California species of concern

ST = listed by California as threatened

**Table A-2 CNDDB Occurrences for Special-status Wildlife Species by District and Adjacent Program Areas**

Species Name	Status	Habitat	AM1	AM2	AV1	AV2	CC1	CC2	MS1	MS2	NC1	NC2	NS1	NS2	SC1	SC2	SM1	SM2	So1	So2	
Tulare grasshopper mouse <i>Onychomys torridus tularensis</i>	SSC	hot, arid valleys and scrub deserts in the southern San Joaquin valley. diet almost exclusively composed of arthropods, therefore needs abundant supply of insects.												●		●					
Salinas pocket mouse <i>Perognathus inornatus psammophilus</i>	SSC	annual grassland and desert shrub communities in the Salinas Valley. fine-textured, sandy, friable soils. burrows for cover and nesting.																			
salt-marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE, SE	only in the saline emergent wetlands of San Francisco Bay and its tributaries. pickleweed is primary habitat. do not burrow, build loosely organized nests. require higher areas for flood escape.	●	●	●	●	●	●	●	●	●	●			●	●	●	●	●	●	
Alameda Island mole <i>Scapanus latimanus parvus</i>	SSC	only known from Alameda island. found in a variety of habitats, especially annual and perennial grasslands. prefers moist, friable soils. avoids flooded soils.	●		●			●								●					
Suisun shrew <i>Sorex ornatus sinuosus</i>	SSC	tidal marshes of the northern shores of San Pablo and Suisun Bays. require dense low-lying cover and driftweed and other litter above the mean high tide line for nesting and foraging.																	●		
salt-marsh wandering shrew <i>Sorex vagrans halicoetes</i>	SSC	salt marshes of the south arm of San Francisco Bay. medium high marsh 6-8 ft above sea level where abundant driftwood is scattered among salicornia.	●	●	●	●	●	●	●	●	●	●			●	●	●	●		●	
riparian brush rabbit <i>Sylvilagus bachmani riparius</i>	FE, SE	riparian areas on the San Joaquin River in northern Stanislaus County. dense thickets of wild rose, willows, and blackberries.		●		●		●								●					
American badger <i>Taxidea taxus</i>	SSC	most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. needs sufficient food, friable soils and open, uncultivated ground. preys on burrowing rodents. digs burrows.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	FE, ST	annual grasslands or grassy open stages with scattered shrubby vegetation. need loose-textured sandy soils for burrowing, and suitable prey base.	●	●	●	●	●	●						●	●	●		●			
Point Reyes jumping mouse <i>Zapus trinotatus orarius</i>	SSC	primarily in bunch grass marshes on the uplands of point reyes. also present in coastal scrub, grassland, and meadows. eats mainly grass seeds with some insects and fruit taken. builds grassy nests on ground under vegetation, burrows in winter							●			●						●			

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 FT = federally listed as threatened

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**Table A-3 Special-status Fish Species by Region**

Species	Status	Sacramento San Joaquin	North Coast	South Coast
Kern brook lamprey <i>Lampetra hubbsi</i>	SSC	+		
Green sturgeon <i>Acipenser medirostris</i>	FT <sup>1</sup>	+	+	
Arroyo chub <i>Gila orcutti</i>	SSC			+
Hitch <i>Lavinia exilicauda</i>	SSC <sup>2</sup>	+		+*
California roach <i>Lavinia symmetricus</i>	SSC	+	+	+*
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	SSC	+		
Delta smelt <i>Hypomesus transpacificus</i>	SE, FT	+		
Longfin smelt <i>Spirinchus thaleichthys</i>	ST	+	+	
Eulachon <i>Thaleichthys pacificus</i>	SSC		+	
Coho salmon <i>Oncorhynchus kisutch</i>	ST <sup>3</sup> , SE <sup>4</sup> , FT <sup>3</sup> , FE <sup>4</sup>		+	
Chinook salmon <i>Oncorhynchus tshawytscha</i>	ST <sup>5</sup> , SE <sup>6</sup> , FT <sup>7</sup> , FE <sup>8</sup>	+	+	
Chum salmon <i>Oncorhynchus keta</i>	SSC	+	+	
Rainbow trout/Steelhead <i>Oncorhynchus mykiss</i>	FT <sup>9</sup> , FE <sup>10</sup>	+	+	+
Coastal cutthroat trout <i>Oncorhynchus clarki</i>	SSC		+	
Sacramento perch <i>Archoplites interruptus</i>	SSC	+		
Russian River tule perch <i>Hysterocarpus traski</i>	SSC	+	+	
Tidewater goby <i>Eucyclogobius newberryi</i>	FE, SSC <sup>11</sup>	+	+	+

FE = Federally listed as Endangered  
FT = Federally listed as Threatened  
SE = State-listed as Endangered  
ST = State-listed as Threatened

<sup>1</sup> Southern DPS  
<sup>2</sup> Clear Lake subspecies only  
<sup>3</sup> South Oregon/No. CA ESU  
<sup>4</sup> Central CA Coast ESU  
<sup>5</sup> Sacramento River Spring-run  
<sup>6</sup> Winter-run  
<sup>7</sup> California Coastal ESU, Central Valley spring-run  
<sup>8</sup> Sacramento River winter-run  
<sup>9</sup> Northern CA ESU, Central CA Coast ESU, South-Central CA Coast ESU, Central Valley ESU  
<sup>10</sup> Southern CA ESU  
<sup>11</sup> Populations in Orange Co. and south. Populations north of Orange Co. delisted

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