

NATURAL ENVIRONMENT STUDY (MINIMAL IMPACT)

Golden Gate Bridge Moveable Median Barrier Project
City and County of San Francisco and County of Marin, California

Project 2008-B-5
04-SF-101 to 04-MRN-101
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The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

December 2011

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1. Summary

The Golden Gate Bridge Highway and Transportation District (District) proposes to install a Moveable Median Barrier (MMB) along U.S. Highway 101 (U.S. 101) that extends across the 1.7-mile-long Golden Gate Bridge (Bridge) above San Francisco Bay, between the City and County of San Francisco and Marin County (Figure 1). The purpose of this project is to enhance safety and eliminate crossover collisions by installing a physical barrier to separate opposing directions of traffic on the Golden Gate Bridge.

This report presents the findings of a reconnaissance-level biological survey of the project site and proposed staging areas as depicted on Figures 2 and 3, as well as an evaluation of potential impacts on surface water and groundwater quality. No special-status species were observed during the site visit, however seven special-status plants and three special-status wildlife species have some potential to occur immediately adjacent to the project area. Additionally, no impacts related to surface water or groundwater quality were identified that would result from the project.

2. Introduction

The proposed Golden Gate Bridge Moveable Median Barrier Project (MMB Project) would be located along U.S. 101 and would extend across the 1.7-mile-long Bridge above San Francisco Bay, between the City and County of San Francisco and Marin County. The Bridge is a 6-lane, undivided highway with four 10-foot-wide and two 11-foot-wide lanes, and 10-foot-wide sidewalks on both sides. North of the Bridge, U.S. 101 widens to an eight-lane controlled access divided freeway. South of the Bridge, U.S. 101 continues as Doyle Drive, a six-lane undivided highway. The MMB Project would remove a portion of the permanent median barrier on U.S. 101 north of the Bridge and would be integrated into the median of U.S. 101 south of the Bridge. In the near term (prior to the completion of the South Access to the Golden Gate Bridge [Doyle Drive] Project), the MMB Project would extend from approximately 2,100 feet north of the Marin abutment to the existing toll booth area. Once the Doyle Drive Project is completed, the MMB Project would extend to just north of the tunnel at the northbound U.S. 101 off-ramp to State Highway 1 in San Francisco. The moveable median barrier that would be installed by the project is approximately 2.5 miles long. However, the entire project area is approximately 3.1 miles in length, which includes the areas of changeable message sign installation once the long term option is implemented on the south end. The MMB Project's total length would be approximately 3.1 miles once fully completed (Figure 2).

Figure 1:
Project Location

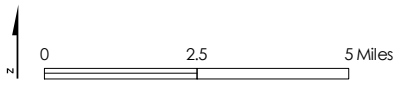
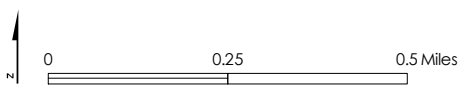


Figure 2:
Limits of the Project Area



Currently, northbound (NB) and southbound (SB) traffic along the Bridge are separated by 19-inch-tall, 4-inch-diameter hollow plastic tubes placed 50 feet and 25 feet apart on tangent and curve sections, respectively. These tubes are manually placed in sockets in the Bridge roadway to identify the San Francisco outbound lanes and San Francisco inbound lanes and are reconfigured several times per day to match the direction of peak traffic flows. Installation of a MMB would replace the tube system with a concrete and steel barrier rail system and would virtually eliminate crossover, "head-on" accidents on the Bridge.

The MMB would be positioned within the roadway via a Barrier Transfer Machine (BTM) to accommodate various lane configurations throughout the day. The BTM is approximately 9.5 feet wide and 51 feet long, and is capable of moving the barrier laterally by one lane width as the truck travels along the roadway. Once the BTM travels across the Bridge and positions the barrier, it would remain on the Bridge (except for maintenance) and within the U.S. 101 right-of-way. Two BTMs would be required as part of the project, as each machine moves the median barrier laterally by one lane, and lane configurations can require up to two lanes of movement.

The BTMs would be stored at two locations near the north and south ends of the Bridge, within the roadway right-of-way. The number of the BTMs stored in these two locations would vary over the course of the day as different lane configurations are deployed. During the evening commute hours, when the 4NB/2SB lane configuration would be used, both BTMs would be stored at the Bridge toll plaza. During morning commute, when the 2NB/4SB lane configuration would be used, both BTMs would be stored in the highway median, south of the Waldo Tunnel. During off-peak times of the day, when the 3NB/3SB lane configuration would be used, one BTM would be stored at each of the storage areas. Once the Doyle Drive Project is completed, the BTM storage at the toll plaza would be relocated approximately 1,800 feet south of the toll plaza within the Presidio Parkway median.

The project would require the demolition of the four easternmost toll booths. One toll booth would be permanently removed and the other three toll booths would be reconstructed to electronic toll collection only, with a lower total width. One of the three rebuilt toll booths would be reconstructed in a slightly higher profile to allow larger vehicles to pass. North of the Bridge, a portion of the existing permanent median barrier on U.S. 101 would be removed. The pavement at the toll booth demolition area and barrier removal location would be reconstructed. The total area of excavation at the north end is approximately 11,200 square feet (sf) and the total area of excavation at the toll plaza is approximately 3,500 square feet (sf).

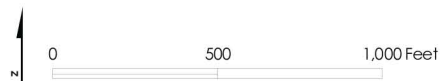
Five construction staging areas are proposed. Four of the staging areas are located within the Golden Gate National Recreation Area (GGNRA), on the northern side of the Bridge in Marin

County below the Marin Approach and Span 4 backspan. The fifth staging area is located south of the Bridge, in the vicinity of the toll plaza within the Presidio (Figure 3). These staging areas are already in use for other construction projects. The northern staging areas include an existing gravel area in a switchback of Conzelman Road and three existing gravel areas located under the northern span of the Bridge. The southern staging area is an existing paved employee/visitor parking lot, located just west of the toll plaza off Merchant Road. Project-related construction equipment and materials would be stored within one or more of these staging areas. No expansion of the construction staging areas beyond their existing footprint will be permitted. The footprint of the project area including staging areas is limited to paved and gravel areas.

**Figure 3:
Staging Areas**



● Approximate Staging Area Location



3. Study Methods

Biological Resources

A reconnaissance-level biological resources assessment and review of all available pertinent literature was conducted for the MMB Project. The limits of the biological study area are shown in Figures 2 and 3. AECOM biologist Veronica Wunderlich performed a reconnaissance-level site visit on April 15, 2010. Project and staging area limits were reviewed in the field with the Bridge District Project Engineer Jeffrey Lee. The project site and proposed staging areas were surveyed on foot, and from a vehicle, to assess the current conditions as well as the potential for occurrence of special-status plants, wildlife, and sensitive natural communities. Site photos were taken and are provided in Appendix A. Weather conditions during the site visit were sunny and warm, approximately 65° Fahrenheit, with winds ranging from 0 to 5 miles per hour.

AECOM biologists also conducted a review of available literature, including the California Natural Diversity Database (CNDDDB) for the San Francisco North and seven surrounding U.S. Geological Survey (USGS) 7.5-minute Topographic Quadrangles (CDFG 2010a; see Appendix B), California Department of Fish and Game's (CDFG) State and Federally listed Endangered and Threatened Animals of California (CDFG 2010b), Special Animals (CDFG 2009a), Special Vascular Plants, Bryophytes, and Lichens List (CDFG 2010c), State and Federally Listed Endangered, Threatened, and Rare Plants of California (CDFG 2010d), List of California Terrestrial Natural Communities Recognized by the Natural Diversity Database (CDFG 2003), U.S. Fish and Wildlife Service's (USFWS) Federal Endangered and Threatened Species that Occur or may be Affected by Projects in the San Francisco North, Point Bonita, San Rafael, San Quentin, Richmond, Oakland West, Hunter's Point and San Francisco South USGS 7/2 Minute Quads (USFWS 2010; see Appendix C), and the California Native Plant Society (CNPS) online Inventory of Rare and Endangered Plants (CNPS 2010). In addition to these sources, AECOM biologists reviewed the Revised Golden Gate Bridge Physical Suicide Deterrent System Project Natural Environment Study Minimal Impacts report (NESMI; Pacific Biology 2009), and Golden Gate Bridge Physical Suicide Deterrent System Project Final Environmental Impact Report (FEIR; 2010).

Water Quality

A review for potential impacts related to surface water and groundwater quality was conducted to determine if the project would substantially degrade water quality or contribute to a violation in water quality standards or waste discharge requirements. A review of the existing drainage patterns as well as receiving water bodies was conducted.

4. Environmental Setting

The project area, as currently defined, would span a 3.1-mile-long stretch of U.S. 101 from Marin County, across the 1.7-mile-long Bridge above San Francisco Bay, to just north of the U.S. 101/State Highway 1 Separation in San Francisco. The Bridge is a 6-lane undivided highway with four 10-foot-wide and two 11-foot-wide lanes, and 10-foot-wide sidewalks on both sides. The proposed project would be constructed within the current right-of-way of the existing highway and would include the use of five staging areas that are currently being used for other construction and maintenance tasks as previously described.

Currently, northbound (NB) and southbound (SB) traffic along the Bridge are separated by 19-inch-tall, 4-inch-diameter hollow plastic tubes placed 50 feet and 25 feet apart on tangent and curve sections, respectively. These tubes are manually placed in sockets in the Bridge roadway to identify the San Francisco outbound lanes and San Francisco inbound lanes and are reconfigured several times per day to match the direction of peak traffic flows.

Biological Resources

The project area consists primarily of the U.S. 101 right-of-way and is bordered by scrub habitat typical of the region. Immediately north of the project area boundary, the roadway median strip widens and becomes vegetated. The four northern staging areas are located within GGNRA lands north of the Bridge and are adjacent to coastal scrub habitat. The southern staging area is located within a paved parking lot, west of the toll plaza off of Merchant Road, within the Presidio. All of the staging areas are currently being used for construction or maintenance activities, and are completely paved or graveled as well as fenced with construction fencing, chain link fencing and silt fencing, to create a physical barrier between the staging areas and any existing adjacent vegetation.

Regional Species and Habitats of Concern

The project area consists of developed roadways, parking lots, structures, and disturbed staging areas that are currently being used in the course of other construction and maintenance activities for the Bridge. While the majority of the study area is devoid of vegetation, the study is abutted by coastal scrub habitat. Although this plant community is not specifically considered a sensitive plant community (CDFG 2003), it does provide habitat for a variety of wildlife and plant species.

Based upon the review of literature and knowledge of the flora and fauna of the region, 89 special-status plants and 113 special-status wildlife species are considered to have at least some potential to occur, or are known to occur, or to have occurred historically, in the project

vicinity (Figure 4; CDFG 2010a, USFWS 2010). Of these species, 19 special-status plants and nine special-status wildlife species have been reported within two miles of the project site (Tables 1 and 2). Comprehensive lists of regionally occurring special-status species, their habitat, and potential for occurrence are presented in Appendices C and D.

Vegetation

The project site consists of developed and actively disturbed habitats with minimal vegetation. The southern staging area is a paved parking lot, currently providing parking for both Bridge employees and visitors. The four northern staging areas are currently used for various construction and maintenance activities and are all graveled and fenced, with minimal ruderal vegetation growing along the edges. These staging areas are bordered by coastal scrub habitat, characterized by species such as coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), California sagebrush (*Artemisia californica*), California blackberry (*Rubus ursinus*), and various lupines (*Lupinus* sp.). Non-native species such as French broom (*Genista monspessulana*) and fennel (*Foeniculum vulgare*) were also noted near the project site.

The coastal scrub habitat that borders the staging areas has the potential to support seven special-status plant species (Table 1; Appendix C). Due to the developed nature of the project site and current activities at all of the staging areas, none of these species are expected to occur within the boundaries of the project disturbance area.

Animals

Of the nine special-status wildlife species identified within two miles of the project area (Table 2), only three are considered to have the potential to occur on or immediately adjacent to the project site or staging areas. The Mission blue butterfly (*Plebejus* (= *Icaricia*) *icarioides missionensis*) has been known to use areas adjacent to the staging areas, Monarch butterfly (*Danaus plexippus*) has the potential to winter near the site, and American peregrine falcons (*Falco peregrines anatum*) are known to use the Bridge year round and have been documented attempting to nest on the Bridge structure. Vegetation adjacent to the project area could potentially be used for nesting by many common bird species. Additionally, while the Bridge toll plaza structure is characterized by a high level of disturbance, making it unsuitable for bats and other sensitive species, it is possible that the structure could be used for nesting by some bird species tolerant of disturbance, though none have been observed at this location.

Water Quality

The general project area is in both San Francisco and Marin Counties. The project area is considered semiarid with a moderate, Mediterranean climate with cool, dry summers and mild, wet winters. The approximate annualized average high temperature is 62 degrees Fahrenheit

Figure 4: CNDDDB Special Status Plants and Wildlife within 2 miles of Project Area

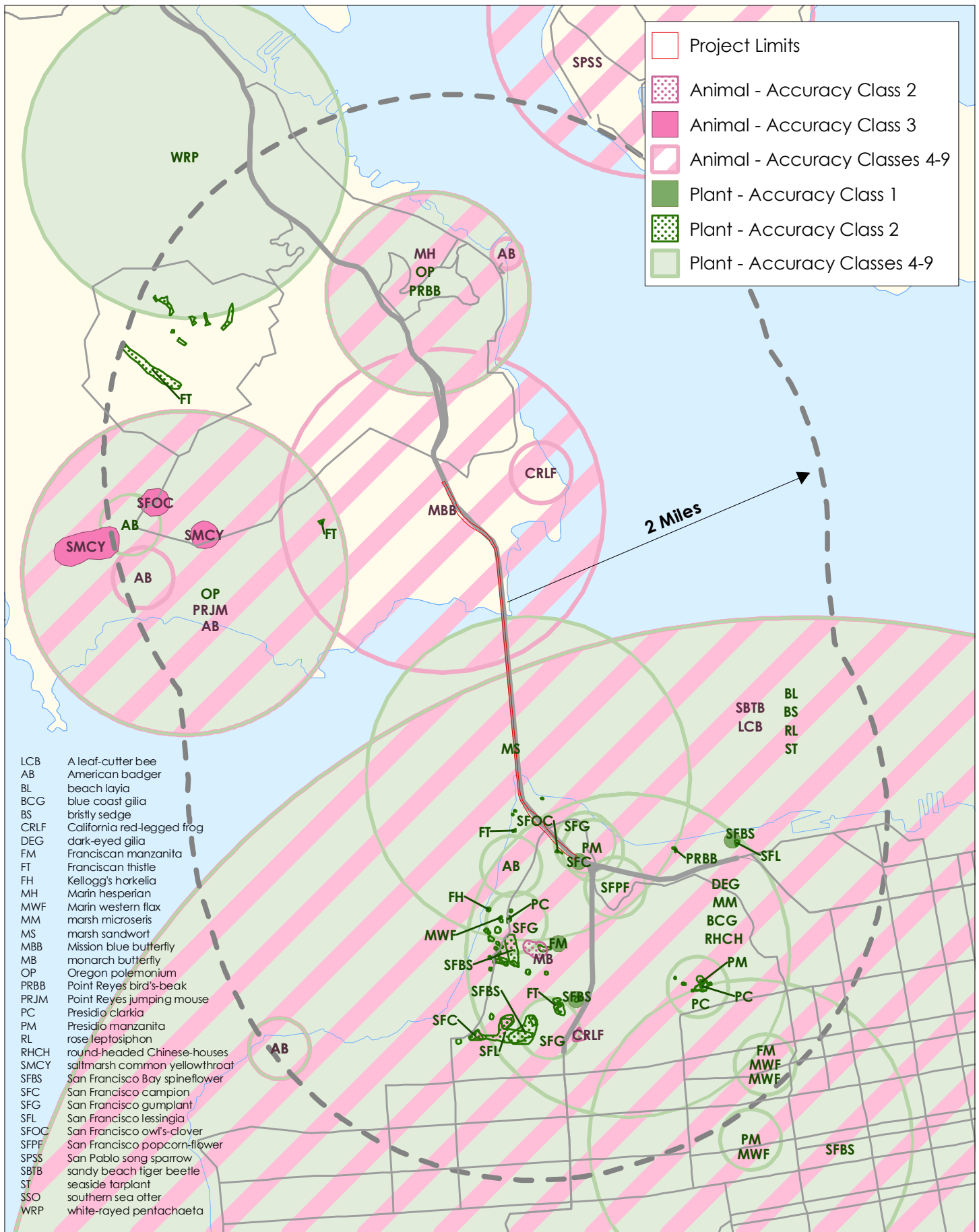


Table 1. Special-Status Plant Species Potentially Occurring in the Vicinity

COMMON NAME	(SCIENTIFIC NAME)	STATUS*	POTENTIAL FOR OCCURRENCE	POTENTIAL IMPACT
Beach layia	<i>Latia carnosa</i>	FE, SE, CNPS 1B.1	May be present in scrub adjacent to project area	None
Blue coast (dune) gilia	<i>Gilia capitata</i> ssp. <i>chamissonis</i>	CNPS 1B.1	May be present in scrub adjacent to project area	None
Dark-eyed gilia	<i>Gilia millefoliata</i>	CNPS 1B.2	Not expected	None
Franciscan manzanita	<i>Arctostaphalus franciscana</i>	CNPS 1A	Not expected	None
Franciscan thistle	<i>Cirsium andrewsii</i>	CNPS 1B.2	May be present in scrub adjacent to project area	None
Kellogg's horkelia	<i>Horkelia cuneata</i> ssp. <i>sericea</i>	CNPS 1B.1	Not expected	None
Marin western flax	<i>Hesperolinon congestum</i>	FT, ST, CNPS 1B.1	Not expected	None
Marsh microseris	<i>Microseris paludosa</i>	CNPS 1B.2	May be present in scrub adjacent to project area	None
Oregon polemonium	<i>Polemonium carneum</i>	CNPS 2.2	Not expected	None
Presidio clarkia	<i>Clarkia franciscana</i>	FE, SE, CNPS 1B.1	Not expected	None
Presidio manzanita	<i>Arctostaphylos hookeri</i> ssp. <i>ravenii</i>	FE, SE, CNPS 1B.1	Not expected	None
Pt. Reyes bird's beak	<i>Cordylanthus maritimus</i> ssp. <i>palustris</i>	CNPS 1B.2	Not expected	None
Round-headed Chinese houses	<i>Collinsia corymbosa</i>	CNPS 1B.2	Not expected	None
San Francisco Bay spineflower	<i>Chorizanthe cuspidate</i> var. <i>cuspidata</i>	CNPS 1B.2	May be present in scrub adjacent to project area	None
San Francisco champion	<i>Silene verecunda</i> ssp. <i>verecunda</i>	CNPS 1B.2	Not expected	None
San Francisco gumplant	<i>Grindelia hirsutula</i> var. <i>maritima</i>	CNPS 1B.2	May be present in scrub adjacent to project area	None
San Francisco lessingia	<i>Lessingia germanorum</i>	FE, SE, CNPS 1B.1	Not expected	None
San Francisco popcorn flower	<i>Plagiobothrys diffusus</i>	SE, CNPS 1B.1	Not expected	None
San Francisco owl's clover	<i>Triphysaria floribunda</i>	CNPS 1B.2	May be present in scrub adjacent to project area	None

*Status Codes:

- FE = Listed as endangered by the Federal Government
- FT = Listed as threatened by the Federal Government
- SE = Listed as endangered by the State of California
- ST = Listed as threatened by the State of California
- SR = Listed as rare by the State of California
- CNPS 1B = Eligible for State listing, CEQA review
- CNPS 2 = Eligible for State listing, not rare outside California, CEQA review
- CNPS 3 = Review list, more information needed, recommended for CEQA review
- CNPS 4 = Watch list, recommended for CEQA review

Table 2. Special-Status Wildlife Species Potentially Occurring in the Vicinity

COMMON NAME	SCIENTIFIC NAME	STATUS*	POTENTIAL FOR OCCURRENCE	POTENTIAL IMPACT
<u>State or Federally Endangered or Threatened Species</u>				
Invertebrates				
Mission blue butterfly	<i>Plebejus (=Icaricia) icarioides missionensis</i>	FE	High; adjacent to staging areas	None
Amphibians				
California red-legged frog	<i>Rana (aurora) draytonii</i>	FT; CSC	Not Expected	None
Mammals				
Southern sea otter	<i>Enhydra lutris nereis</i>	FT;CFP	Not expected	None
<u>California Species of Special Concern, State Protected, or Federal Candidate Species</u>				
Invertebrates				
Monarch butterfly	<i>Danaus plexippus</i>	CNDDDB	Low; adjacent to site during winter	None
Marin hesperian	<i>Vespericola marinensis</i>	CNDDDB	Not expected	None
Birds				
American peregrine falcon	<i>Falco peregrinus anatum</i>	CFP	High; known to use bridge structure	None
Saltmarsh common yellowthroat	<i>Geothlypis trichas sinuosa</i>	CSC	Not expected	None
Mammals				
American badger	<i>Taxidea taxus</i>	CSC	Not expected	None
Point Reyes jumping mouse	<i>Zapus trinotatus orarius</i>	CSC	Not expected	None

*Status Codes

- FE = Listed as endangered by the Federal Government
- FT = Listed as threatened by the Federal Government
- FPT = Proposed Listed as threatened by the Federal Government
- FC = Federal Candidate Species
- SE = Listed as endangered by the State of California
- ST = Listed as threatened by the State of California
- CFP = Fully protected under the California Fish and Game Code
- CSC = California Species of Special Concern
- WL = California Department of Fish and Game Watch List
- CNDDDB = Tracked by the California Natural Diversity Data Base

(°F); the average low temperature is 49 °F. Annual rainfall for the project area during the period between 1948 and 2009 averaged approximately 19.7 inches, 95% of which occurred during the winter rainy season, October–April, with the heaviest rainstorms typically occurring in December, January, and February (Western Regional Climate Center 2010).

Stormwater runoff is defined by the U.S. Environmental Protection Agency as the portion of rainwater that does not infiltrate into the soil and runs off the land (EPA 2010). The amount of total runoff generated is generally determined by the size and duration of the storm event, the type of soils present, and the amount of mature, vegetated ground cover. Typically runoff is minimized by the presence of coarse-grained, permeable soils and heavily vegetated areas.

However, runoff volumes tend to increase as pervious surfaces are replaced by buildings and other impervious materials (e.g., traditional concrete sidewalks), shallow slopes are regraded to steeper pitches, and mature vegetation is removed and replaced by grass lawns.

The proposed project is located in both the San Francisco Bay and San Pablo Bay watersheds. The project area lies within three hydrologic sub-areas (HSAs): 203.10, which includes San Francisco Bay located east of the Bridge; 203.20, which includes the Marin County shoreline located on the northern portion of the project; and 203.40, which includes the San Francisco Bayside located at the southern portion of the project (CSU Sacramento 2010).

Existing Drainage

The project site is located along U.S. 101 and would extend across the 1.7-mile-long Golden Gate Bridge above San Francisco Bay. Stormwater runoff from the project area flows through existing drainage infrastructure to San Francisco Bay.

Beneficial Uses

The Region 2 Basin Plan (SFBRWQCB 2007) establishes beneficial uses for waterways and water bodies within the Central Basin in San Francisco County. The existing beneficial uses for the San Francisco Bay Central area include: industrial service water supply; industrial process supply; ocean, commercial, and sport fishing; shellfish harvesting; estuarine habitat; fish migration; preservation of rare and endangered species; fish spawning; wildlife habitat; water contact recreation; noncontact water recreation; and navigation.

303(d) List of Water Impairments and Total Maximum Daily Loads (TMDLs)

San Francisco Bay is listed as impaired on the CWA Section 303(d) list for Chlordane, DDT, Dieldrin, Mercury, Polychlorinated Biphenyls (PCBs), PCBs (dioxinlike), Selenium, Polycyclic Aromatic Hydrocarbons (PAHs), Dioxin compounds, Furan compounds, and Exotic species. Total Maximum Daily Loads (TMDLs) are a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.

TMDLs for San Francisco Bay have been established based on the 2006 303(d) list (approval date: June 28, 2007). TMDLs have only been established at this time for mercury and PCBs; TMDLs for the other pollutants listed in the 2006 303(d) list have not been completed. The San Francisco Bay RWQCB has also recommended the San Francisco Bay (Central) shoreline for placement on the 303(d) list for trash impairment (SFBRWQCB 2008).

5. Project Impacts

Biological Resources

The proposed project does not include removal or disturbance of any vegetation or aquatic resources. Invasive plants could potentially be spread during construction activities, and could adversely affect the native plant communities present adjacent to the staging areas. Avoidance measures, put into place during prior projects to protect the native plant community and prevent the spread of invasive plants, are outlined below, and will continue to be implemented by the Golden Gate Bridge Moveable Median Barrier Project. Based upon the current condition of the project area, and the continued implementation of avoidance measures, including fencing to protect the adjacent vegetation communities (Measure 1) and decontamination of construction equipment to prevent the spread of nuisance species (Measure 4), the proposed project would have **no effect** on the adjacent native plant community or potentially special-status plant species.

Special-status wildlife species that have the potential to occur in the vicinity of the project area include the Mission blue butterfly, Monarch butterfly, and American peregrine falcon. Mission blue butterflies are known to use the vegetation adjacent to the staging areas, and may fly across the roadways potentially colliding with vehicles. To prevent such collisions, a speed limit will be enforced (Measure 3). Additionally, indirect impacts to the Mission blue butterfly that could result from trampling of vegetation or dust creation will be avoided by fencing and clearly marking the habitat (Measure 1) and implementing an erosion and dust control plan (Measure 2). With the ongoing implementation of these avoidance measures, the proposed project would have **no effect** on the Mission blue butterfly.

Monarch butterflies have the potential to winter in the vicinity of the project area, however no suitable trees for winter roosting are present immediately adjacent to the project area. Therefore, no avoidance measures are required, and the proposed project would have **no effect** on wintering Monarch butterflies.

American peregrine falcons are known to use the Bridge structure throughout the year, and have been observed attempting to nest on the structure in the past. The proposed project is limited to the existing roadway right-of-way and the five staging areas. As such the project activities will not affect the portions of the Bridge such as the towers or areas below the roadway, which could be used by the falcons. Avoidance measures outlined below will be implemented to ensure that falcons are not disturbed or harmed during the implementation of this project (Measure 7). Therefore, the proposed project would have **no effect** on American peregrine falcons.

Several common bird species are protected by the California Fish and Game Code and Migratory Bird Treaty Act and could nest in the vegetation adjacent to the staging areas, as well as on the toll booth structures. Four toll booth structures are planned for demolition as part of the proposed project. If a bird was actively nesting in one of these toll booth structures at the time of demolition, the nest could be affected. Avoidance measures outlined below, including protection of the vegetation communities (Measure 1) and pre-construction surveys for nesting birds prior to onset of construction (Measure 5 and Measure 6), will ensure that no nesting birds would be harmed during the implementation of the project. Therefore, the proposed project would have **no effect** on nesting birds.

Water Quality

The project would not result in additional sources of pollutants commonly found in highway runoff, as no increase in traffic on the Bridge would occur. In addition, the type or intensity of land use at the project site would not change, and no increase in impervious surface area would occur. Therefore, the project would not degrade water quality or contribute to a violation in water quality standards or waste discharge requirements.

Short-term (Construction Phase) Impacts

The proposed project would require the demolition of four toll booths. One toll booth would be permanently removed and the other three toll booths would be reconstructed on a smaller footprint. North of the Bridge, a portion of the existing permanent median barrier on U.S. 101 would also be permanently removed and the area paved. The total excavation at the toll plaza is approximately 3,500 square feet and the total area of excavation at the north end is 11,200 square feet. Of the five proposed construction staging areas, four are located within the GGNRA and one is located south of the Bridge. A more detailed description of the staging area locations is presented in Section 2. Project-related construction equipment and materials would be stored within one or more of these construction staging areas. All of the proposed staging areas are currently being used for construction or maintenance activities, and are completely paved or graveled as well as fenced to create a physical barrier between the staging areas and any existing adjacent vegetation. Construction staging areas would not be expanded beyond their existing footprint.

All of the construction will occur either on the roadway or within the construction staging areas. Construction activities would require the development of an Erosion Control Plan (Measure 2) to reduce erosion and sedimentation from the project area. Based upon the current conditions of the project area and the implementation of Measure 2, the proposed project would have **no effect** on surface water or groundwater quality and would not contribute to the violation of water quality standards or waste discharge requirements.

Long-term Impacts

Long-term operation of the project would include operation and storage of the BTMs. Initially, in the short term, the BTMs would be stored at two locations within the Bridge and roadway right-of-way: immediately north of the Bridge toll plaza at the southern end of the Bridge, and within the existing highway median north of the Bridge and south of the Waldo Tunnel. Once the construction on Doyle Drive is completed, the BTM storage area at the Bridge toll plaza would be relocated approximately 1,800 feet south within the Presidio Parkway median. Operation of the BTMs and relocation of the MMB would not change the type or intensity of land use at the project site nor would it increase impervious surface area. The project would have no effect on groundwater recharge potential. Storage of the BTMs would occur on already paved or graveled areas. Therefore, the project would not degrade surface water quality or contribute to a violation in water quality standards or waste discharge requirements.

6. Mitigation Measures

Avoidance measures to protect sensitive resources were developed and implemented as part of the Bridge Seismic and Wind Retrofit Project, and will also be utilized for the Bridge Physical Suicide Deterrent System Project. These avoidance measures would continue to be implemented for this proposed project as well, and are presented below.

Measure 1: A qualified biologist or biologists will be retained by the District prior to the start of construction to act as a biological Environmental Compliance Monitor (ECM) and will work in consultation with GGNRA Natural Resource staff to implement and oversee the following activities and measures:

- A. Native vegetation near the staging area will be fenced as “Environmentally Sensitive Areas” (ESA), and signs will be installed indicating that the fenced area is “restricted” and that all construction activities, personnel and operational disturbances are prohibited.
- B. The ECM will prepare and provide worker educational materials that describe the value and importance of the coastal scrub habitat bordering the staging areas and the importance of not disturbing the habitat.
- C. The ECM will conduct regular visits of the staging areas to verify compliance with Measure 1A, evaluate implementation of dust, weed, and erosion control measures.

- D. Based upon the site visits, the ECM will make recommendations regarding the implementation of the compliance measures.
- E. The ECM will prepare monthly compliance reports addressing the effectiveness of the avoidance measures and making recommendations for additional measures, if needed.

Measure 2: An erosion and dust control plan will be implemented.

Measure 3: Vehicles traveling on access roads within GGNRA lands will be restricted to a maximum speed of 20 mph (Golden Gate Bridge Highway and Transportation District 1995) during the period of March 15 to July 4, which is the flight season for the Mission blue butterfly. This speed limit will be posted and enforced.

Measure 4: To prevent the introduction of non-native vegetation or other deleterious materials to GGNRA lands, all construction equipment will be inspected prior to accessing the staging areas. If any vegetation or deleterious materials are present, the equipment will be decontaminated with a high-pressure washer and the wastewater and debris will be properly disposed of prior to entering GGNRA lands.

In addition to the above existing measures, additional avoidance/mitigation measures are recommended as outlined below.

Measure 5: If removal of the toll booths occurs between February 1 and August 31 (the avian nesting season), a nesting bird survey would be performed by a qualified biologist within 3 days prior to onset of work. If nests are identified on the structure they would be monitored by a qualified biologist to determine when the young have fledged and are feeding on their own. Demolition activities may resume once the nests are no longer active.

Measure 6: Pre-construction surveys for nesting birds and other special-status birds and appropriate nesting habitat should be conducted no more than 3 days prior to ground disturbing activities. If an active nest is found, a qualified biologist in conjunction with USFWS/CDFG will determine the appropriate buffer size and delineate the buffer using ESA Fencing, pin flags, yellow cautioning tape, etc. During construction, the qualified biologist will conduct regular monitoring (at CDFG approved intervals) to evaluate the nest for potential disturbances associated with construction activities. Construction within the buffer is prohibited until the qualified biologist determines the nest is no longer active. If an active nest is found after the completion of the pre-construction surveys and after construction begins, all construction activities will stop until a qualified biologist has evaluated the nest and erected the appropriate

buffer around the nest. If establishment of the buffer is not feasible, CDFG/USFWS will be contacted for further avoidance and minimization guidelines.

Measure 7: Prior to onset of construction activities occurring during the American peregrine falcon nesting season (February through July), the District will consult with the Golden Gate Raptor Observatory (GGRO) and the Santa Cruz Predatory Bird Group (SCPBG) to obtain the most recent information on locations of breeding pairs of falcons potentially using the bridge. Focused surveys for nesting falcons would be conducted by a qualified biologist to determine if any nesting falcons area present in areas that could be potentially affected by construction activities. If nesting falcons are identified, then a construction exclusion zone will be implemented in coordination with California Department of Fish and Game.

7. Permits Required

No permits required.

8. References

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9. Appendices

Appendix A. Site Photos

Appendix B. CNDDDB Search

Appendix C. Special-Status Plants Potentially Occurring in the Region

Appendix D. Special-Status Wildlife Potentially Occurring in the Region

Appendix E. USFWS List

Appendix A

Site Photos



Photo 1: Permanent median strip North of Bridge



Photo 2: Permanent median strip North of Bridge



Photo 3: Staging Area 1; located on Conzelman Road



Photo 4: Staging Area 1; located on Conzelman Road



Photo 5: North side of Staging Area 2 looking North



Photo 6: North side of Staging Area 2 looking South



Photo 7: Staging Area 3 looking North; located East of Staging Area 3



Photo 8: Staging Area 3 looking North



Photo 9: Staging Area 4 looking South; located below North end of Bridge



Photo 10: Staging Area 4 looking North



Photo 11: Staging Area 5; located at South end of Project Area



Photo 12: East end of Toll Plaza looking South



Photo 13: Toll Plaza looking East



Photo 14: Toll Plaza looking West

Appendix B

CNDDDB Search

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Scientific Name - San Francisco North and 7 Surrounding Quads

Point Bonita, San Rafael, San Quentin, Richmond, Oakland West, Hunter's Point, San Francisco South

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 Accipiter cooperii Cooper's hawk	ABNKC12040			G5	S3	
2 Actinemys marmorata western pond turtle	ARAAD02030			G3G4	S3	SC
3 Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	unknown code...	G2G3	S2S3	SC
4 Amorpha californica var. napensis Napa false indigo	PDFAB08012			G4T2	S2.2	1B.2
5 Amsinckia lunaris bent-flowered fiddleneck	PDBOR01070			G2	S2.2	1B.2
6 Antrozous pallidus pallid bat	AMACC10010			G5	S3	SC
7 Archoplites interruptus Sacramento perch	AFCQB07010			G3	S1	SC
8 Arctostaphylos franciscana Franciscan manzanita	PDERI040J3			G1	S1	1B.1
9 Arctostaphylos hookeri ssp. montana Mt. Tamalpais manzanita	PDERI040J5			G3T2	S2.2	1B.3
10 Arctostaphylos hookeri ssp. ravenii Presidio manzanita	PDERI040J2	Endangered	Endangered	G3T1	S1	1B.1
11 Arctostaphylos imbricata San Bruno Mountain manzanita	PDERI040L0		Endangered	G1	S1	1B.1
12 Arctostaphylos montaraensis Montara manzanita	PDERI042W0			G2	S2.2	1B.2
13 Arctostaphylos pacifica Pacific manzanita	PDERI040Z0		Endangered	G1	S1	1B.2
14 Arctostaphylos pallida pallid manzanita	PDERI04110	Threatened	Endangered	G1	S1	1B.1
15 Arctostaphylos virgata Marin manzanita	PDERI041K0			G2	S2.2	1B.2
16 Ardea alba great egret	ABNGA04040			G5	S4	
17 Ardea herodias great blue heron	ABNGA04010			G5	S4	
18 Arenaria paludicola marsh sandwort	PDCAR040L0	Endangered	Endangered	G1	S1	1B.1
19 Asio flammeus short-eared owl	ABNSB13040			G5	S3	SC
20 Astragalus tener var. tener alkali milk-vetch	PDFAB0F8R1			G1T1	S1.1	1B.2
21 Athene cucularia burrowing owl	ABNSB10010			G4	S2	SC
22 Atriplex joaquiniana San Joaquin spearscale	PDCHE041F3			G2	S2	1B.2
23 Banksula incredula incredible harvestman	ILARA14100			G1	S1	

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Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24 <i>Boschniakia hookeri</i> small groundcone	PDORO01010			G5	S1S2	2.3
25 <i>Caecidotea tomalensis</i> Tomales isopod	ICMAL01220			G2	S2	
26 <i>California macrophylla</i> round-leaved filaree	PDGER01070			G3	S3.1	1B.1
27 <i>Callophrys mossii bayensis</i> San Bruno elfin butterfly	IILEPE2202	Endangered		G4T1	S1	
28 <i>Calochortus tiburonensis</i> Tiburon mariposa-lily	PMLIL0D1C0	Threatened	Threatened	G1	S1.2	1B.1
29 <i>Calystegia purpurata</i> ssp. <i>saxicola</i> coastal bluff morning-glory	PDCON040D2			G4T2	S2.2	1B.2
30 <i>Carex comosa</i> bristly sedge	PMCYP032Y0			G5	S2?	2.1
31 <i>Castilleja affinis</i> ssp. <i>neglecta</i> Tiburon paintbrush	PDSCR0D013	Endangered	Threatened	G4G5T1	S1.2	1B.2
32 <i>Charadrius alexandrinus nivosus</i> western snowy plover	ABNNB03031	Threatened		G4T3	S2	SC
33 <i>Chorizanthe cuspidata</i> var. <i>cuspidata</i> San Francisco Bay spineflower	PDPGN04081			G2T2	S2.2	1B.2
34 <i>Chorizanthe robusta</i> var. <i>robusta</i> robust spineflower	PDPGN040Q2	Endangered		G2T1	S1.1	1B.1
35 <i>Cicindela hirticollis gravida</i> sandy beach tiger beetle	IICOL02101			G5T2	S1	
36 <i>Circus cyaneus</i> northern harrier	ABNKC11010			G5	S3	SC
37 <i>Cirsium andrewsii</i> Franciscan thistle	PDAST2E050			G2	S2.2	1B.2
38 <i>Cirsium hydrophilum</i> var. <i>vaseyi</i> Mt. Tamalpais thistle	PDAST2E1G2			G1T1	S1.2	1B.2
39 <i>Cirsium occidentale</i> var. <i>compactum</i> compact cobwebby thistle	PDAST2E1Z1			G3G4T2	S2.1	1B.2
40 <i>Clarkia franciscana</i> Presidio clarkia	PDONA050H0	Endangered	Endangered	G1	S1.1	1B.1
41 <i>Collinsia corymbosa</i> round-headed Chinese-houses	PDSCR0H060			G1	S1.2	1B.2
42 <i>Collinsia multicolor</i> San Francisco collinsia	PDSCR0H0B0			G2	S2.2	1B.2
43 <i>Cordylanthus maritimus</i> ssp. <i>palustris</i> Point Reyes bird's-beak	PDSCR0J0C3			G4?T2	S2.2	1B.2
44 <i>Danaus plexippus</i> monarch butterfly	IILEPP2010			G5	S3	
45 <i>Dirca occidentalis</i> western leatherwood	PDTHY03010			G2G3	S2S3	1B.2
46 <i>Dufourea stagei</i> Stage's dufourine bee	IIHYM22010			G1?	S1?	

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Natural Diversity Database

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Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47 Egretta thula snowy egret	ABNGA06030			G5	S4	
48 Elanus leucurus white-tailed kite	ABNKC06010			G5	S3	
49 Enhydra lutris nereis southern sea otter	AMAJF09012	Threatened		G4T2	S2	
50 Eriogonum luteolum var. caninum Tiburon buckwheat	PDPGN083S1			G5T3	S3.2	1B.2
51 Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered		G3	S2S3	SC
52 Euphydryas editha bayensis Bay checkerspot butterfly	IILEPK4055	Threatened		G5T1	S1	
53 Fissidens pauperculus minute pocket moss	NBMUS2W0U0			G3?	S1.2	1B.2
54 Fritillaria lanceolata var. tristulis Marin checker lily	PMLIL0V0P1			G5T1	S1.1	1B.1
55 Fritillaria liliacea fragrant fritillary	PMLIL0V0C0			G2	S2.2	1B.2
56 Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A			G5T2	S2	SC
57 Gilia capitata ssp. chamissonis blue coast gilia	PDPLM040B3			G5T2	S2.1	1B.1
58 Gilia millefoliata dark-eyed gilia	PDPLM04130			G2	S2.2	1B.2
59 Grindelia hirsutula var. maritima San Francisco gumplant	PDAST470D3			G5T2	S2.1	1B.2
60 Helianthella castanea Diablo helianthella	PDAST4M020			G3	S3.2	1B.2
61 Helminthoglypta nickliniana bridgesi Bridges' coast range shoulderband	IMGASC2362			G2T1	S1	
62 Hemizonia congesta ssp. congesta seaside tarplant	PDAST4R065			G5T2T3	S2S3	1B.2
63 Hesperevax sparsiflora var. brevifolia short-leaved evax	PDASTE5011			G4T2T3	S2S3	1B.2
64 Hesperolinon congestum Marin western flax	PDLIN01060	Threatened	Threatened	G2	S2.1	1B.1
65 Hoita strobilina Loma Prieta hoita	PDFAB5Z030			G2	S2.1	1B.1
66 Holocarpha macradenia Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1.1	1B.1
67 Horkelia cuneata ssp. sericea Kellogg's horkelia	PDROS0W043			G4T1	S1.1	1B.1
68 Horkelia tenuiloba thin-lobed horkelia	PDROS0W0E0			G2	S2.2	1B.2
69 Hydroporus leechi Leech's skyline diving beetle	IICOL55040			G1?	S1?	

California Department of Fish and Game

Natural Diversity Database

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Point Bonita, San Rafael, San Quentin, Richmond, Oakland West, Hunter's Point, San Francisco South

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
70 Hydroprogne caspia Caspian tern	ABNNM08020			G5	S4	
71 Ischnura gemina San Francisco forktail damselfly	IIDOD72010			G2	S2	
72 Lasionycteris noctivagans silver-haired bat	AMACC02010			G5	S3S4	
73 Lasiurus blossevillii western red bat	AMACC05060			G5	S3?	SC
74 Lasiurus cinereus hoary bat	AMACC05030			G5	S4?	
75 Laterallus jamaicensis coturniculus California black rail	ABNME03041		Threatened	G4T1	S1	
76 Layia carnosa beach layia	PDAST5N010	Endangered	Endangered	G2	S2.1	1B.1
77 Leptosiphon rosaceus rose leptosiphon	PDPLM09180			G1	S1.1	1B.1
78 Lessingia germanorum San Francisco lessingia	PDAST5S010	Endangered	Endangered	G1	S1.1	1B.1
79 Lessingia micradenia var. micradenia Tamalpais lessingia	PDAST5S063			G2T1	S1.1	1B.2
80 Lichnanthe ursina bumblebee scarab beetle	IICOL67020			G2	S2	
81 Malacothamnus arcuatus arcuate bush-mallow	PDMAL0Q0E0			G2Q	S2.2	1B.2
82 Masticophis lateralis euryxanthus Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
83 Melospiza melodia pusillula Alameda song sparrow	ABPBXA301S			G5T2?	S2?	SC
84 Melospiza melodia samuelis San Pablo song sparrow	ABPBXA301W			G5T2?	S2?	SC
85 Microcina leei Lee's micro-blind harvestman	ILARA47040			G1	S1	
86 Microcina tiburona Tiburon micro-blind harvestman	ILARA47060			G1	S1	
87 Microseris paludosa marsh microseris	PDAST6E0D0			G2	S2.2	1B.2
88 Microtus californicus sanpabloensis San Pablo vole	AMAFF11034			G5T1T2	S1S2	SC
89 Monardella villosa ssp. globosa robust monardella	PDLAM180P7			G5T2	S2.2	1B.2
90 Mylopharodon conocephalus hardhead	AFCJB25010			G3	S3	SC
91 Navarretia rosulata Marin County navarretia	PDPLM0C0Z0			G2?	S2?	1B.2
92 Nycticorax nycticorax black-crowned night heron	ABNGA11010			G5	S3	

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Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
93 Nyctinomops macrotis big free-tailed bat	AMACD04020			G5	S2	SC
94 Oncorhynchus kisutch coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	
95 Pentachaeta bellidiflora white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1.1	1B.1
96 Phalacrocorax auritus double-crested cormorant	ABNFD01020			G5	S3	
97 Plagiobothrys chorisianus var. chorisianus Choris' popcorn-flower	PDBOR0V061			G3T2Q	S2.2	1B.2
98 Plagiobothrys diffusus San Francisco popcorn-flower	PDBOR0V080		Endangered	G1Q	S1.1	1B.1
99 Plagiobothrys glaber hairless popcorn-flower	PDBOR0V0B0			GH	SH	1A
100 Plebejus icarioides missionensis Mission blue butterfly	IILEPG801A	Endangered		G5T1	S1	
101 Pleuropogon hooverianus North Coast semaphore grass	PMPOA4Y070		Threatened	G1	S1.1	1B.1
102 Polemonium carneum Oregon polemonium	PDPLM0E050			G4	S1	2.2
103 Polygonum marinense Marin knotweed	PDPGN0L1C0			G1Q	S1.1	3.1
104 Pomatiopsis binneyi robust walker	IMGASJ9010			G1	S1	
105 Quercus parvula var. tamalpaisensis Tamalpais oak	PDFAG051Q3			G4T1	S1.3	1B.3
106 Rallus longirostris obsoletus California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1	
107 Rana boylei foothill yellow-legged frog	AAABH01050			G3	S2S3	SC
108 Rana draytonii California red-legged frog	AAABH01022	Threatened		G4T2T3	S2S3	SC
109 Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	
110 Riparia riparia bank swallow	ABPAU08010		Threatened	G5	S2S3	
111 Sanicula maritima adobe sanicle	PDAPI1Z0D0		Rare	G2	S2.2	1B.1
112 Scapanus latimanus insularis Angel Island mole	AMABB02032			G5T1	S1	
113 Scapanus latimanus parvus Alameda Island mole	AMABB02031			G5T1Q	S1	SC
114 Sidalcea calycosa ssp. rhizomata Point Reyes checkerbloom	PDMAL11012			G5T2	S2.2	1B.2
115 Sidalcea hickmanii ssp. viridis Marin checkerbloom	PDMAL110A4			G3T2	S2.2?	1B.3

California Department of Fish and Game

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Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
116 <i>Silene verecunda</i> ssp. <i>verecunda</i> San Francisco champion	PDCAR0U213			G5T2	S2.2	1B.2
117 <i>Sorex vagrans halicoetes</i> salt-marsh wandering shrew	AMABA01071			G5T1	S1	SC
118 <i>Speyeria callippe callippe</i> callippe silverspot butterfly	IILEPJ6091	Endangered		G5T1	S1	
119 <i>Stebbinsoseris decipiens</i> Santa Cruz microseris	PDAST6E050			G2	S2.2	1B.2
120 <i>Sternula antillarum browni</i> California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	
121 <i>Streptanthus batrachopus</i> Tamalpais jewel-flower	PDBRA2G050			G1	S1.2	1B.3
122 <i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i> Mount Tamalpais bristly jewel-flower	PDBRA2G0J2			G4T1	S1.2	1B.2
123 <i>Streptanthus niger</i> Tiburon jewel-flower	PDBRA2G0T0	Endangered	Endangered	G1	S1.1	1B.1
124 <i>Suaeda californica</i> California seablite	PDCHE0P020	Endangered		G1	S1.1	1B.1
125 <i>Symphotrichum lentum</i> Suisun Marsh aster	PDASTE8470			G2	S2	1B.2
126 <i>Taxidea taxus</i> American badger	AMAJF04010			G5	S4	SC
127 <i>Thamnophis sirtalis tetrataenia</i> San Francisco garter snake	ARADB3613B	Endangered	Endangered	G5T2	S2	
128 <i>Trachusa gummifera</i> A leaf-cutter bee	IIHYM80010			G1	S1	
129 <i>Trifolium amoenum</i> showy rancheria clover	PDFAB40040	Endangered		G1	S1.1	1B.1
130 <i>Trifolium depauperatum</i> var. <i>hydrophilum</i> saline clover	PDFAB400R5			G5T2?	S2.2?	1B.2
131 <i>Triphysaria floribunda</i> San Francisco owl's-clover	PDSCR2T010			G2	S2.2	1B.2
132 <i>Triquetrella californica</i> coastal triquetrella	NBMUS7S010			G1	S1.2	1B.2
133 <i>Tryonia imitator</i> mimic tryonia (=California brackishwater snail)	IMGASJ7040			G2G3	S2S3	
134 <i>Vespericola marinensis</i> Marin hesperian	IMGASA4140			G2G3	S2S3	
135 <i>Xanthocephalus xanthocephalus</i> yellow-headed blackbird	ABPBXB3010			G5	S3S4	SC
136 <i>Zapus trinotatus orarius</i> Point Reyes jumping mouse	AMAFH01031			G5T1T3Q	S1S3	SC

Appendix C

Special-Status Plants
Potentially Occurring
in the Region

Appendix C

Special-Status Plant Species Potentially Occurring in Region

Family <i>Scientific Name</i> Common Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period Life Form	Potential for Occurrence On Site
Flowering Plants				
LILIOPSIDA - Monocots				
Cyperaceae - Sedge Family				
<i>Carex comosa</i> bristly sedge	Federal: State: CNPS: List 2.1	Marshes and swamps, lake margins. Believed extirpated in San Francisco, San Bernardino and Santa Cruz counties. Extant in Contra Costa, Lake, Shasta, San Joaquin and Sonoma counties. Location, rarity, and endangerment information needed; need historical quads for SFO Co. Fairly widely distributed, but apparently rarely collected. Threatened by marsh drainage and road maintenance. Endangered in ID, endangered in OR, and state-listed as Sensitive in WA.	May-Sep perennial	Not expected: No suitable habitat present.
<i>Eriophorum gracile</i> slender cottongrass	Federal: State: CNPS: List 4.3	Bogs and fens, Meadows and seeps, Upper montane coniferous forest/acidic. Butte, El Dorado, Lassen, Madera, Mariposa, Nevada, Plumas, San Francisco*, Shasta, Sierra, Siskiyou?, Sonoma, Tuolumne, Idaho, Oregon, Washington, Wyoming Co. Does plant occur in Siskiyou County? Sometimes referred to as <i>Eriophorum gracile</i> var. <i>caurianum</i> .	May-Sep perennial	Not expected: No suitable habitat present.
<i>Carex buxbaumii</i> Buxbaum's sedge	Federal: State: CNPS: List 4.2	Bogs, fens, mesic meadows, marshes and swamps. Known from the Sierra Nevada and northwestern California. Widespread outside of California. Threatened by foot traffic.	Mar-Aug perennial	Not expected: No suitable habitat present.
Iridaceae - Iris Family				
<i>Iris longipetala</i> coast iris	Federal: State: CNPS: List 4.2	Coastal prairie, lower montane coniferous forest, meadows and se Known from central North Coast to central Central Coast, southern Outer North Coast Range, and San Francisco Bay Area. Many collections old; need field surveys. May hybridize with <i>Iris missouriensis</i> . Threatened by development and trampling.	Mar-May perennial	Not expected: No suitable habitat present.

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
Common Name				Life Form	
Liliaceae - Lily Family					
<i>Calochortus tiburonensis</i>	Federal: Threatened	Threatened List 1B.1	Valley/foothill grassland, on serpentinite. Known only from Ring Mountain Preserve, Tiburon, Marin County. Known from only one occurrence at Ring Mtn. Preserve on the Tiburon Peninsula. Threatened by recreational activities and non-native plants. Potentially threatened by deer browsing.	Mar-Jun perennial	Not expected: Out of range.
Tiburon Mariposa lily	State: Threatened				
	CNPS:				
<i>Zigadenus micranthus</i> var. <i>fontanus</i>	Federal:	List 4.2	Chaparral, cismontane woodland, lower montane coniferous forests, meadows, marshes and swamps, in vernal mesic areas, often on serpentinite. Distributed from Mendocino to San Luis Obispo counties.	Apr-Jul perennial	Not expected: No suitable habitat present.
marsh zigadenus	State:				
	CNPS:				
<i>Calochortus umbellatus</i>	Federal:	List 4.2	Broadleafed and upland forest, chaparral, lower montane coniferous forest, valley/foothill grassland, often on serpentinite. Known from Alameda, Contra Costa, Marin, Santa Clara and San Mateo counties. Presumed extirpated in Santa Cruz County.	Mar-May perennial	Not expected: No suitable habitat present.
Oakland star-tulip	State:				
	CNPS:				
<i>Fritillaria lanceolata</i> var. <i>tristulis</i>	Federal:	List 1B.1	Coastal bluff scrub, coastal prairie and coastal scrub. Known from fewer than ten extant occurrences in Marin County only. Some occurrences threatened by grazing, and all by small size. Plants seem not to set seed, but to reproduce by offsets. See <i>F. affinis</i> var. <i>tristulis</i> in The Jepson Manual. See Flora of California 1:(6)308 (1922) by W.L. Jepson for original description.	Feb-May perennial	Not expected: See text for details.
Marin checker lily	State:				
	CNPS:				
<i>Fritillaria liliacea</i>	Federal:	List 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley/foothill grassland near the coast, often on serpentinite. Known from the Central Coast from Sonoma to Monterey counties and the San Francisco Bay Area. Threatened by grazing, agriculture, urbanization, and non-native plants. Quite variable.	Feb-Apr perennial	Not expected: See text for details.
fragrant fritillary	State:				
	CNPS:				
Orchidaceae - Orchid Family					
<i>Piperia michaelii</i>	Federal:	List 4.2	Coastal bluff scrub, closed-cone coniferous forest, cismontane woodland and lower montane coniferous forest. Coastal from San Luis Obispo to Humboldt counties and the San Francisco Bay Area; expected in the Sierra foothills. Recent surveys in VEN Co. have been unsuccessful. Known from SCZ Isl. from a single collection in 1968.	Apr-Aug perennial herb	Not expected: See text for details.
Michael's rein orchid	State:				
	CNPS:				

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
	Common Name			Life Form	
	<i>Cypripedium californicum</i> California lady's-slipper	Federal: State: CNPS: List 4.2	Bogs and fens, Lower montane coniferous forest/sceeps and streambanks, usually serpentinite. Butte, Del Norte, Humboldt, Mendocino, Marin*, Plumas, Shasta, Siskiyou, Sonoma, Trinity, Oregon Co. Threatened by horticultural collecting and logging. Many protected populations on USFS land not reproducing. On watch list in OR. See Proceedings of the American Academy of Arts and Sciences 7:389 (1868) for original description, and Fremontia 17(2):17-19 (1989) and The Wild Orchids of California, p. 62-64 (1995) by R. Coleman for species accounts.	Apr-Aug perennial	Not expected: No suitable habitat present.
Poaceae - Grass Family					
	<i>Calamagrostis ophitidis</i> serpentine reed grass	Federal: State: CNPS: List 4.3		Apr-Jul perennial herb	Not expected: No suitable habitat present.
	<i>Elymus californicus</i> California bottle-brush grass	Federal: State: CNPS: List 4.3	North Coast coniferous forests. Known from Monterey, Marin, Santa Cruz, San Mateo and Sonoma counties. Possibly threatened by fire suppression.	May-Aug(Nov) perennial herb	Not expected: No suitable habitat present.
	<i>Pleuropogon refractus</i> nodding semaphore grass	Federal: State: CNPS: List 4.2	Lower montane coniferous forests, meadows, North Coast coniferous forests and riparian forests, usually on mesic sites. Recorded from Del Norte, Humboldt, Marin, and Mendocino counties and Oregon and Washington. Threatened by roadside mowing, logging and associated road usage.	Apr-Aug perennial	Not expected: No suitable habitat present.
	<i>Pleuropogon hooverianus</i> North Coast semaphore grass	Federal: State: Threatened CNPS: List 1B.1	Broadleaf upland forest, moist grassy sites, vernal pools and North Coast coniferous forests. Reported from Mendocino, Marin and Sonoma counties. Threatened by roadside maintenance, timber harvest, feral pigs, and invasive species.	Apr-Aug perennial	Not expected: No suitable habitat present.

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
Common Name				Life Form	
MAGNOLIOPSIDA - Dicots					
Amaranthaceae - Amaranth Family					
<i>Atriplex joaquiniana</i>	Federal:		Chenopod scrub, valley/foothill grassland and alkali meadows. Widespread in the Sacramento and San Joaquin valleys, into Alameda and Contra Costa counties, north to Napa County and south to Monterey and San Benito counties. Presumed extirpated in Santa C. Need historical quads for TUL Co. Need quads for MNT Co. Report from SLO Co. (247D) needs verification. Threatened by grazing, agriculture, and development.	Apr-Oct annual herb	Not expected: Out of range.
San Joaquin spearscale	State:				
	CNPS:	List 1B.2			
<i>Suaeda californica</i>	Federal:	Endangered	Coastal saltmarshes. Extirpated from San Francisco, Alameda, Santa Clara counties. Restricted to Morro Bay, San Luis Obispo County. Believed extirpated in Alameda and Santa Clara Counties. Formerly known from San Francisco Bay area, where extirpated by development; now extant only in Morro Bay and near Cayucos Pt. Remains from adobe bricks indicate plant may once have occurred along the Petaluma River, SON Co. (484A). Threatened by recreation, erosion, and alteration of marsh habitat. Often confused with <i>S. esteroa</i> and <i>S. taxifolia</i> in southern California, but does not occur there.	Jul-Oct perennial	Not expected: No suitable habitat present.
California seablite	State:				
	CNPS:	List 1B.1			
Apiaceae - Parsley Family					
<i>Perideridia gairdneri</i> ssp. <i>gairdneri</i>	Federal:		Mesic sites in broadleaved upland forest, chaparral, coastal prairie, valley/foothill grassland, vernal pools. Found from the Bay Area and San Joaquin Valley to the Oregon border. Endangered in the southern portion of its range. Endangered in the southern portion of its range; status of occurrences uncertain. Can be relatively common locally, especially in northern counties. Is plant extant in SMT Co.? Threatened by agriculture, grazing, non-native plants, habitat alteration, and urbanization.	Jun-Oct perennial herb	Not expected: No suitable habitat present.
Gairdner's yampa	State:				
	CNPS:	List 4.2			
<i>Sanicula maritima</i>	Federal:		Chaparral, coastal prairie, coastal meadows and valley/foothill grassland on clay or ultramafic soils. Restricted to San Luis Obispo and Monterey counties; presumed extirpated in Alameda and San Francisco counties. Known from fewer than twenty occurrences. Threatened by foot traffic, non-native plants, recreational activities, trampling, and urbanization. See Botany of California 2:451 (1880) for original description, and University of California Publications in Botany 25:61-62 (1951) for taxonomic treatment.	Feb-May perennial herb	Not expected: Out of range.
adobe sanicle	State:	Rare			
	CNPS:	List 1B.1			

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
	Common Name			Life Form	
Asteraceae - Sunflower Family					
	<i>Grindelia hirsutula</i> var. <i>maritima</i>	Federal: State: CNPS: List 1B.2	Coastal bluff scrub, coastal scrub, valley/foothill grassland, on sandy or serpentine slopes Found near the coast from San Luis Obispo to Marin counties. Plants from MNT and SCR Counties need verification. Threatened by coastal development and non-native plants. Can be difficult to identify. Many herbarium specimens need to be checked for correct id. See Pittonia 2:289 (1892) for original description and Novon 2(3):215-217 (1992) for revised nomenclature.	Jun-Sep perennial herb	Not expected: See text for details.
	San Francisco gumplant				
	<i>Helianthella castanea</i>	Federal: State: CNPS: List 1B.2	Broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley/foothill grassland. Occurs in Alameda, Contra Costa and San Mateo counties; presumed extirpated in Marin and San Francisco counties. Threatened by urbanization, grazing, and fire suppression. Possibly threatened by roadside maintenance.	Mar-Jun perennial herb	Not expected: See text for details. Presumed absent.
	Diablo helianthella				
	<i>Pentachaeta bellidiflora</i>	Federal: Endangered State: Endangered CNPS: List 1B.1	Open dry rocky slopes, valley/foothill grassland, often on serpentinite. Restricted to San Mateo County; presumed extirpated in Marin and Santa Cruz counties. Known from fewer than twenty occurrences; historical occurrences lost to development. Monterey Co. occurrence once attributed to this species is actually <i>P. exilis</i> var. <i>aeolica</i> .	Mar-May annual herb	Not expected: Out of range.
	white-rayed pentachaeta				
	<i>Lessingia micradenia</i> var. <i>micradenia</i>	Federal: State: CNPS: List 1B.2	Chaparral, valley/foothill grassland, usually on serpentinite, often on roadsides. Known only from Mt. Tamalpais, Marin County. Known from only four occurrences in the Mt. Tamalpais area. See Leaflets of Botanical Observation and Criticism 2:28 (1910) for original description, and University of California Publications in Botany 16:39-40 (1929) for taxonomic treatment.	(Jun)Jul-Oct annual herb	Not expected: Out of range.
	Tamalpais lessingia				
	<i>Cirsium hydrophilum</i> var. <i>vaseyi</i>	Federal: State: CNPS: List 1B.2	Serpentine seeps in chaparral and broadleaved upland forest. Known from fewer than 10 occurrences on Mt. Tamalpais, Marin County. Known from fewer than 20 occurrences on Mt. Tamalpais. Threatened by road construction and non-native plants. See Synoptical Flora of North America 1(2):403-404 (1884) for original description.	May-Aug perennial herb	Not expected: Out of range.
	Mount Tamalpais thistle				

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
	Common Name			Life Form	
	<i>Cirsium occidentale</i> var. <i>compactum</i> compact cobwebby thistle	Federal: State: CNPS: List 1B.2	Chaparral, Coastal dunes, Coastal prairie, Coastal scrub. Monterey?, San Francisco*, San Luis Obispo Co. Known from fewer than twenty occurrences. Threatened by grazing and insect predation, and potentially by road construction and development. Some inland plants weakly separated from var. <i>occidentale</i> . Compact, low-growing plants from MNT Co. (344C) are probably not var. <i>compactum</i> .	Apr-Jun perennial herb	Not expected: See text for details.
	<i>Centromadia parryi</i> ssp. <i>parryi</i> pappose tarplant	Federal: State: CNPS: List 1B.2	Coastal prairie, meadows and seeps, marshes and swamps, valley and foothill grassland (often alkaline). Found in Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, and Sonoma counties. Threatened by agriculture, competition, development, grazing, habitat disturbance and road maintenance. A synonym of <i>Hemizonia parryi</i> ssp. <i>parryi</i> in The Jepson Manual. See Bulletin of the Torrey Botanical Club 9:16 (1882) for original description and Novon 9:466 (1999) for taxonomic treatment.	May-Nov annual herb	Not expected: Out of range.
	<i>Hesperevax sparsiflora</i> var. <i>brevifolia</i> short-leaved evax	Federal: State: CNPS: List 1B.2	Coastal bluff scrub and dunes, in sandy soils. Recorded from Humboldt, Mendocino, Marin, Santa Cruz, San Francisco, and Sonoma counties and Oregon. Threatened by development, competition with non-native plants, foot traffic, and recreational activities. Potentially threatened by trail construction. May intergrade with var. <i>sparsiflora</i> in the San Francisco Bay area. On review list in OR. See Synoptical Flora of North America 1(2):229 (1884) for original description, and Systematic Botany 17:293-310 (1992) for revised nomenclature.	Mar-Jun annual herb	Not expected: See text for details.
	<i>Lessingia hololeuca</i> woolly-headed lessingia	Federal: State: CNPS: List 3	Coastal scrub, valley/foothill grasslands on clay and serpentinite. Found from Monterey to Napa counties. Move to List 4? Need location, rarity, and endangerment information. Probably more widespread in the southern Sacramento Valley, southern North Coast Ranges, and northern S.F. Bay. Possibly threatened by grazing. See Flora Franciscana, p. 377 (1897) by E. Greene for original description, and University of California Publications in Botany 16:40 (1929) for taxonomic treatment.	Jun-Oct annual herb	Not expected: See text for details.
	<i>Microseris paludosa</i> marsh microseris	Federal: State: CNPS: List 1B.2	Moist grassland, open woods and coastal scrub near the coast. Distributed from Monterey to Sonoma counties and the San Francisco Bay. Proposed for listing as CNPS 4:1-2-3. Need quads for MEN Co. Similar to <i>M. laciniata</i> spp. <i>leptosepala</i> .	Apr-Jun(Jul) perennial herb	Not expected: See text for details.

Family				Blooming Period	Potential for Occurrence On Site
<i>Scientific Name</i>	Status		Habitat Affinities and Reported Localities in the Project Area	Life Form	
Common Name					
<i>Micropus amphibolus</i> Mt. Diablo cottonweed	Federal: State: CNPS:		Broadleaf upland forest, cismontane woodland, valley/foothill grassland. Known from Lake to Santa Cruz counties, San Francisco Bay Area. Move to List 4? Can be confused with <i>M. californicus</i> . Many occurrences old; need current status information.	Mar-May annual herb	Not expected: No suitable habitat present.
<i>Layia carnososa</i> beach layia	Federal: State: CNPS:	Endangered Endangered List 1B.1	Coastal dunes. Found from Humboldt to Monterey counties; presumed extirpated in San Francisco and Santa Barbara counties. Threatened by coastal development, foot traffic, vehicles, and non-native plants.	Mar-Jul annual herb	Not expected: No suitable habitat present. Presumed absent.
<i>Holocarpha macradenia</i> Santa Cruz tarplant	Federal: State: CNPS:	Threatened Endangered List 1B.1	Coastal prairie, valley/foothill grassland, often on heavy clay soils. Known from coastal areas of Contra Costa, Monterey and Santa Cruz counties; presumed extirpated in Alameda and Marin counties. Several introduced populations present along San Pablo R. All extant CCA Co. occurrences (465B, 466A) are introduced; nearly half have failed. Last remaining natural population in the S.F. Bay Area extirpated by development in 1993. Seriously threatened by urbanization, agriculture, non-native plants, and lack of appropriate ecological disturbance. See <i>Fremontia</i> 5(4):15-16 (1978) for species account.	Jun-Oct annual herb	Not expected: extirpated from Marin County
<i>Symphotrichum lentum</i> Suisun Marsh aster	Federal: State: CNPS:		Freshwater and brackish marshes. Known from the Napa River and San Joaquin/Sacramento River Delta. Seriously threatened by marsh habitat alteration and loss, and erosion. Possibly threatened by herbicide application. Intergrades into <i>A. chilensis</i> . USFWS uses the name <i>A. chilensis</i> var. <i>lentus</i> .	May-Nov perennial	Not expected: Out of range.
<i>Hemizonia congesta</i> ssp. <i>congesta</i> hayfield tarplant	Federal: State: CNPS:		Coastal scrub, valley/foothill grassland and fallow fields. Found in Mendocino, Marin, and Sonoma counties. Threatened by agriculture, development, and road construction. Possibly threatened by grazing. See <i>H. congesta</i> ssp. <i>leucocephala</i> in <i>The Jepson Manual</i> (1993).	Apr-Nov annual herb	Not expected: See text for details.
<i>Cirsium andrewsii</i> Franciscan thistle	Federal: State: CNPS:		Bluffs, ravines and seeps in broadleaved upland forest, coastal prairie, coastal bluff scrub/mesic, sometimes on serpentinite. Restricted to Marin, San Francisco, San Mateo, Contra Costa, and Sonoma counties. Threatened by development and non-native plants. See <i>Proceedings of the American Academy of Arts and Sciences</i> 10:45 (1874) for original description, and <i>A Flora of Western Middle California</i> , p. 506 (1901) by W. L. Jepson for revised nomenclature.	Mar-Jul perennial herb	Not expected: See text for details.

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
	Common Name			Life Form	
	<i>Stebbinsoseris decipiens</i> Santa Cruz microseris	Federal: State: CNPS: List 1B.2	Broadleaf and coniferous forest, chaparral, coastal prairie, coastal scrub, in open areas, on loose soil, sometimes serpentinite. Recorded in Monterey, Marin and Santa Cruz counties. Known from fewer than twenty occurrences. Threatened by grazing. USFWS uses the name <i>Microseris decipiens</i> .	Apr-May annual herb	Not expected: See text for details.
	<i>Lessingia germanorum</i> San Francisco lessingia	Federal: Endangered State: Endangered CNPS: List 1B.1	Coastal scrub, sandy flats and remnant dunes. Restricted to San Francisco and San Mateo counties. Known from only 4 occurrences at the Presidio and 1 at western base of San Bruno Mountain. Known from only four occurrences at the Presidio (SFO Co.), and one on San Bruno Mtn. (SMT Co.). Populations increasing 1994-1998 due to restoration efforts. Much reduced by urbanization; also threatened by trampling, sand quarrying, and non-native plants.	(Jun)Jul-Nov annual herb	Not expected: No suitable habitat present.
Boraginaceae - Borage Family					
	<i>Amsinckia lunaris</i> bent-flowered fiddleneck	Federal: State: CNPS: List 1B.2	Open woods, valley/foothill grasslands. Reported from the vicinity of the San Francisco Bay to Lake, Shasta and Siskiyou counties. Many collections old; current status information needed. Does plant occur in SHA and SIS counties? Threatened by development and mining.	Mar-Jun annual herb	Not expected: See text for details.
	<i>Plagiobothrys glaber</i> hairless popcorn flower	Federal: State: CNPS: List 1A	Alkaline meadows and vernal coastal saltmarshes. Presumed extinct. Once occurred in Alameda, Merced, Marin, San Benito, and Santa Clara counties. Last confirmed sighting in 1954. Possibly relocated near Antioch; identification uncertain. All collections since 1930's located in the Hollister area; plant should also be looked for there. Possibly a variety of <i>P. stipitatus</i> .	Mar-May annual herb	Not expected: No suitable habitat present.
	<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i> Choris's popcorn flower	Federal: State: CNPS: List 1B.2	Chaparral, Coastal prairie, Coastal scrub /mesic. 0-150 m Alameda, Santa Cruz, San Francisco, San Mateo. Taxonomic work needed; intergrades with var. <i>hickmanii</i> , and differences may be environmentally induced. Threatened by development.	Mar-Jun annual herb	Not expected: See text for details.
	<i>Plagiobothrys diffusus</i> San Francisco popcorn-flower	Federal: State: Endangered CNPS: List 1B.1	Coastal prairie and possibly valley/Foothill grassland, on clay soils. Known from only 6 occurrences in Santa Cruz County; presumed to be extirpated in San Francisco County. Known from approximately ten occurrences. Threatened by development and non-native plants. Identification difficult; taxonomic work needed.	Mar-Jun annual herb	Not expected: Presumed absent.

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
	Common Name			Life Form	
Brassicaceae - Mustard Family					
	<i>Erysimum franciscanum</i> San Francisco wallflower	Federal: State: CNPS: List 4.2	Coastal dunes, coastal scrub, valley/foothill grassland often on serpentinite or granitic soils. Restricted to near the coast from Santa Cruz to Sonoma counties. Rare and declining in SCR Co. Includes <i>E. franciscanum</i> var. <i>crassifolium</i> . Inland plants approach <i>E. capitatum</i> . See Aliso 4(1):118-121 (1958) for original description.	Mar-Jun perennial herb	Not expected: See text for details.
	<i>Streptanthus batrachopus</i> Tamalpais jewel-flower	Federal: State: CNPS: List 1B.3	Talus serpentinite outcrops among closed-cone coniferous forest and chaparral. Known from fewer than ten occurrences in the vicinity of Mt. Tamalpais, Marin County. Known from fewer than ten occurrences in the Mt. Tamalpais area. Similar plants from the southern North Coast Ranges may be an undescribed new taxon. Intergrades with <i>S. barbiger</i> .	Apr-Jul annual herb	Not expected: Out of range.
	<i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i> Mount Tamalpais bristly jewel-flower	Federal: State: CNPS: List 1B.2	Chaparral, valley and foothill grassland/ serpentinite; elevation 150-800 meters. Known only from the Mt. Tamalpais area in Marin County. Known only from the Mt. Tamalpais area. Threatened by trampling and non-native plants. Possibly threatened by browsing.	May-Jul(Aug) annual herb	Not expected: Out of range.
	<i>Streptanthus niger</i> Tiburon jewel-flower	Federal: Endangered State: Endangered CNPS: List 1B.1	Valley/foothill grassland, on serpentinite. Known from only three occurrences in Marin County. Known from only two occurrences on the Tiburon Peninsula. Threatened by road construction, foot traffic, non-native plants, and development.	May-Jun annual herb	Not expected: Out of range.
	<i>Arabis aculeolata</i> Waldo rock cress	Federal: State: CNPS: List 2.2	Broadleaved upland forest, Lower montane coniferous forest, Upper montane coniferous forest/serpentinite. Del Norte, Siskiyou, Oregon Co. Known in CA from fewer than ten occurrences. Threatened by logging and mining. On watch list in OR. See Rhodora 43(511):352-353 (1941) for taxonomic treatment, and Contributions from the Gray Herbarium 204:151 (1973) for taxonomic information.	Apr-Jun perennial herb	Not expected: Out of range.
	<i>Arabis blepharophylla</i> coast rock cress	Federal: State: CNPS: List 4.3	Coastal prairie, coastal scrub, rocky coastal bluffs, grassy slopes, broadleaf upland forest. Known from Santa Cruz to Sonoma and Contra Costa counties. Threatened by competition. See Rhodora 43(511):348-349 (1941) for taxonomic treatment, and Contributions from the Gray Herbarium 204:149-154 (1973) for taxonomic information.	Feb-May perennial herb	Not expected: See text for details.

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
Common Name				Life Form	
Caryophyllaceae - Pink Family					
<i>Stellaria littoralis</i>	Federal:		Bogs, fens, marshes, swamps, coastal scrub and dunes Restricted to San Francisco to Sonoma counties and Humboldt County. Believed extirpated in Mendocino County. Threatened by grazing, trampling, and non-native plants.	Mar-Jul	Not expected: See text for details.
beach starwort	State:			perennial	
	CNPS:	List 4.2			
<i>Silene verecunda</i> ssp. <i>verecunda</i>	Federal:		Coastal bluffs, coastal scrub, dunes, on sandy or rocky soils. Known from fewer than 20 occurrences in Santa Cruz, San Mateo and San Francisco counties. Known from fewer than twenty occurrences. Threatened by development and non-native plants.	Mar-Jun(Aug)	Not expected: See text for details.
San Francisco campion	State:			perennial herb	
	CNPS:	List 1B.2			
<i>Arenaria paludicola</i>	Federal:	Endangered	Freshwater marsh and swamps. Last known extant population located on Nipomo Mesa, San Luis Obispo County. Presumed extirpated in Los Angeles, San Bernardino, Santa Cruz and San Francisco counties. Known from only two natural occurrences in Black Lake Cyn. and at Oso Flaco Lk. Threatened by development, erosion, and non-native plants. Individuals re-introduced in Black Lake Cyn. in 1995. Introduced population in Los Osos well established as of 2003. Experimental introduction also underway in Nipomo as of 2004. Collection from Mexico needs confirmation. See Proceedings of the California Academy of Natural Sciences 3:61 (1863) for original description.	May-Aug	Not expected: No suitable habitat present.
marsh sandwort	State:	Endangered		perennial	
	CNPS:	List 1B.1			
Convolvulaceae - Morning-glory Family					
<i>Calystegia purpurata</i> ssp. <i>saxicola</i>	Federal:		Coastal dunes and scrub. Known from Mendocino, Marin, and Sonoma counties. Threatened by development, foot traffic, and non-native plants. See Bulletin of the Torrey Botanical Club 30(9):495 (1903) for original description, and Annals of the Missouri Botanical Garden 52(2):214 (1965) for revised nomenclature.	May-Sep	Not expected: No suitable habitat present.
coastal bluff morning-glory	State:			perennial herb	
	CNPS:	List 1B.2			

Family					
Scientific Name	Status		Habitat Affinities and Reported Localities in the Project Area	Blooming Period Life Form	Potential for Occurrence On Site
Common Name					
<i>Calystegia collina</i> ssp. <i>oxyphylla</i>	Federal: State: CNPS: List 4.2		Chaparral, Lower montane coniferous forest, Valley and foothill grassland/serpentinite. Lake, Mendocino, Marin, Napa, San Benito, Sonoma Co. Threatened by road maintenance.	Apr-Jun perennial	Not expected: No suitable habitat present.
Mt. Saint Helena morning-glory					
<i>Dichondra occidentalis</i> western dichondra	Federal: State: CNPS: List 4.2		Chaparral, cismontane woodland, coastal scrub and valley/foothill grassland. Known from Santa Barbara to Orange counties; questionably known from Marin and Los Angeles counties. Records for MRN Co. are questionable; report from LAX Co. needs confirmation. See Muhlenbergia 1:130-131 (1906) for original description.	(Jan)Mar-Jul perennial	Not expected: Out of range.
Ericaceae - Heath Family					
<i>Arctostaphylos virgata</i> Marin manzanita	Federal: State: CNPS: List 1B.2		Broadleaf and coniferous forest and chaparral, on sandstone or granitic soils. Known from fewer than 20 occurrences in Marin County. Known from approximately twenty occurrences. Threatened by fire suppression. See Trees and Shrubs 1:203 (1905) for original description.	Jan-Mar perennial	Not expected: No suitable habitat present.
<i>Arctostaphylos pacifica</i> Pacific manzanita ☐	Federal: State: Endangered CNPS: List 1B.2		Chaparral, Coastal scrub; 330 meters Known only from San Bruno Mountain in San Mateo County. Potentially threatened by alteration of fire regimes and recreational activities. Once considered a hybrid between <i>A. glandulosa</i> and <i>A. uva-ursi</i> . See <i>A. uva-ursi</i> . Known only from San Bruno Mountain in San Mateo County. Potentially threatened by alteration of fire regimes and recreational activities. Once considered a hybrid between <i>A. glandulosa</i> and <i>A. uva-ursi</i> . See <i>A. uva-ursi</i> in The Jepson Manual (1993). See Leaflets of Western Botany IX (13-14): 217 (1962) for original description.	Feb-Apr evergreen shrub	Not expected: Out of range.
<i>Arctostaphylos pallida</i> pallid manzanita	Federal: Threatened State: Endangered CNPS: List 1B.1		Broadleaved upland forest, cismontane woodland, chaparral and coastal scrub, on siliceous shale, sandy and gravelly soils on uplifted Marine terraces. Restricted to Alameda and Contra Costa counties. Known from fewer than 10 occurrences in the Contra Costa Hills of the Diablo Range. Threatened by alteration of fire regimes, non-native plants, and road construction, and possibly by development, fungal infection, and hybridization. Plants from 465B are introduced. See Leaflets of Western Botany 1:76 (1933) for original description, and Four Seasons 7(4):28-46 (1987) for ecological assessment.	Dec-Mar perennial	Not expected: out of known range

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
	Common Name			Life Form	
	<i>Arctostaphylos hookeri</i> ssp. <i>ravenii</i> Presidio manzanita	Federal: Endangered State: Endangered CNPS: List 1B.1	Chaparral, coastal prairie, coastal scrub/ serpentinite outcrop; elevation 45-215 meters. Known from only one extant native occurrence at the Presidio in San Francisco; plants there belong to a single clone. Known from only one extant native occurrence at the Presidio in San Francisco; plants there belong to a single clone. Five of six historical occurrences extirpated by urbanization; currently threatened by non-native plants, encroachment of native shrubs, and branch dieback due to fungal pathogen. USFWS uses the name <i>A. pungens</i> var. <i>ravenii</i> . See Madroño 19(6):200 (1968) for original description.	Feb-Mar perennial	Not expected: No suitable habitat present. See text for details.
	<i>Arctostaphylos franciscana</i> Franciscan manzanita	Federal: State: CNPS: List 1A	Coastal scrub (serpentinite); elevation 60-300 meters. Single plant rediscovered in the wild in 2009. Previously considered extinct since 1947. Seriously threatened by road construction.	Feb-Apr perennial	Not expected: No suitable habitat present.
	<i>Arctostaphylos montaraensis</i> Montara manzanita	Federal: State: CNPS: List 1B.2	Maritime chaparral and coastal scrub on slopes and ridges. Known from approximately 10 occurrences on San Bruno and Montara mountains, San Mateo County. Known from fewer than ten occurrences. Threatened by development and vehicles. See Four Seasons 2(3):8 (1967) for original description.	Jan-Mar perennial	Not expected: Out of range.
	<i>Arctostaphylos imbricata</i> San Bruno Mountain manzanita	Federal: State: Endangered CNPS: List 1B.1	Chaparral, rocky coastal scrub Known from 5 occurrences on San Bruno Mountain, San Mateo County. Known from fewer than five occurrences on San Bruno Mtn. Threatened by fungal infection, and possibly by alteration of fire regimes. All occurrences are within the boundaries of the San Bruno Mtn. HCP.	Feb-May perennial	Not expected: Out of range.
	<i>Pityopus californica</i> California pinefoot	Federal: State: CNPS: List 4.2	Broadleaf upland forest and coniferous forests. Occurs from Humboldt and Siskiyou counties to Marin and Napa counties. Threatened by logging. State-listed as Sensitive in WA.	(Apr)May-Aug perennial herb	Not expected: No suitable habitat present.
	<i>Arctostaphylos hookeri</i> ssp. <i>montana</i> Mount Tamalpais manzanita	Federal: State: CNPS: List 1B.3	Chaparral, valley/foothill grassland, mostly on serpentinite. Known from fewer than 20 occurrences in the vicinity of Mt. Tamalpais, Marin County. Known from fewer than twenty occurrences in the Mt. Tamalpais area. See Proceedings of the California Academy of Sciences 1:83 (1897) for original description, and Madroño 19(6):200 (1968) for revised nomenclature.	Feb-Apr perennial	Not expected: Out of range.

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
Common Name				Life Form	
Fabaceae - Pea Family					
<i>Astragalus tener</i> var. <i>tener</i>	Federal:		Playas, valley and foothill grassland (adobe clay), vernal pools/alkaline; elevation 1-60 meters. Once widespread from San Francisco to Monterey and San Benito counties and north to Napa and Yolo counties. Extirpated from much of its former range. Exta. Threatened by development, competition from non-native plants, and habitat destruction, especially agricultural conversion. Possibly threatened by trampling. Potentially threatened by energy transmission line construction.	Mar-Jun annual herb	Not expected: No suitable habitat present.
alkali milk-vetch	State:				
	CNPS:	List 1B.2			
<i>Trifolium amoenum</i>	Federal:	Endangered	Valley/foothill grasslands, in sunny open sites, sometimes on serpentinite. Rediscovered in Sonoma County in 1993, believed extirpated in Alameda, Mendocino, Marin, Napa, Santa Clara and Solano counties. Rediscovered in 1993 by P. Connors near Occidental; only one plant found, and subsequent surveys in 1994-1995 unsuccessful. Another occurrence (502C) discovered in 1996. Historical habitat lost to urbanization and agriculture.	Apr-Jun annual herb	Not expected: No suitable habitat present.
two-fork clover	State:				
	CNPS:	List 1B.1			
<i>Astragalus breweri</i>	Federal:		Meadows and grassy hillsides, oak woodland, chaparral, often on serpentinite or volcanic soils. Known from Marin, Mendocino, Lake, Sonoma, Colusa, Napa and Yolo counties. Populations have been lost to development and road construction. Threatened by development and non-native plants.	Apr-Jun annual herb	Not expected: No suitable habitat present.
Brewer's milk-vetch	State:				
	CNPS:	List 4.2			
<i>Lotus formosissimus</i>	Federal:		Broadleafed upland forest, Coastal bluff scrub, Closed-cone coniferous forest, Cismontane woodland, Coastal prairie, Coastal scrub, Meadows and seeps, Marshes and swamps, North Coast coniferous forest, Valley and foothill grassland/wetlands, roadsides. Del Norte, Humboldt, Mendocino, Monterey, Marin, San Benito, Santa Cruz, San Francisco, San Luis Obispo, San Mateo, Sonoma, Oregon, Washington Co. Designated as Endangered in Canada. Threatened by development, grazing, feral pigs, habitat alteration, and competition. See Pittonia 2:147 (1890) for revised nomenclature.	Mar-Jul perennial	Not expected: See text for details.
slender trefoil	State:				
	CNPS:	List 4.2			
<i>Hoita strobilina</i>	Federal:		Chaparral, cismontane and riparian woodland, usually in mesic areas on serpentine soil. Recorded from Santa Clara and Santa Cruz counties. Believed extirpated in Alameda and Contra Costa counties. Threatened by urbanization. Possibly threatened by feral pigs and foot traffic. See North American Flora 24:11 (1919) for revised nomenclature, and Memoirs of the New York Botanical Garden 61:1-114 (1990) for taxonomic treatment.	May-Jul(Aug- perennial herb	Not expected: Out of range.
Loma Prieta hoita	State:				
	CNPS:	List 1B.1			

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
	Common Name			Life Form	
	<i>Astragalus nuttallii</i> var. <i>nuttallii</i>	Federal: State: CNPS: List 4.2	Coastal bluff scrub and coastal dunes. Known from San Mateo to Santa Barbara counties. Extirpated in San Francisco and Alameda counties. Possibly threatened by foot traffic. See Leaflets of Western Botany 5(6):107 (1948) for revised nomenclature.	Jan-Nov perennial herb	Not expected: See text for details.
	Nuttall's milk-vetch				
	<i>Trifolium depauperatum</i> var. <i>hydrophilum</i>	Federal: State: CNPS: List 1B.2	Marshes, swamps, valley and foothill grassland (mesic, alkaline), and vernal pools. Known from the San Francisco Bay area south to San Luis Obispo county. Possibly in Colusa county. Many sites likely extirpated; need current information on rarity and endangerment. Need quads for COL Co. Threatened by development, trampling, road construction, and vehicles. See Manual of the Botany of the Region of San Francisco Bay, p.100 (1894) for original description, and Brittonia 32(1):55 (1980) for revised nomenclature.	Apr-Jun annual herb	Not expected: Out of range.
	saline clover				
	<i>Amorpha californica</i> var. <i>napensis</i>	Federal: State: CNPS: List 1B.2	Broadleaved upland forest (openings), chaparral, cismontane woodland. Known from Marin, Napa, Sonoma and Monterey counties. Threatened by development and habitat alteration.	Apr-Jul perennial	Not expected: No suitable habitat present. See text for details.
	Napa false indigo				
Fagaceae - Oak Family					
	<i>Quercus parvula</i> var. <i>tamalpaisensis</i>	Federal: State: CNPS: List 1B.3	Lower montane coniferous forest. Known only from Mt. Tamalpais, in Marin County. Known only from Mt. Tamalpais. May hybridize with <i>Q. wislizeni</i> var. <i>frutescens</i> . Not in The Jepson Manual.	Mar-Apr perennial	Not expected: Out of range.
	Tamalpais oak				
Geraniaceae - Geranium Family					
	<i>California macrophylla</i>	Federal: State: CNPS: List 1B.1	Cismontane woodland, valley and foothill grasslands, on clay soil. Widespread throughout California, Baja California, Oregon, Utah, and other states. Threatened by urbanization, habitat alteration, vehicles, pipeline construction, feral pigs, and non-native plants. Potentially threatened by grazing.	Mar-May annual herb	Not expected: Out of range.
	round-leaved filaree				

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
Common Name				Life Form	
Grossulariaceae - Gooseberry Family					
<i>Ribes victoris</i>	Victor's gooseberry	Federal: State: CNPS: List 4.3		Mar-Apr perennial	Not expected: No suitable habitat present.
Lamiaceae - Mint Family					
<i>Monardella undulata</i>	curly-leaved monardella	Federal: State: CNPS: List 4.2	Chaparral, coastal dunes, coastal scrub, lower montane coniferous forests (ponderosa pine sand hills), on sandy soils. Recorded from Sonoma to Santa Barbara counties. Threatened by coastal development, sand mining, and non-native plants.	May-Sep annual herb	Not expected: See text for details.
<i>Monardella villosa</i> ssp. <i>globosa</i>	robust monardella	Federal: State: CNPS: List 1B.2	Openings in chaparral, cismontane woodland. Occurs from the San Francisco Bay Area to Humboldt County. Many occurrences not recently seen; need field surveys. Occurrence on 406A shows signs of intergradation with ssp. <i>villosa</i> . See Pittonia 5:82 (1902) for original description, and Phytologia 72(1):9-16 (1992) for revised nomenclature.	Jun-Jul(Aug) perennial	Not expected: Out of range.
Linaceae - Flax Family					
<i>Hesperolinon congestum</i>	Marin western flax	Federal: Threatened State: Threatened CNPS: List 1B.1	Valley/foothill grassland and chaparral on serpentinite. Known from fewer than 20 occurrences in Marin, San Francisco and San Mateo counties. Protected in part at Ring Mtn. Preserve, MRN Co. Threatened by development, non-native plants, and foot traffic. See Proceedings of the American Academy of Arts and Sciences 6:521 (1865) for original description, and University of California Publications in Botany 32:235-314 (1961) for taxonomic treatment.	Apr-Jul annual herb	Not expected: No suitable habitat present.
Malvaceae - Mallow Family					
<i>Malacothamnus arcuatus</i>	arcuate bush-mallow	Federal: State: CNPS: List 1B.2	Chaparral. Restricted to Santa Clara, Santa Cruz and San Mateo counties. Threatened by alteration of fire regimes. A synonym of <i>M. fasciculatus</i> in The Jepson Manual. See Manual of the Botany of the Region of San Francisco Bay, p. 66 (1894) by E. Greene for original description, Leaflets of Botanical Observation and Criticism 1:208 (1906) for revised nomenclature, and Leaflets of Western Botany 6(6):132-133 (1951) for taxonomic treatment.	Apr-Sep perennial	Not expected: Out of range.

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
	Common Name			Life Form	
	<i>Sidalcea hickmanii</i> ssp. <i>viridis</i>	Federal: State: CNPS: List 1B.3	Chaparral on dry coastal ridges on serpentinite. Known from Marin Napa, San Francisco, San Mateo and Sonoma counties. Possibly threatened by development and fire suppression. Plants from LAK Co. (565B) may be a new taxon.	May-Jun perennial herb	Not expected: No suitable habitat present.
	<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i>	Federal: State: CNPS: List 1B.2	Freshwater marshes near the coast. Known from Marin, Mendocino and Sonoma counties. Threatened by non-native plants, road maintenance, foot traffic, and pipeline construction.	Apr-Sep perennial	Not expected: No suitable habitat present.
Onagraceae - Evening Primrose					
	<i>Clarkia franciscana</i>	Federal: Endangered State: Endangered CNPS: List 1B.1	Coastal scrub, valley/foothill grassland, on serpentinite. Known from fewer than five occurrences in Alameda and San Francisco counties. Known from fewer than five occurrences. Threatened by Army activities, vehicles, urbanization and non-native plants. See Brittonia 10:7-13 (1958) for original description, and Madroño 39(1):1-7 (1992) for information on ALA Co. occurrence.	May-Jul annual herb	Not expected: No suitable habitat present.
Orobanchaceae - Broom-rape Family					
	<i>Boschniakia hookeri</i>	Federal: State: CNPS: List 2.3	North Coast coniferous forest; elevation 90-885 meters. Known from Del Norte, Humboldt, Mendocino, Marin counties; Oregon and Washington. How rare is plant outside CA? Parasitic on Gaultheria shallon and Vaccinium spp. Possibly threatened by logging.	Apr-Aug perennial	Not expected: No suitable habitat present.
Polemoniaceae - Phlox Family					
	<i>Leptosiphon rosaceus</i>	Federal: State: CNPS: List 1B.1	Coastal bluff scrub; elevation 0-100 meters. Known from only one occurrence near Pacifica in San Mateo County. Presumed extirpated in Marin, San Francisco, and Sonoma counties. Possibly threatened by competition and non-native plants. Not in The Jepson Manual. See Curtis Bot. Mag. 96:tab. 5863 (1870) for original description, and Madroño 48(2):75 (2001) for revised nomenclature.	Apr-Jul annual herb	Not expected: Out of range.

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
	Common Name			Life Form	
	<i>Leptosiphon acicularis</i> bristly leptosiphon	Federal: State: CNPS: List 4.2	Chaparral, cismontane woodland, coastal prairie and valley/foothill grassland. Known from Humboldt County to San Mateo County on the coast to Fresno County. Historical occurrences need verification. Does plant occur in CCA Co.? A synonym of <i>Linanthus acicularis</i> in The Jepson Manual. See Pittonia 2:259 (1892) for original description, and School fl. Pacif. Coast 77 (1902) for revised nomenclature.	Apr-Jul annual herb	Not expected: No suitable habitat present.
	<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	Federal: State: CNPS: List 1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools / mesic; elevation 15-1740 meters. Known from Colusa, Glenn, Lake, Mendocino, Marin, Napa, Solano, Sonoma, Sutter, Tehama, and Yolo count. May be more widespread; need information. Need quads for COL Co. Threatened by development, habitat alteration, road construction, and agriculture.	Apr-Jul annual herb	Not expected: No suitable habitat present.
	<i>Leptosiphon grandiflorus</i> large-flowered leptosiphon	Federal: State: CNPS: List 4.2	Coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal prairie, coastal scrub, valley/foothill grassland. Known from Sonoma to San Luis Obispo counties and the San Joaquin Valley. Many historical occurrences extirpated by development; need status information. A synonym of <i>Linanthus grandiflorus</i> in The Jepson Manual. See Pittonia 2:260 (1892) for revised nomenclature, and Aliso 19(1):55-91 (2000) for taxonomic treatment.	Apr-Aug annual herb	Not expected: See text for details.
	<i>Navarretia cotulifolia</i> cotula navarretia	Federal: State: CNPS: List 4.2	Chaparral, cismontane woodland and valley and foothill grassland, on adobe soils. Known from the San Joaquin Valley, the San Francisco Bay area north to Mendocino County. Does plant occur in SIS Co.? Threatened by non-native plants and habitat alteration.	May-Jun annual herb	Not expected: No suitable habitat present.
	<i>Navarretia rosulata</i> Marin County Navarretia	Federal: State: CNPS: List 1B.2	Closed cone coniferous forest and chaparral on serpentinite or rocky sites. Restricted to Marin and Napa counties. Known from fewer than twenty occurrences.	May-Jul annual herb	Not expected: No suitable habitat present.
	<i>Gilia capitata</i> ssp. <i>tomentosa</i> woolly-headed gilia	Federal: State: CNPS: List 1B.1	Coastal bluff scrub, on rocky outcrops. Known from only three occurrences near Tomales and Salt Point S.P. in Marin County. May also occur in Sonoma County. Known from approximately 10 occurrences. Threatened by urbanization, road maintenance, and erosion. Intergrades with ssp. <i>capitata</i> in northeastern San Francisco Bay area. See Aliso 2(3):304 (1950) for revised nomenclature.	May-Jul annual herb	Not expected: Out of range.

Family					
Scientific Name	Status		Habitat Affinities and Reported Localities in the Project Area	Blooming Period Life Form	Potential for Occurrence On Site
Common Name					
<i>Gilia capitata</i> ssp. <i>chamissonis</i> dune gilia	Federal: State: CNPS: List 1B.1		Coastal dunes and scrub. Northern portion of the Central Coast from San Francisco to Bodega Bay. Once very common on the San Francisco dunes. Widespread in the Presidio on stabilized dunes. Threatened by urbanization, recreational development, and non-native plants. Possibly threatened by trampling. See Erythea 3:105 (1895) for original description, and Aliso 2(3):309 (1950) for revised nomenclature.	Apr-Jul annual herb	Not expected: See text for details.
<i>Gilia millefoliata</i> dark-eyed gilia	Federal: State: CNPS: List 1B.2		Coastal strand, stabilized coastal dunes. Believed extirpated in San Francisco County. Distributed from the San Francisco Bay to Del Norte County. Threatened by development, vehicles, foot traffic, grazing, and non-native plants. Endangered in OR. See Aliso 3(1):33 (1954) for taxonomic treatment.	Apr-Jul annual herb	Not expected: No suitable habitat present.
<i>Polemonium carneum</i> Oregon polemonium	Federal: State: CNPS: List 2.2		Coastal prairie, Coastal scrub, Lower montane coniferous forest. Alameda, Del Norte, Humboldt, Marin, San Francisco, Siskiyou, San Mateo, Sonoma, Oregon, Washington Co. Threatened by logging.	Apr-Sep perennial herb	Not expected: See text for details.
Polygonaceae - Buckwheat Family					
<i>Eriogonum luteolum</i> var. <i>caninum</i> Tiburon buckwheat	Federal: State: CNPS: List 1B.2		Chaparral, coastal prairie, valley/foothill grassland on serpentinite. Known from Colusa and Lake counties to San Mateo County. Not clearly distinguishable from var. <i>luteolum</i> north of Tiburon. <i>E. luteolum</i> is similar to <i>E. gracile</i> to the south and <i>E. vimineum</i> to the northeast. Threatened by development, foot traffic, and non-native plants. See Flora Franciscana, pp. 150-151 (1891) by E. Greene for original description, and Phytologia 66(4):378-379 (1989) for alternative treatment which restricts var. <i>caninum</i> to ALA and MRN counties.	May-Sep annual herb	Not expected: No suitable habitat present.
<i>Polygonum marinense</i> Marin knotweed	Federal: State: CNPS: List 3.1		Coastal saltmarsh. Known from fewer than ten occurrences in Marin, Napa and Sonoma counties. Taxonomic questions regarding identification and origin. Move to List 1B? Known from fewer than twenty occurrences. Taxonomic status uncertain, related to <i>P. aviculare</i> ; possibly synonym of <i>P. robertii</i> , a non-native plant. Immediate taxonomic study needed. Threatened by coastal development and foot traffic.	(Apr)May- annual herb	Not expected: No suitable habitat present.

Family					
Scientific Name	Status		Habitat Affinities and Reported Localities in the Project Area	Blooming Period Life Form	Potential for Occurrence On Site
Common Name					
<i>Chorizanthe valida</i> Sonoma spineflower	Federal: Endangered State: Endangered CNPS: List 1B.1		Coastal prairie, on sandy sites. Known only from Pt. Reyes, Marin County. Believed extirpated in Sonoma County. Thought extinct for 77 years; only known extant occurrence was rediscovered in 1980 at Pt. Reyes NS. Experimental introduction work ongoing as of 2000. Closely related to <i>C. pungens</i> . See Proceedings of the American Academy of Arts and Sciences 12:271 (1877) for original description, Phytologia 66(2):132-134 (1989) for taxonomic treatment, Fremontia 18(1):17-18 (1990) for species account, and Madroño 24(1):39(4):271-280 (1992) and 40(4):285-288 (1993) for discussion of grazing effects.	Jun-Aug annual herb	Not expected: Out of range.
<i>Chorizanthe robusta</i> var. <i>robusta</i> robust spineflower	Federal: Endangered State: CNPS: List 1B.1		Openings and sandy locations in cismontane woodland, coastal dunes, and coastal scrub. Restricted to Monterey and Santa Cruz counties; believed extirpated in Alameda, Santa Clara and San Mateo counties. Most populations extirpated, and now known from only six extended occurrences. Threatened by development, recreation, mining, and non-native plants. See <i>C. robusta</i> in The Jepson Manual. See Phytologia 66(2):130-131 (1989) for taxonomic treatment, and Fremontia 24(4):8-11 (1996) for taxonomic discussion.	Apr-Sep annual herb	Not expected: Out of range.
<i>Chorizanthe cuspidata</i> var. <i>cuspidata</i> San Francisco Bay spineflower	Federal: State: CNPS: List 1B.2		coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub/sandy; elevation 3-215 meters. Known from Marin, San Francisco and San Mateo counties. Possibly in Santa Clara and Sonoma counties. Considered extirpated in Alameda County. Plant may occur in SCL Co.; need more information. Closely related to <i>C. pungens</i> . Some plants from Pt. Reyes, MRN Co. (485B, 485C) to Bodega Head, SON Co. (502C, 503D) probably intermediate to var. <i>villosa</i> . See <i>C. cuspidata</i> in The Jepson Manual. See Proceedings of the Davenport Academy of Natural Sciences 4:60 (1884) for original description, and Phytologia 66(2):127-129 (1989) for taxonomic treatment.	Apr-Jul(Aug) annual herb	Not expected: See text for details.
Portulacaceae - Purslane Family					
<i>Calandrinia breweri</i> Brewer's calandrinia	Federal: State: CNPS: List 4.2		Chaparral and coastal scrub on sandy or loamy, disturbed and burned sites. Known from Napa and Mendocino counties, throughout the Central Coast to San Diego. Plant appears to be widely scattered but uncommon everywhere, and most collections are old. Field surveys needed.	Mar-Jun annual herb	Not expected: Out of range.

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
Common Name				Life Form	
Ranunculaceae - Buttercup Family					
<i>Ranunculus lobbii</i>	Federal:		Mesic sites in cismontane woodland, valley/foothill grassland, North Coast coniferous forest and vernal pools. Known from the San Francisco Bay Area to Mendocino and Napa counties. Threatened by urbanization, habitat alteration, and agriculture.	Feb-May annual herb	Not expected: No suitable habitat present.
Lobb's aquatic buttercup	State:				
	CNPS:	List 4.2			
Rhamnaceae - Buckthorn Family					
<i>Ceanothus gloriosus</i> var. <i>exaltatus</i>	Federal:		Chaparral. Known from Mendocino to Marin counties. Threatened by habitat disturbance. See Leaflets of Western Botany 2:44 (1937) for original description.	Mar-Jun perennial	Not expected: No suitable habitat present.
glory brush	State:				
	CNPS:	List 4.3			
<i>Ceanothus gloriosus</i> var. <i>gloriosus</i>	Federal:		Coastal bluff scrub, Closed-cone coniferous forest, Coastal dunes, Coastal scrub/sandy. Mendocino, Marin, Sonoma Co. Can intergrade with <i>Ceanothus gloriosus</i> var. <i>porrectus</i> .	Mar-May perennial	Not expected: See text for details.
Point Reyes ceanothus	State:				
	CNPS:	List 4.3			
Rosaceae - Rose Family					
<i>Horkelia cuneata</i> ssp. <i>sericea</i>	Federal:		Closed-cone coniferous forest, old dunes and coastal scrub. Restricted to coastal areas from Santa Barbara to San Mateo counties; presumed extirpated in San Francisco, Alameda and Marin counties. Historical occurrences need field surveys. Threatened by coastal development. Occurrence from the Crocker Hills probably last remaining location in S.F. Bay. Remaining plants less distinct from ssp. <i>cuneata</i> than those formerly occurring near San Francisco.	Apr-Sep perennial herb	Not expected: Out of range.
Kellogg's horkelia	State:				
	CNPS:	List 1B.1			
<i>Horkelia tenuiloba</i>	Federal:		Chaparral, in openings on mesic sites. Known from Mendocino, Marin and Sonoma counties. Historical occurrences need field surveys. Threatened by development. See Report of the Pacific Railroad Expedition 4(5):84 (1857) for original description, and Systematic Botany 18(1):137-144 (1993) for taxonomic treatment.	May-Jul perennial herb	Not expected: No suitable habitat present.
thin-lobed horkelia	State:				
	CNPS:	List 1B.2			

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
	Common Name			Life Form	
Scrophulariaceae - Figwort Family					
	<i>Cordylanthus maritimus</i> ssp. <i>palustris</i>	Federal: State: CNPS: List 1B.2	Coastal saltmarsh. Believed extant in Humboldt, Marin and Sonoma counties; presumed extirpated in Alameda, Santa Clara and San Mateo counties. Once rather common in proper habitat; now greatly reduced by development. Also threatened by foot traffic, non-native plants, hydrological alterations, cattle grazing and trampling. State listed as Endangered in OR. See Proceedings of the California Academy of Science 1:61 (1855) for original description, Brittonia 25:135-158 (1973) for taxonomic treatment, and Madroño 41(4):316-327 (1994) for ecological discussion.	Jun-Oct annual herb	Not expected: No suitable habitat present.
	Pt. Reyes bird's-beak				
	<i>Triphysaria floribunda</i>	Federal: State: CNPS: List 1B.2	Coastal prairie, foothill/Valley grassland, on clay or serpentinite. Known from Marin, San Francisco and San Mateo counties. Threatened by grazing, non-native plants, and trampling.	Apr-Jun annual herb	Not expected: No suitable habitat present.
	San Francisco owl's clover				
	<i>Castilleja ambigua</i> ssp. <i>ambigua</i>	Federal: State: CNPS: List 4.2	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal poolsmargins. Alameda, Contra Costa, Del Norte, Humboldt, Mendocino, Marin, Napa, Santa Cruz, San Francisco?, San Luis Obispo, San Mateo, Sonoma, Oregon, Washington Co. Threatened by development.	Mar-Aug annual herb	Not expected: See text for details.
	johnny-nip				
	<i>Collinsia multicolor</i>	Federal: State: CNPS: List 1B.2	Closed cone coniferous forest and coastal scrub, on moist, more or more or less shady sites. Restricted to Monterey, Santa Cruz, San Francisco and San Mateo counties. Threatened by non-native plants and urbanization.	Mar-May annual herb	Not expected: No suitable habitat present.
	San Francisco collinsia				
	<i>Collinsia corymbosa</i>	Federal: State: CNPS: List 1B.2	Coastal dunes. Restricted to Humboldt, Mendocino, Sonoma and possibly Marin counties. Believed extirpated in San Francisco county. Scattered distribution. Need quads for HUM Co. and for "Russian colony" (SON Co.). May intergrade with <i>C. bartsiiifolia</i> var. <i>bartsiiifolia</i> .	Apr-Jun annual herb	Not expected: No suitable habitat present.
	round-headed Chinese houses				
	<i>Castilleja affinis</i> ssp. <i>neglecta</i>	Federal: Endangered State: Threatened CNPS: List 1B.2	Valley and foothill grassland, rocky serpentine sites. Known from only 6 occurrences in Marin, Napa and Santa Clara counties. Known from fewer than 10 occurrences. Threatened by development, gravel mining, and grazing.	Apr-Jun perennial herb	Not expected: No suitable habitat present.
	Tiburon Indian paint brush				

Family	Scientific Name	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
	Common Name			Life Form	
Thymelaeaceae - Mezereum Family					
	<i>Dirca occidentalis</i> western leatherwood	Federal: State: CNPS: List 1B.2	Broadleaf upland forest, closed cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, and riparian woodland. Restricted to brushy slopes and mesic sites. Known from San Mateo to Sonoma counties. Possibly threatened by road maintenance. Populations declining; not reproducing well.	Jan-Mar(Apr) perennial	Not expected: No suitable habitat present.
Non-flowering Plants					
BRYOPSIDA - Mosses					
Fissidentaceae - Moss Family					
	<i>Fissidens pauperculus</i> minute pocket moss	Federal: State: CNPS: List 1B.2	North Coast coniferous forest, damp coastal soil. Elevation 10 to 100 meters. Known from Butte, Del Norte, Humboldt, Mendocino, Marin, and Santa Cruz counties.	moss	Not expected: No suitable habitat present.
Pottiaceae - Moss family					
	<i>Triquetrella californica</i> triquetrella	Federal: State: CNPS: List 1B.2	Coastal bluff scrub and coastal scrub. Known from Contra Costa, Mendocino, San Diego, and San Francisco counties and Oregon. Known in California from fewer than ten small coastal occurrences. Known in CA from fewer than ten small coastal occurrences, and in in OR from only one occurrence. Threatened by urbanization.	moss	Not expected: See text for details.
Non-flowering Plants					
EQUISETOPSIDA					
Equisetaceae - Horsetail Family					
	<i>Equisetum palustre</i> marsh horsetail	Federal: State: CNPS: List 3	Marshes and swamps. Known from San Mateo, San Francisco and Lake counties and Oregon. Move to List 2? Location, rarity, and endangerment information needed; need quads for LAK and SMT counties. Scarcity poorly understood. NAP Co. occurrence (532C) located in 1994 is perhaps only the second confirmed in CA.	unk perennial	Not expected: No suitable habitat present.

Family	Status	Habitat Affinities and Reported Localities in the Project Area	Blooming Period	Potential for Occurrence On Site
Scientific Name			Life Form	
Common Name				
Non-flowering Plants				
FILICOPSIDA - Ferns				
Pteridaceae - Brake Family				
<i>Aspidotis carlotta-halliae</i>	Federal:	Chaparral, cismontane woodland, generally on serpentinite. Restricted to Alameda, Marin, Monterey, San Benito and San Luis Obispo counties. Fertile hybrid between <i>A. californica</i> and <i>A. densa</i> ; sometimes backcrosses.	Jan-Dec perennial	Not expected: No suitable habitat present.
Carlotta Hall's lace fern	State:			
	CNPS: List 4.2			

Total federally listed species: 16

Total state-listed species: 13

Total CNPS List species: 92

Total special status species: 113

Explanation of sensitivity status codes provided in Appendix E

Appendix D

Special-Status Wildlife
Potentially Occurring
in the Region

Appendix D
Special-Status Wildlife with Potential to Occur in the Region

<i>Scientific Name</i> Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Invertebrates			
<i>Banksula incredula</i> Incredible harvestman	Federal: None State: CNDDDB	Restricted to the north slope of San Bruno Mountain ridge, south of San Francisco. Associated with Franciscan sandstone substrate and dense chaparral canopy.	Not expected - out of range
<i>Caecidotea tomalensis</i> Tomales isopod	Federal: None State: CNDDDB	Found in still or slow-moving vegetated water such as streams and ponds. Found from Sonoma to San Mateo counties.	Not expected - no suitable habitat
<i>Callophrys (Incisalia) mos sii bayensis</i> San Bruno elfin butterfly	Federal: FE State: None	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. The adult flight period is late February to mid-April, with the peak flight period occurring in March and early April. Eggs are laid in small clusters or strings on the upper or lower surface of stonecrop (<i>Sedum spathulifolium</i>).	Not expected - out of range
<i>Cicindela hirticollis gravida</i> Sandy beach tiger beetle	Federal: None State: CNDDDB	Found in moist sand near the ocean, for example in swales behind dunes or upper beaches beyond normal high tides. Metapopulations known from San Diego through Marin Counties.	Not expected - no suitable habitat
<i>Danaus plexippus</i> Monarch butterfly	Federal: None State: CNDDDB	Roosts located in wind-protected tree groves (eucalyptus, monterey pine, cypress), with nectar and water sources nearby. Winter roost sites extend along the coast from vicinity of site northern Mendocino to Baja California, Mexico.	Vey Low - Potential to winter in
<i>Dufourea stagei</i> Stage's dufourine bee	Federal: None State: CNDDDB	Found on San Bruno Mountain, south of San Francisco	Not expected - out of range
<i>Euphydryas editha bayensis</i> Bay checkerspot butterfly	Federal: FT State: None	Restricted to Santa Clara and San Mateo Counties in California. Habitat exists on shallow, serpentine-derived or similar soils, which support the butterfly's larval food plant, California plantain (<i>Plantago erecta</i>) and nectar plants including desert-parsely (<i>Lomatium</i> spp.) and California goldfields (<i>Lasthenia californica</i>), among others.	Not expected - out of range
<i>Haliotes cracherodii</i> Black abalone	Federal: FE NSC State: None	Range from about Point Arena in northern California to Bahia Tortugas and Isla Guadalupe, Mexico. Found in cracks and crevices on intertidal and shallow subtidal rocks, in areas of moderate to high surf.	Not expected - no habitat
<i>Haliotes sorensoni</i> White abalone	Federal: FE State: None	Range from Point Conception, California, USA, to Punta Abreojos, Baja California, Mexico.	Not expected - out of range

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<i>Scientific Name</i> Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
<i>Helminthoglypta nickliniana bridgesii</i> Bridges' Coast Range shoulderband snail	Federal: None State: CNDDB	Known from Contra Costa and Alameda Counties from Berkeley and San Pablo to the eastern base of Mount Diablo. Typically found in moist, often riparian areas under rocks, logs, woody debris, or accumulations of leaf mould.	Not expected - out of range
<i>Hydroporus leechi</i> Leech's skyline diving beetle	Federal: None State: CNDDB	San Mateo County, California. May be endemic to San Francisco peninsula. Found in freshwater ponds, shallow water of streams, marshes, and lakes.	Not expected - out of range
<i>Ischnura gemina</i> San Francisco forktail damselfly	Federal: None State: CNDDB	Frequents streams and ponds, never strays far from water. Restricted to isolated populations in the San Francisco Bay Area.	Not expected - no suitable habitat
<i>Lichnanthe ursina</i> Pacific sand bear (Bumblebee) scarab beetle	Federal: None State: CNDDB	Inhabits coastal sand dunes from Sonoma County south to San Mateo County.	Not expected - no suitable habitat
<i>Microcina leei</i> Lee's microblind harvestman	Federal: None State: CNDDB	Found beneath sandstone rocks in open oak grassland. Only known from two occurrences in the Oakland-Berkeley Hills, near the UC Berkeley campus.	Not expected - out of range
<i>Microcina tiburona</i> Tiburon microblind harvestman	Federal: None State: CNDDB	Known from Marin County. Closely associated with serpentine grasslands and outcroppings and found primarily underneath medium to large, undisturbed rocks in contact with the soil. It is believed that this type of habitat provides the ideal humidity and thermal conditions.	Not expected - no suitable habitat
<i>Plebejus (=Icaricia) icarioides missionensis</i> Mission blue butterfly	Federal: FE State: None	Majority of colonies known to occur in San Mateo county. Also known to occur at the Mission District of San Francisco and Fort Baker, Marin County. Habitat consists of coastal chaparral and coastal grasslands supporting the Mission blue butterfly's larval food plants, silverbush lupine (<i>Lupinus albifrons</i>), summer lupine (<i>L. formosus</i>), and varied lupine (<i>L. varicolor</i>).	High - Known to occur in vicinity
<i>Pomatiopsis binneyi</i> Robust walker	Federal: None State: None CNDDB	Damp areas along stream sides in leaf litter.	Not expected - No suitable habitat
<i>Speyeria callippe callippe</i> Callippe silverspot butterfly	Federal: FE State: None	Inhabits grasslands containing larval host plant johnny-jump-up (<i>Viola pedunculata</i>). Known from three locations, including San Bruno Mountain (on the San Francisco Peninsula), Joaquin Miller Park in Alameda County, and in the vicinity of American Canyon, Solano County.	Not expected - out of range

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Special-Status Wildlife with Potential to Occur in the Region

<i>Scientific Name</i> Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
<i>Speyeria zerene myrtleae</i> Myrtle's silverspot butterfly	Federal: FE State: None	Found in coastal dune or prairie habitat in western Marin and southwestern Sonoma counties, including the Point Reyes National Seashore. Adult butterflies are typically found in areas that are sheltered from the wind, below 820 feet elevation, and within 3 miles of the coast. Females are single-brooded and lay their eggs in the debris and dried stems of violets (typically <i>Viola adunca</i>), the larval food plants.	Not expected - no suitable habitat
<i>Trachusa gummifera</i> A leaf-cutter bee	Federal: None State: CNDDDB	Found in San Francisco, Marin, and San Mateo Counties.	Not expected - no suitable habitat
<i>Trynoia imitator</i> Mimic tryonia (California brackishwater snail)	Federal: None State: CNDDDB	Inhabits coastal lagoons, estuaries, and salt marshes. Found only in permanently submerged areas in a variety of sediment types, and is able to withstand a wide range of salinities. Known from the California coast from San Diego to Sonoma County.	Not expected - out of range
<i>Vespericola marinensis</i> Marin hesperian	Federal: None State: CNDDDB	Frequent moist areas in coastal brushfield and chaparral vegetation in Marin county.	Not expected - no suitable habitat
Fish			
<i>Acipenser medirostris</i> Green sturgeon (Southern DPS)	Federal: FT State: CSC	Anadromous. Inhabits the coastal Pacific Ocean and estuaries of large rivers. Migrates far inland to spawn. Spawns during spring in rivers in deep, cold, fast-moving water. Estuaries serve as nurseries. Adults are mostly marine, spending limited time in estuaries and rivers. The Southern DPS includes all populations south of but not including the Eel River. The only known spawning area for the Southern DPS is in the Sacramento River.	Not expected - no suitable habitat
<i>Archoplites interruptus</i> Sacramento perch	Federal: None State: CSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefer warm water. Aquatic vegetation is essential for young. Tolerant of wide ranges of physio-chemical water conditions.	Not expected - out of range
<i>Eucyclogobius newberryi</i> Tidewater goby	Federal: FE State: CSC	Occurs in tidal streams associated with coastal wetlands. Typically occurs in loose aggregations of a few to several hundred individuals on the substrate of shallow water less than three feet deep. Occurs along the entire California coast.	Not expected - no suitable habitat
<i>Hypomesus transpacificus</i> Delta smelt	Federal: FT State: ST	Historically found throughout the lower and middle reaches of the Sacramento - San Joaquin Delta. Spawning takes place between December - April in side channels and sloughs in the middle reaches of the Delta.	Not expected - out of range
<i>Mylopharodon conocephalus</i> Hardhead	Federal: None State: CSC	Deep pools in slow-moving streams with sandy or rocky bottoms. Only found in the Sacramento and San Joaquin River systems, as well as the Russian River.	Not expected - out of range

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Special-Status Wildlife with Potential to Occur in the Region

<i>Scientific Name</i> Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
<i>Oncorhynchus kisutch</i> Coho salmon (Central California Coast ESU)	Federal: FE State: SE	Critical habitat is designated to include all river reaches accessible to listed coho salmon from Punta Gorda south to the San Lorenzo River, including Mill Valley and Corte Madera Creeks, tributaries to San Francisco Bay. Also known from stream surveys in Aptos Creek.	Not expected - no suitable habitat
<i>Oncorhynchus mykiss irideus</i> Steelhead (Central California Coast ESU)	Federal: FT State: None	The ESU includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin.	Not expected - no suitable habitat
<i>Oncorhynchus mykiss irideus</i> Steelhead (Central Valley, California ESU)	Federal: FT State: None	The ESU includes all naturally spawned populations of steelhead (and their progeny) in the Sacramento and San Joaquin Rivers and their tributaries. Excluded are steelhead from San Francisco and San Pablo Bays and their tributaries. Little historical data exists for the San Joaquin River Basin. McEwan and Jackson (1996) reported a small remnant run in the Stanislaus River. Steelhead reported in Tuolumne River in 1983 and in Merced River. May have historically been in many of the San Joaquin River tributaries, especially during wet years.	Not expected - no suitable habitat
<i>Oncorhynchus tshawytscha</i> Chinook salmon (California Coast ESU)	Federal: FT State: None	This ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River to the Russian River, California, as well as seven artificial propagation programs: the Humboldt Fish Action Council (Freshwater Creek), Yager Creek, Redwood Creek, Hollow Tree, Van Arsdale Fish Station, Mattole Salmon Group, and Mad River Hatchery fall-run Chinook hatchery programs.	Not expected - no suitable habitat
<i>Oncorhynchus tshawytscha</i> Chinook salmon (Central Valley spring-run ESU)	Federal: FT State: ST	The ESU includes all naturally spawned populations of spring-run chinook salmon in the Sacramento River and its tributaries in California. These salmon are anadromous, inhabiting open ocean and coastal streams. Adults move upstream March-July and begin spawning in August.	Not expected - no suitable habitat
<i>Oncorhynchus tshawytscha</i> Chinook salmon (winter-run)	Federal: FE State: SE	This salmon is anadromous, inhabiting open ocean and coastal streams. Adults move upstream January-June and begin spawning in April. Downstream migrant smolts move past Red Bluff August-October.	Not expected - no suitable habitat
Amphibians			
<i>Ambystoma californiense</i> California tiger salamander (Central Valley DPS)	Federal: FT State: CSC CE	Breeds in temporary or semi-permanent pools. Seeks cover in rodent burrows in grasslands and oak woodlands. This DPS inhabits the Coast Ranges north of Santa Barbara County and south of Sonoma County, as well as the Central Valley from Tulare to Colusa County.	Not expected - no suitable habitat

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<i>Scientific Name</i> Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
<i>Rana (=aurora draytonii) draytonii</i> California red-legged frog	Federal: FT State: CSC	Prefers semi-permanent and permanent stream pools, ponds, and creeks with emergent and/or riparian vegetation. Will occupy upland areas during the wet winter months.	Not expected - no suitable habitat present
<i>Rana boylei</i> Foothill yellow-legged frog	Federal: None State: CSC	Inhabits permanent, slow-moving stream courses in the Coast Ranges and Sierra Nevada foothills. These streams usually contain a cobble substrate and a mixture of open canopy riparian vegetation.	Not expected - no suitable habitat present
Reptiles			
<i>Actinemys (=Clemmys) marmorata</i> Western pond turtle	Federal: None State: CSC	Prefers permanent, slow-moving creeks, streams, ponds, rivers, marshes, and irrigation ditches with basking sites and a vegetated shoreline. Needs upland sites for egg laying. Occurs from the Oregon border to the San Francisco Bay, inland throughout the Sacramento Valley, and south along the coastal zone to San Diego County.	Not expected - no suitable habitat present
<i>Caretta caretta</i> Loggerhead turtle	Federal: FT State: CNDDB	Range throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans.	Not expected - no suitable habitat present
<i>Chelonia mydas</i> Green turtle	Federal: FT State: ST	Range throughout the Atlantic, Pacific, and Indian Oceans. In Coastal Pacific waters, found from Baja California to southern Alaska.	Not expected - no suitable habitat present
<i>Dermochelys coriacea</i> Leatherback Turtle	Federal: FE State: None	Range throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans.	Not expected - no suitable habitat present
<i>Lepidochelys olivacea</i> Olive ridley sea turtle	Federal: FT State: None	Range throughout the tropical regions of the South Atlantic, Pacific, and Indian Oceans.	Not expected - no suitable habitat present
<i>Masticophis lateralis euryxanthus</i> Alameda whipsnake (striped racer)	Federal: FT State: ST	Restricted to chaparral and coastal scrub of the Coast Ranges. Uses rock outcrops for refugia. Inhabits appropriate habitat on south, southwest- and southeast-facing slopes and ravines where the shrubs form a vegetative mosaic with grasses. Uses rodent burrows. Feeds on a number of items including fence lizards (<i>Sceloporus</i> spp.).	Not expected - out of range
<i>Thamnopsis sirtalis tetraenia</i> San Francisco garter snake	Federal: FE State: SE CFP	Largest population occurs in San Mateo County. Smaller populations occur along the coast from Sharp Park to Ano Nuevo and east through the Santa Cruz Mountains. Use freshwater marshes, ponds and slow-moving streams and surrounding upland areas.	Not expected - out of range

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<i>Scientific Name</i> Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Birds			
<i>Accipiter cooperii</i> Cooper's hawk (nesting site only)	Federal: None State: WL	Nests primarily in deciduous riparian forests. May also occupy dense canopied forests from gray pine-oak woodland to ponderosa pine. Forages in open woodlands. Occurs throughout the San Francisco Bay Area.	Not expected - no suitable habitat
<i>Ardea alba</i> Great egret	Federal: None State: CNDDDB	Nests in colonies with other species, in shrubs and trees over water, and on islands. Feeds in variety of wetlands, including marshes, swamps, streams, rivers, ponds, lakes, tide flats, canals, and flooded fields.	Not expected - no suitable habitat
<i>Ardea herodias</i> Great blue heron	Federal: None State: CNDDDB	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Common over most of North America.	Not expected - no suitable habitat
<i>Asio flammeus</i> Short-eared owl (nesting only)	Federal: None State: CSC	Found throughout California and the rest of the United States in salt and freshwater swamps, lowland meadows and grasslands, irrigated alfalfa fields. Nests in tules and tall grasslands. Needs daytime seclusion. Nests on dry ground in depressions concealed by vegetation. Primarily hunts at dawn and dusk (crepuscular).	Not expected - no suitable habitat
<i>Athene cunicularia hypugaea</i> Burrowing owl (burrow sites)	Federal: None State: CSC	Open, dry grasslands, deserts, prairies, farmland and scrublands with abundant active and abandoned mammal burrows. Occurs in lowlands throughout California.	Not expected - no suitable habitat
<i>Brachyramphus marmorata</i> Marbled murrelet	Federal: FT State: SE	Occurs year-round in marine subtidal and pelagic habitats from the Oregon border to Point Sal, Santa Barbara County. Breeding individuals in California largely concentrated on coastal waters off Del Norte and Humboldt Counties, and in lesser numbers off San Mateo and Santa Cruz Counties. In the nonbreeding season, recorded as far south as Imperial Beach, San Diego County. Partial to coastlines with stands of mature redwood and Douglas-fir; uses these trees for nesting and probably roosting. Also noted in such habitats in winter.	Not expected - no suitable habitat
<i>Charadrius alexandrinus nivosus</i> Western snowy plover (nesting)	Federal: FT State: CSC	Breed primarily on coastal beaches from southern Washington to Baja California. Sand spits, dune-backed beaches, unvegetated beach strands, open areas around estuaries, and beaches at river mouths are preferred nesting habitat.	Not expected - no suitable habitat
<i>Circus cyaneus</i> Northern harrier (nesting)	Federal: None State: CSC	Nests and forages in grasslands and agricultural fields. Nests on ground in shrubby vegetation, dense grass, or crops such as wheat and barley, often at the edge of marshes. Occurs throughout the San Francisco Bay Area.	Not expected - no suitable habitat

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<i>Scientific Name</i> Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
<i>Egretta thula</i> snowy egret	Federal: None State: CNDDDB	Colonial nester, with nest sites situated in protected beds of dense tules.	Not expected - no suitable habitat
<i>Elanus leucurus</i> White-tailed kite (nesting sites)	Federal: None State: CFP	Inhabits agricultural areas, low rolling foothills, valley margins with scattered oaks and river bottomlands, or marshes adjacent to deciduous woodlands. Prefers open grasslands, meadows, marshes, and agricultural fields for foraging. Occurs throughout the San Francisco Bay Area.	Not expected - no suitable habitat
<i>Falco peregrinus anatum</i> American peregrine falcon (nesting)	Federal: FD State: CFP None	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes. Permanent resident in the North and South Coast Ranges. Winters in the Central Valley southward through the Transverse and Peninsular Ranges. Feeds almost exclusively on birds.	High - Known to nest within project area
<i>Geothlypis trichas sinuosa</i> Salt marsh common yellowthroat	Federal: None State: CSC	Known throughout the Bay Area from Napa to Santa Cruz Counties. Nests in fresh water marshes in the spring and summer and moves into tidal sloughs and channels during the winter. Requires contiguous freshwater and salt water marsh habitats.	Not expected - no suitable habitat
<i>Hydroprogne caspia</i> Caspian tern	Federal: None State: CNDDDB	Nests on sandy or gravelly beaches and shell banks in small colonies inland and along the coast. Known from Solano, Contra Costa, and Imperial Counties.	Not expected - out of range
<i>Laterallus jamaicensis coturniculus</i> California black rail	Federal: None State: ST CFP	Secretive marsh bird found in damp areas with dense grass. Year-round resident in the greater Bay Area and more recently have been recorded from the Sierra Foothills. Inhabits tidal marshes, grassy marshes, stubble fields and wetlands. Nesting habitat is characterized by unfluctuating water levels with a depth of less than 3 cm and dense vegetative cover.	Not expected - no suitable habitat
<i>Melospiza melodia pusillula</i> Alameda (South Bay) song sparrow	Federal: None State: CSC	Occurs only along the southern and eastern fringes of the San Francisco Bay. Inhabits salt marsh habitats with dense vegetation, and upland habitats for refugia.	Not expected - out of range
<i>Melospiza melodia samuelis</i> San Pablo song sparrow	Federal: None State: CSC	Distributed in marshes around San Pablo Bay continuously from Gallinas Creek in the west, along the northern San Pablo bayshore, and throughout the extensive marshes along the Petaluma, Sonoma and Napa Rivers. All along the southeast shoreline of San Pablo Bay, isolated populations occur in small marshes between Wilson Point and Pinole Point, and at the mouths of San Pablo Creek and Wildcat Creek.	Not expected - out of range
<i>Nycticorax nycticorax</i> Black-crowned night heron (rookery)	Federal: None State: CNDDDB	Found in lowlands and foothills throughout most of California. Nests in trees with dense foliage and in wetlands with dense emergent vegetation.	Not expected - no suitable habitat

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<i>Scientific Name</i> Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
<i>Pelecanus erythrorhynchos</i> American white pelican (nesting colony)	Federal: None State: CSC	Breeds on islands and sandbars in large fresh or salt water lakes. Only breeding populations in California are located in the Klamath River basin in the extreme northeast of the state, but winters throughout the Central Valley, San Francisco Bay Area, and Southern California.	Not expected - no suitable nesting habitat
<i>Pelecanus occidentalis californicus</i> California brown pelican (nesting colony & communal roosts)	Federal: FD State: CFP None	Found in estuarine, marine subtidal, and marine pelagic waters along the California coast. Rare occurrence inland at the Salton Sea. Breeds on Channel Islands: Anacapa, Santa Barbara, and Santa Cruz. Usually rests on water or inaccessible rocks (either offshore or on mainland), but also uses mudflats, sandy beaches, wharfs, and jetties.	Not expected - no suitable nesting habitat
<i>Phalacrocorax auritus</i> Double-crested cormorant	Federal: None State: WL	Breeds colonially on coastal cliffs, offshore islands, and lake margins in the interior of the state. Known from sites throughout the San Francisco Bay Area and Sacramento River Delta. Forages in lakes, rivers, and bays.	Low - suitable habitat present
<i>Phoebastria albatrus</i> Short-tailed albatross	Federal: FE State: CSC	Pelagic; often in regions of high productivity. Ranges from Alaska to Southern California. Nests on the ground on small oceanic islands; on volcanic ash slopes with sparse vegetation, formerly on level open areas adjacent to tall clumps of the grass. Nesting sites restricted to outlying islands of Japan in the western Pacific.	Not expected - no suitable habitat
<i>Rallus longirostris obsoletus</i> California clapper rail	Federal: FE State: SE CFP	Inhabits tidal salt marshes of the greater San Francisco Bay, although some individuals use brackish marshes during the spring breeding season. It formerly occurred at Humboldt Bay in Humboldt County, Elkhorn Slough in Monterey County, and Morro Bay in San Luis Obispo County.	Not expected - no suitable habitat
<i>Riparia riparia</i> Bank swallow (nesting colonies only)	Federal: None State: ST	Nests in colonies on sandy cliffs near water, marshes, lakes, streams, and the ocean. Forages in fields. Largest remaining populations occur along the Sacramento River from Tehama County to Sacramento County. Also found along the Feather and lower American Rivers, and in the Owens Valley. Breeding populations also present in San Francisco County, and at Año Nuevo in southern San Mateo County.	Not expected - no suitable habitat
<i>Sterna antillarum browni</i> California least tern	Federal: FE State: SE CFP	Nests on sand dunes close to water. Mixes freely with other terns. Nesting sites range from San Francisco Bay to Baja California.	Not expected - no suitable habitat
<i>Strix occidentalis caurina</i> Northern spotted owl	Federal: FT State: CSC	Ranges from British Columbia south to Marin County. Inhabits dense coniferous and hardwood forest, shaded, steep sided canyons. Multi-storied canopy dominated by big trees. Old-growth or mixed stands of old-growth and mature trees.	Not expected - out of range

Appendix D
Special-Status Wildlife with Potential to Occur in the Region

<i>Scientific Name</i> Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
<i>Xanthocephalus xanthocephalus</i> Yellow-headed blackbird	Federal: None State: CSC	Nests in freshwater emergent wetlands with dense vegetation & deep water. Often along borders of lakes or ponds. Its range extends as far west as central-interior British Columbia, moving directly south through the central-interior west coast to northeastern Baja California.	Not expected - out of range
Mammals			
<i>Antrozous pallidus</i> Pallid bat	Federal: None State: CSC	Large range in western North America; fairly common in many areas; however, regional population trends are poorly known. Inhabits open, dry habitats such as deserts, grasslands, and shrublands with rocky areas for roosting. Roosts in caves, mine tunnels, crevices in rocks, buildings, and trees. Bats are very sensitive to disturbance of roosting sites. Forages in open habitats.	Not expected - no suitable habitat
<i>Arctocephalus townsendi</i> Guadalupe fur seal	Federal: FT State: CFP ST	Occurs on island shores with solid rock and large lava blocks, usually at the base of tall cliffs. Remains in vicinity of breeding area throughout the year, though wandering individuals are sighted regularly off the California coast.	Not expected - no suitable habitat
<i>Balaenoptera borealis</i> Sei whale	Federal: FE State: None	Worldwide, but distribution and movements during much of year are poorly known. Coast of Mexico to Gulf of Alaska in the eastern North Pacific. Generally in deep water; along edge of continental shelf and in open ocean. Migrates between lower-latitude wintering grounds and higher-latitude feeding grounds. Movements in specific areas may be unpredictable.	Not expected - no suitable habitat
<i>Balaenoptera musculus</i> Blue whale	Federal: FE State: None	Mainly pelagic; generally prefers cold waters and open seas, but young are born in warmer waters of lower latitudes. There may be a basically resident or short distance migratory population off California and Baja California. Generally seen off California coasts from early summer through autumn.	Not expected - no suitable habitat
<i>Balaenoptera physalus</i> Finback (=fin) whale	Federal: FE State: None	Pelagic; usually found in largest numbers 25 miles or more from shore. Travels singly, in pairs, or in pods of 6-7. May concentrate in areas of abundant food. Seen off California coasts in summer and autumn.	Not expected - no suitable habitat
<i>Enhydra lutris nereis</i> Southern sea otter	Federal: FT State: CFP	Coastal waters within 2 km of shore, especially shallows with kelp beds and abundant shellfish. In rough weather, takes refuge among kelp, or in coves and inlets. Rarely comes ashore. Range along the central California coast, south of Half Moon Bay to Point Conception.	Not expected - no suitable habitat
<i>Eubalaena glacialis</i> Right whale	Federal: FE State: None	Inhabits nearshore and offshore waters. North Pacific animals concentrated in relatively warm, shallow (50 to 80 m deep), well-stratified water. Travels singly or in small groups of 2-3, though may aggregate in areas with high concentration of food.	Not expected - no suitable habitat

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<i>Scientific Name</i> Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
<i>Eumetopias jubatus</i> Steller (=northern) sea lion	Federal: FT State: None	Known to breed on the Farallon Islands. Female sea lions tend to select locations for pupping that are gently sloping and protected from waves. The beaches can be sand, gravel, cobble, boulder, or bedrock. Marine habitats include coastal waters near shore and over the continental slope; sometimes rivers are ascended in pursuit of prey. When not on land, the sea lions may congregate at nearshore traditional rafting sites, or move out to the edge of the continental shelf. While offshore, the sea lions are most often found within 35 km of shore, but may range out to several hundred kilometers offshore. The distance sea lions move offshore varies seasonally, with fewer animals being sighted at sea during the summer.	Not expected - no suitable habitat
<i>Lasionycteris noctivagans</i> Silver-haired bat	Federal: None State: CNDDDB	Primarily a coastal & montane forest dweller feeding over streams, ponds & open brushy areas. Range from Alaska across southern Canada south through all the US states except Florida.	Not expected - no suitable roosting habitat
<i>Lasiurus blossevillii</i> Western red bat	Federal: None State: CSC	From Shasta County south to the Mexico, west of the Sierra Nevada/Cascade crest and deserts. The winter range includes western lowlands and coastal regions south of San Francisco Bay. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests.	Not expected - no suitable roosting habitat
<i>Lasiurus cinereus</i> Hoary bat	Federal: None State: CNDDDB	Found throughout California. Habitats suitable for bearing young include all woodlands and forests with medium to large-size trees and dense foliage.	Not expected - no suitable roosting habitat
<i>Microtus californicus sanpabloensis</i> San Pablo vole	Federal: None State: CSC	Saltmarshes of San Pablo Creek, on the south shore of San Pablo Bay. Previous sightings include the Point Pinole Regional Park, along Wildcat Creek, Giant Saltmarsh.	Not expected - out of range
<i>Nyctinomops macrotis</i> Big free-tailed bat	Federal: None State: CSC	Rocky areas in rugged country, mainly below 1800 m. Has been observed roosting in buildings. Known chiefly from Southern California through South America, but has been seen historically in Contra Costa and Alameda counties. Individuals present in summer in temperate North America migrate to warmer regions for winter.	Not expected - out of range
<i>Physeter catodon</i> (=macrocephalus) Sperm whale	Federal: FE State: None	Sperm whales inhabit all oceans of the world in waters deeper than 300 meters.	Not expected - out of range
<i>Reithrodontomys raviventris</i> Salt marsh harvest mouse	Federal: FE State: SE CFP	Restricted to saline emergent wetlands of San Francisco Bay and its tributaries. Habitat consists primarily of pickleweed. Does not burrow; builds loose nests. Requires high ground to escape high tides and floods.	Not expected - no suitable habitat

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<i>Scientific Name</i> Common Name	Status ¹	Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
<i>Scapanus latimanus insularis</i> Angel Island mole	Federal: None State: CNDDB	Endemic to Angel Island. Found in a variety of habitats, especially annual and perennial grasslands. Prefers moist, friable soils. Avoids flooded soils.	Not expected - out of range
<i>Scapanus latimanus parvus</i> Alameda Island mole	Federal: None State: CSC	Only known from Alameda Island. Found in a variety of habitats, especially annual and perennial grasslands. Prefers moist, friable soils. Avoids flooded soils.	Not expected - out of range
<i>Sorex vagrans halicoetes</i> Salt marsh wandering shrew	Federal: None State: CSC	Occur in the tidal salt marshes of the south San Francisco Bay.	Not expected - no suitable habitat
<i>Taxidea taxus</i> American badger	Federal: None State: CSC	Inhabits open grasslands, savannas, and mountain meadows near timberline. Requires abundant burrowing mammals, their principal food source, and loose, friable soils. Distributed throughout California except in the humid forests of the extreme northwest.	Not expected - no suitable habitat
<i>Zapus trinotatus orarius</i> Point Reyes jumping mouse	Federal: None State: CSC	Found in bunch grass marshes on the uplands of Point Reyes.	Not expected - out of range

¹Explanation of sensitivity status codes provided in Appendix C.

Appendix E

USFWS List

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 110929021850

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Euphydryas editha bayensis*
Critical habitat, bay checkerspot butterfly (X)
- Haliotes cracherodii*
black abalone (E) (NMFS)
- Haliotes sorenseni*
white abalone (E) (NMFS)
- Icaricia icarioides missionensis*
mission blue butterfly (E)
- Speyeria callippe callippe*
callippe silverspot butterfly (E)
- Speyeria zerene myrtleae*
Myrtle's silverspot butterfly (E)

Fish

- Acipenser medirostris*
green sturgeon (T) (NMFS)
- Eucyclogobius newberryi*
critical habitat, tidewater goby (X)
tidewater goby (E)
- Hypomesus transpacificus*
Critical habitat, delta smelt (X)
delta smelt (T)
- Oncorhynchus kisutch*
coho salmon - central CA coast (E) (NMFS)
Critical habitat, coho salmon - central CA coast (X) (NMFS)
- Oncorhynchus mykiss*
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)
- Oncorhynchus tshawytscha*
California coastal chinook salmon (T) (NMFS)
Central Valley spring-run chinook salmon (T) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- Rana draytonii*
California red-legged frog (T)

Critical habitat, California red-legged frog (X)

Reptiles

Caretta caretta

loggerhead turtle (T) (NMFS)

Chelonia mydas (incl. agassizi)

green turtle (T) (NMFS)

Dermochelys coriacea

leatherback turtle (E) (NMFS)

Lepidochelys olivacea

olive (=Pacific) ridley sea turtle (T) (NMFS)

Masticophis lateralis euryxanthus

Alameda whipsnake [=striped racer] (T)

Critical habitat, Alameda whipsnake (X)

Thamnophis sirtalis tetrataenia

San Francisco garter snake (E)

Birds

Brachyramphus marmoratus

Critical habitat, marbled murrelet (X)

marbled murrelet (T)

Charadrius alexandrinus nivosus

western snowy plover (T)

Diomedea albatrus

short-tailed albatross (E)

Pelecanus occidentalis californicus

California brown pelican (E)

Rallus longirostris obsoletus

California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni

California least tern (E)

Strix occidentalis caurina

northern spotted owl (T)

Mammals

Arctocephalus townsendi

Guadalupe fur seal (T) (NMFS)

Balaenoptera borealis

sei whale (E) (NMFS)

Balaenoptera musculus

blue whale (E) (NMFS)

Balaenoptera physalus

finback (=fin) whale (E) (NMFS)

Enhydra lutris nereis

southern sea otter (T)

Eubalaena (=Balaena) glacialis

right whale (E) (NMFS)

Eumetopias jubatus

Critical Habitat, Steller (=northern) sea-lion (X) (NMFS)

Steller (=northern) sea-lion (T) (NMFS)

Physeter catodon (=macrocephalus)

sperm whale (E) (NMFS)

Reithrodontomys raviventris

salt marsh harvest mouse (E)

Plants

- Arctostaphylos hookeri* ssp. *ravenii*
Presidio (=Raven's) manzanita (E)
- Arctostaphylos pallida*
pallid manzanita (=Alameda or Oakland Hills manzanita) (T)
- Calochortus tiburonensis*
Tiburon mariposa lily (T)
- Castilleja affinis* ssp. *neglecta*
Tiburon paintbrush (E)
- Clarkia franciscana*
Presidio clarkia (E)
- Hesperolinon congestum*
Marin dwarf-flax (=western flax) (T)
- Holocarpha macradenia*
Critical habitat, Santa Cruz tarplant (X)
Santa Cruz tarplant (T)
- Lessingia germanorum*
San Francisco lessingia (E)
- Streptanthus niger*
Tiburon jewelflower (E)
- Suaeda californica*
California sea blite (E)

Proposed Species

Amphibians

- Rana draytonii*
Critical habitat, California red-legged frog (PX)

Quads Containing Listed, Proposed or Candidate Species:

HUNTERS POINT (448A)
SAN FRANCISCO SOUTH (448B)
RICHMOND (466A)
SAN QUENTIN (466B)
SAN FRANCISCO NORTH (466C)
OAKLAND WEST (466D)
SAN RAFAEL (467A)
POINT BONITA (467D)

County Lists

No county species lists requested.

Key:

- (E) *Endangered* - Listed as being in danger of extinction.
- (T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
- (P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat* - Area essential to the conservation of a species.
- (PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
- (C) *Candidate* - Candidate to become a proposed species.
- (V) *Vacated* by a court order. Not currently in effect. Being reviewed by the Service.
- (X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.

During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The

Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [Map Room](#) page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be December 28, 2011.