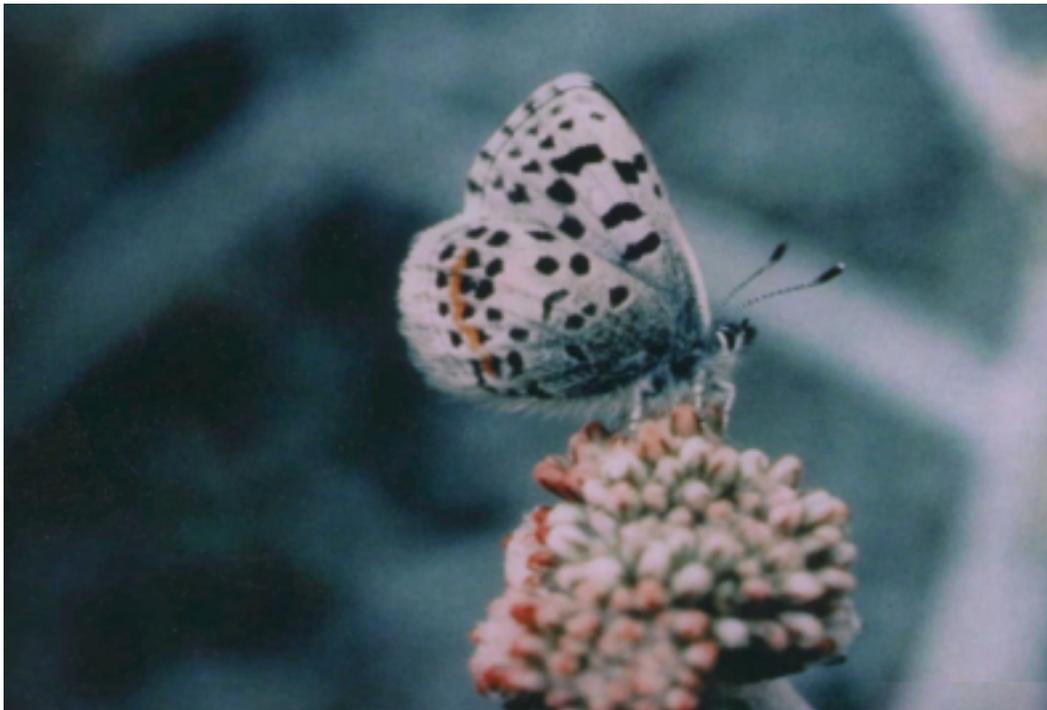




# **CORRIDOR INTRINSIC QUALITIES INVENTORY**

## **NATURAL QUALITIES**



**Highway 1 along the Big Sur Coast  
From San Carpoforo Creek in San Luis Obispo County  
To the Carmel River in Monterey County  
SLO-1-71.4/74.3  
MON-1-0.0/72.3**

**Prepared for: Caltrans District 5  
Prepared by: Parsons Transportation Group  
December 2001**

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ADDENDUM 1. CALIFORNIA NATURAL DIVERSITY DATABASE REPORT: FULL CONDENSED REPORT

ADDENDUM 2. CALIFORNIA NATIVE PLANT SOCIETY'S INVENTORY OF RARE AND ENDANGERED VASCULAR PLANTS OF CALIFORNIA: FULL REPORT

ADDENDUM 3. DATA SET COLLECTED DURING THE FIELD REVIEW

## EXECUTIVE SUMMARY

This report was prepared in support of the Big Sur Coast Highway Management Plan (CHMP) for State Highway 1, between San Carpoforo Creek in San Luis Obispo County and the Carmel River Bridge in Monterey County. The CHMP is designed to establish coordinated management of the Highway 1 corridor along this widely treasured coastline. The primary goal of the CHMP is to preserve, protect, and restore the area's unique qualities while ensuring the continued safe and efficient operation of the highway.

The CHMP also fulfills the objectives of the Federal Highway Administration's National Scenic Byways program<sup>1</sup>. This program calls for an inventory of intrinsic qualities, those unique and irreplaceable features that define the essence of the corridor. This report's purpose pursuant to the Scenic Byways program is to provide an overview of the Big Sur Coast byway's existing natural qualities, one of six types of intrinsic qualities identified in the Byways Program. Inventory reports are also being prepared in support of the CHMP for the corridor's archaeological, cultural, historical, recreational, and scenic qualities. This report is supported by – and is a companion to – a Geographic Information System (GIS) database<sup>2</sup> created from information collected in the field. This database contains a detailed inventory of Big Sur's natural resources, focusing on those features that are visible from Highway 1.

The CHMP is a long-range planning document, designed to guide the management of the Big Sur Highway 1 corridor for years to come. These inventory reports and their supporting GIS database offer the most detailed and specific inventory of resources within the Highway 1 corridor along the Big Sur Coast that has ever been compiled.

This information resource not only provides the basis for CHMP management strategies, enhancement projects, and other implementation measures, now and for the future, but it also offers a valuable source of information for other resource management agencies along the coast. It is hoped that federal, State, and local agencies including the U.S. Forest Service, Monterey Bay National Marine Sanctuary, State Parks, Coastal Commission, and County of Monterey, to name only a few, will use this database. Such information sharing should facilitate their decision-making regarding highway-related activities within their jurisdictions and support their respective management planning efforts. For example, Caltrans and regulatory agencies can consult the database for early information about sensitive resources in the vicinity of a project or storm damaged location and be clear about a course of action to avoid, minimize or mitigate for impacts to these resources. The plans of the individual agencies will provide the structure and detail needed to ensure implementation of their CHMP responsibilities outside of those areas controlled by Caltrans.

It is also anticipated that these agencies will participate over time in updating and expanding the inventory database. Such information sharing and cooperation among all

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<sup>1</sup> The guidelines for the Scenic Byway program are outlined at <http://www.byways.org>, and on the website for the Federal Highway Administration.

<sup>2</sup> A Geographic Information System provides the ability to store and view geographic information spatially; it is a computer-based application from which the mapping for this report was produced.

stakeholders will help to achieve coordinated planning among agencies along this stretch of coast.

## **OVERVIEW OF SURVEY METHODS**

A characterization of natural terrestrial environments was performed along the Highway 1 corridor extending from San Carpoforo Creek in northern San Luis Obispo County to the Carmel River in Monterey County. The primary purpose of the study is to identify and map vegetation communities, potentially jurisdictional waters, potential wildlife corridors, potentially suitable habitat for special-status species, and the degree of exotic plant invasion. The survey also inventoried relative densities of seacliff buckwheat (*Eriogonum parvifolium*) as a primary indicator of potential habitat for Smith's blue butterfly (*Euphilotes enoptes smithi*); a federally listed endangered species. The inventory characterizes a 400-foot (~122 meters) wide corridor with its focus on the immediate 80-foot (~24 meters) wide highway right-of-way (40 feet [~12 meters] on each side of the highway centerline). Incidental sightings of notable resources beyond these limits were also recorded.

All information is being input to a GIS database for the Big Sur Coast Highway Management Plan (CHMP), which will provide a valuable baseline for corridor management. Fieldwork was conducted from August 29 through September 29, 2000. Mapping was accomplished using aerial photographs flown at 1:72,000 in December 1998 and rectified to USGS DOQQs/USGS Raster Quads and including USGS DEMs as a surface model with an accuracy of +/- 40 to 100 feet (~12 to 30 meters). Areas were delineated on the mapping base as distinct points or closed polygons, as appropriate. The inventory protocols varied somewhat for each primary type of resource recorded.

## **SUMMARY OF RESULTS**

The following paragraphs summarize results for each of the natural resource types recorded.

### **Biotic Communities**

Biotic communities were mapped using descriptions and nomenclature in accordance with the *Preliminary Descriptions of Terrestrial Natural Communities of California* (Holland 1986) and previously collected information. Mapping efforts extended out 200 feet (~61 meters) from the highway centerline along both sides of Highway 1.

**Biotic Communities Documented Within the Corridor Study Area**

Central coastal scrub	Upland redwood forest	Non-native grassland
Coastal sage-chaparral scrub	Monterey pine forest	Coastal terrace prairie
Northern coastal bluff scrub	Monterey cypress forest	Ruderal/disturbed
Central maritime chaparral	California bay forest	Windrow
Central coast riparian scrub	Coast live oak forest	Intertidal <sup>3</sup>
Central coast cottonwood-sycamore riparian forest	Central dune scrub	Riverine
	Northern foredune	

**Potential Jurisdictional Waters**

Key site characteristics used to determine potential jurisdictional status included indicators for the presence of water, incision, and hydrophytic vegetation. A total of 368 potential jurisdictional features were identified and mapped within the corridor study area. These features were divided into six primary categories by type. The totals for each category are as follows: small ephemeral drainage = 216, stream/creek = 100, river = 3, seep/spring = 44, pond = 2, and potential wetland = 3. Wetland delineations were not completed during the field review.

**Potential Wildlife Corridors**

For the purposes of this study, potential wildlife corridors are defined as drainages lined with significant vegetative cover, potential game trails, and areas identified as “hot spots” due to road kill information. Furthermore, each aquatic feature within the corridor study area was evaluated for its potential to support anadromous fish. Riparian corridors represented the majority of potential wildlife corridors identified during the field review.

Dr. J. Smiley, manager of the Landels-Hill Big Creek Reserve is currently conducting an informal survey to help identify and locate roadkill “hot spots” that may correspond with wildlife corridors. This survey should also help to illustrate the magnitude of roadkill within the corridor and the diversity of species affected. The survey began in October 2000 and is currently ongoing (J. Smiley, pers. comm.). To date, mammals have accounted for approximately 84 percent of the total roadkill observations, while reptiles and birds have represented approximately 10 percent and 5 percent, respectively.

**Relative Density of Seacliff Buckwheat**

Along the Big Sur Coast, seacliff buckwheat serves as the principal host plant for the federally endangered Smith’s blue butterfly; as such, its distribution within the corridor study area is of special interest to Caltrans.

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<sup>3</sup> The present characterization of natural resources along the highway corridor was supplemented by the corridor inventory of intertidal resources and sensitive marine habitats prepared by L.A. deWit in 1998, see Appendix R.

During his Garland Ranch study, Arnold was able to make some general conclusions regarding the habitat quality of buckwheat stands for Smith's blue butterfly in terms of high, medium, low, or non-habitat, based primarily upon the number of seacliff buckwheat plants present and the relative mixture of age classes within the stand (Arnold 1991).

For the purpose of this study, Arnold's classification system was modified in order to rate the relative density of buckwheat within each vegetation community polygon as opposed to evaluating habitat quality for Smith's blue butterfly. The categories were defined as: absent = no plants observed within the vegetation community; low = plants sparsely distributed, stands containing less than 25 plants per acre; medium = stands containing 25 to several hundred plants per acre; and high = stands containing several hundred or more plants per acre, with a mix of age classes. The overall rating for each vegetation community (mapped as polygons) was determined by the stand within that community with the highest relative density. The location of each buckwheat stand of medium or high relative density was denoted on aerial photos and the nearest milepost was recorded on data sheets. These stands were most often located in central coastal scrub, roadcuts, coastal sage-chaparral, and ruderal/disturbed areas.

It should be noted that stands of buckwheat with a low relative density constituted the majority of the observations. Although these smaller stands may not be capable of supporting viable populations of Smith's blue butterfly, they may be capable of providing necessary resources for dispersing butterflies (Arnold 1991, Kellner 1989).

#### **Degree of Exotic Plant Invasion**

Degree of exotic plant invasion is described using a percent cover classification system described in the Big Sur Management Area Invasive Weed Index (USFS 1998). This system utilizes the following descriptors: trace = less than 1 percent cover; light = 1 to 5 percent cover; moderate = 5 to 25 percent cover; and severe = 25 to 100 percent cover.

The percentage of exotic plant cover was determined for the average right-of-way for each vegetative community (mapped as polygons), using the descriptors described above, and the dominant exotic species within each polygon were recorded. Incidental information pertaining to the extent of exotic invasion in the area extending from the outer edge of the right-of-way out to 200 feet was also recorded. Naturalized European grasses, such as wild oat (*Avena fatua*), Italian ryegrass (*Lolium multiflorum*), ripgut grass (*Bromus diandrus*), and soft cheat (*Bromus hordeaceus*), were excluded from the analysis due to the high level of naturalization that they have attained within this corridor.

Exotic species identified during the survey included: pampas grass (*Cortaderia jubata*), kikuyu grass (*Pennisetum clandestinum*), ice plant (*Carpobrotus* spp.), eupatory (*Ageratina adenophora*), French broom (*Genista monspessulana*), Italian thistle (*Carduus pycnocephalus*), Cape ivy (*Delairea odorata*, formerly *Senecio mikanioides*), mustard (*Hirschfeldia incana*), and fennel (*Foeniculum vulgare*). A number of ornamentals and cultivated plants, such as English ivy (*Hedera helix*), Cape ivy, greater periwinkle (*Vinca major*), and garden nasturtium (*Tropaeolum majus*), that were originally planted for landscaping purposes have escaped and become invasive species.

Overall, the degree of exotic plant invasion is greatest within the 80-foot highway right-of-way. Beyond the right-of-way, exotic plant invasion is most often associated with previously disturbed areas -- for example, where sidestepping was conducted or

landslides have occurred. Exotic plant invasion is also typically high in areas surrounding residential development.

### **Potentially Suitable Habitat for Special-status Species**

Potentially suitable habitat for special-status species is defined as areas where special-status species are known to exist or have the potential to exist based on range, habitat, and presence of important habitat elements. A number of special-status species have the potential to occur within the corridor; these include but are not limited to, Smith's blue butterfly, steelhead (*Oncorhynchus mykiss*), California red-legged frog (*Rana aurora draytonii*), two-striped garter snake (*Thamnophis hammondi*), California condor (*Gymnogyps californianus*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Little Sur manzanita (*Arctostaphylos edmundsii*), Hutchinson's larkspur (*Delphinium hutchinsoniae*), and Monterey pine (*Pinus radiata*). Detailed species-specific studies were not conducted during the field inventory.

### **Consultation with Local Experts**

Consistent with efforts to consult key stakeholders in various CHMP planning activities, the following individuals have been contacted in support of this inventory.

- V. Alvarez, U.S. Army Corps of Engineers
- J. Ambrosius, National Marine Fisheries Service
- E. Burton, Monterey Bay National Marine Sanctuary
- C. Collins, Biologist, Cascadia College Professor
- J. Davis, Executive Director, Ventana Wilderness Society
- T. Edell, Biologist, Caltrans
- R. Hyman, California Coastal Commission
- J. Kwasny, Lands Officer, Los Padres National Forest, U.S. Forest Service
- R. Martin, Assoc. Resource Ecologist, California State Parks
- M. A. Matthews, Author of An Illustrated Field Key to the Flowering Plants of Monterey County and Ferns, Fern Allies, and Conifers
- T. Moss, Resource Ecologist, California State Parks
- N. Nedeff, Director of Conservation, Big Sur Land Trust
- J. Nelson, Anadromous Fish Specialist, CA Department of Fish and Game
- J. Norman, Botanist, Private Consultant
- L. Otter, California Coastal Commission
- D. Pratt, Biologist, U.S. Fish and Wildlife Service
- G. Sanders, Southern Sea Otter Coordinator, U.S. Fish and Wildlife Service
- Dr. J. Smiley, Reserve Manager, Landels-Hill Big Creek Reserve
- R. Vonarb, Biologist, Caltrans
- V. Yadon, Botanist

The following individuals reviewed this report in draft form and provided valuable comments: V. Alvarez, J. Ambrosius, R. Hyman, J. Norman, L. Otter, D. Pratt, and Dr. J. Smiley.

## **INTRODUCTION**

### **PLAN PURPOSE**

The Big Sur Coast Highway Management Plan (CHMP) is designed to establish coordinated management of the Highway 1 corridor along this widely treasured coastline. The primary goal is to preserve, protect and restore the area's unique qualities while ensuring the continued safe and efficient operation of the highway. The planning area is located along a portion of the historic Carmel-San Simeon Highway from San Carpoforo Creek in San Luis Obispo County to the Carmel River in Monterey County, also known as Highway 1 along the Big Sur Coast (see Figure 1).

The CHMP also fulfills the objectives of the Federal Highway Administration's (FHWA) National Scenic Byways program to update the Corridor Management Plan originally prepared in support of its All-American Road designation in 1996.

### **BACKGROUND**

The ongoing natural processes that shape the unforgettable landscape in Big Sur also create the greatest challenges for maintaining a reliable highway. Perched on the steep western slopes of the Santa Lucia Mountains, which face the brunt of Pacific storms, the highway requires intensive maintenance and is in an almost continuous state of repair.

Landslides and washouts of variable severity result in frequent road closures; complex repairs to restore the highway can cause further delays and extend over long-periods of time. With detours nearly non-existent, Highway 1 is the lifeline to several well-established communities. It also provides access to eight state parks and a large unit of the Los Padres National Forest. Considering the highway itself is a major travel destination, closures and extended delays reverberate through the coastal communities between San Luis Obispo and Carmel whose economies are heavily dependent on recreational travel.

With rapid response to restore highway travel after an event, coordination among many parties with an interest or regulatory authority can become tense under what sometimes appears to be competing interests. Working under these circumstances can result in sometimes awkward solutions, delays and increased costs.

Meanwhile, the accumulated consequences from frequent repairs and related highway improvements have been seen as threatening the unique qualities and most sensitive resources found on this coast. Concerns about visual impacts from large cut and fill slopes, spread of invasive plants, impacts to marine and upland coastal habitats from repairs (including disposal of material) and proliferation of standard highway designs have all contributed to a sense by the community that the corridor was being gradually degraded.

After a particularly harsh winter in 1998, a focused effort by the California Department of Transportation (Caltrans) to develop a coordinated management plan was initiated in the form of the Big Sur Coast Highway Management Plan.

## **CORRIDOR INVENTORY**

Fundamental to a corridor management plan is an inventory of intrinsic qualities, the unique and irreplaceable features that define the essence of the corridor. The inventory of these qualities provides the foundation on which management strategies will be designed to preserve, protect and restore.

Intrinsic qualities are categorized into six types:

- Archaeological
- Cultural
- Historic
- Natural
- Scenic
- Recreational

This report describes the natural qualities, which are those features in the visual environment that are in a relatively undisturbed state. As described in the FHWA's Scenic Byways Guidance, "These features predate the arrival of human populations and may include geologic formations, fossils, landform, water bodies, vegetation, and wildlife. There may be evidence of human activity, but the natural features reveal minimal disturbances" (FHWA 1995).

The inventory for the Big Sur Coast has been developed to a greater level of detail than what would normally be expected for a Corridor Management Plan. For this corridor, all resource information has been assembled into a GIS<sup>4</sup> database to help meet larger objectives of the CHMP to facilitate regulatory decision-making on highway-related activities.

The Coast Highway corridor possesses extensive terrestrial and marine biological resources. The terrestrial biological resources are the focus of the present study, which characterizes the vegetation communities, potentially jurisdictional waters, potential wildlife corridors, degree of exotic plant invasion, potentially suitable habitat for special-status species, and the relative density of seacliff buckwheat within the Coast Highway corridor. Characterization of Highway 1 marine biological resources will build upon the corridor inventory of intertidal resources and sensitive habitats prepared by L.A. deWit in 1998 (see Appendix R). In addition, the Monterey Bay National Marine Sanctuary has applied for funding to conduct a Marine Biological Assessment and Sensitive Index study along the Coast Highway corridor. Together, these various efforts – as well as future resource characterization efforts in the Highway 1 corridor – will provide the basis for information sharing and integrated decision making in formulating and estimating the impacts of highway protection, management, and enhancement practices to be implemented through the CHMP. The inventory will also provide valuable information for environmental review of the CHMP itself.

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<sup>4</sup> A **Geographic Information System** provides the ability to store and view geographic information spatially; it is a computer-based application from which the mapping for this report was produced.

The technical information presented in this document has been organized in accordance with the format and contents of a Caltrans Natural Environment Study (NES); however, it does not provide the same level of detail. The primary difference between this document and a formal NES is that field surveys and the associated text serve as a baseline characterization of the highway corridor biological resources and are not designed to address project specific impacts.

As described above, this baseline will be supplemented by other technical studies to characterize the natural resources of the Coast Highway. It is anticipated that wildlife and floristic plant surveys and wetland delineation surveys will be conducted in proposed maintenance and management areas during the appropriate activity or blooming periods prior to specific project initiation. These surveys will provide additional information to help qualify the potential effects of a particular project. Additionally, no cumulative impacts or mitigation measures have been addressed in this report.

While this planning effort will not eliminate the need for site-specific evaluations, it should reduce the need to consider impacts and mitigation strategies purely on a case-by-case basis. This inventory will contribute to developing programmatic-type agreements with regulatory agencies, also noting that further effort will be needed to estimate impacts and developing mitigation strategies for various management practices. This inventory, in association with other technical reports, will guide the development and implementation of sound management practices that avoid, where possible; minimize, to the extent practicable; and mitigate for unavoidable impacts to the natural environment.

These inventory reports and their supporting GIS database offer the most detailed and specific inventory of resources within the Highway 1 corridor along the Big Sur Coast that has ever been compiled.

This information resource not only provides the basis for CHMP management strategies, enhancement projects, and other implementation measures, now and for the future, but it also offers a valuable source of information for other resource management agencies along the coast. It is hoped that federal, State, and local agencies including the U.S. Forest Service, Monterey Bay National Marine Sanctuary, State Parks, Coastal Commission, and County of Monterey, to name only a few, will use this database. Such information sharing should facilitate their decision-making regarding highway-related activities within their jurisdictions and support their respective management planning efforts. For example, Caltrans and regulatory agencies can consult the database for early information about sensitive resources in the vicinity of a project or storm damaged location and be clear about a course of action to avoid, minimize or mitigate for impacts to these resources. The plans of the individual agencies will provide the structure and detail needed to ensure implementation of their CHMP responsibilities outside of those areas controlled by Caltrans.

It is also anticipated that these agencies will participate over time in updating and expanding the inventory database. Such information sharing and cooperation among all stakeholders will help to achieve coordinated planning among agencies along this stretch of coast.

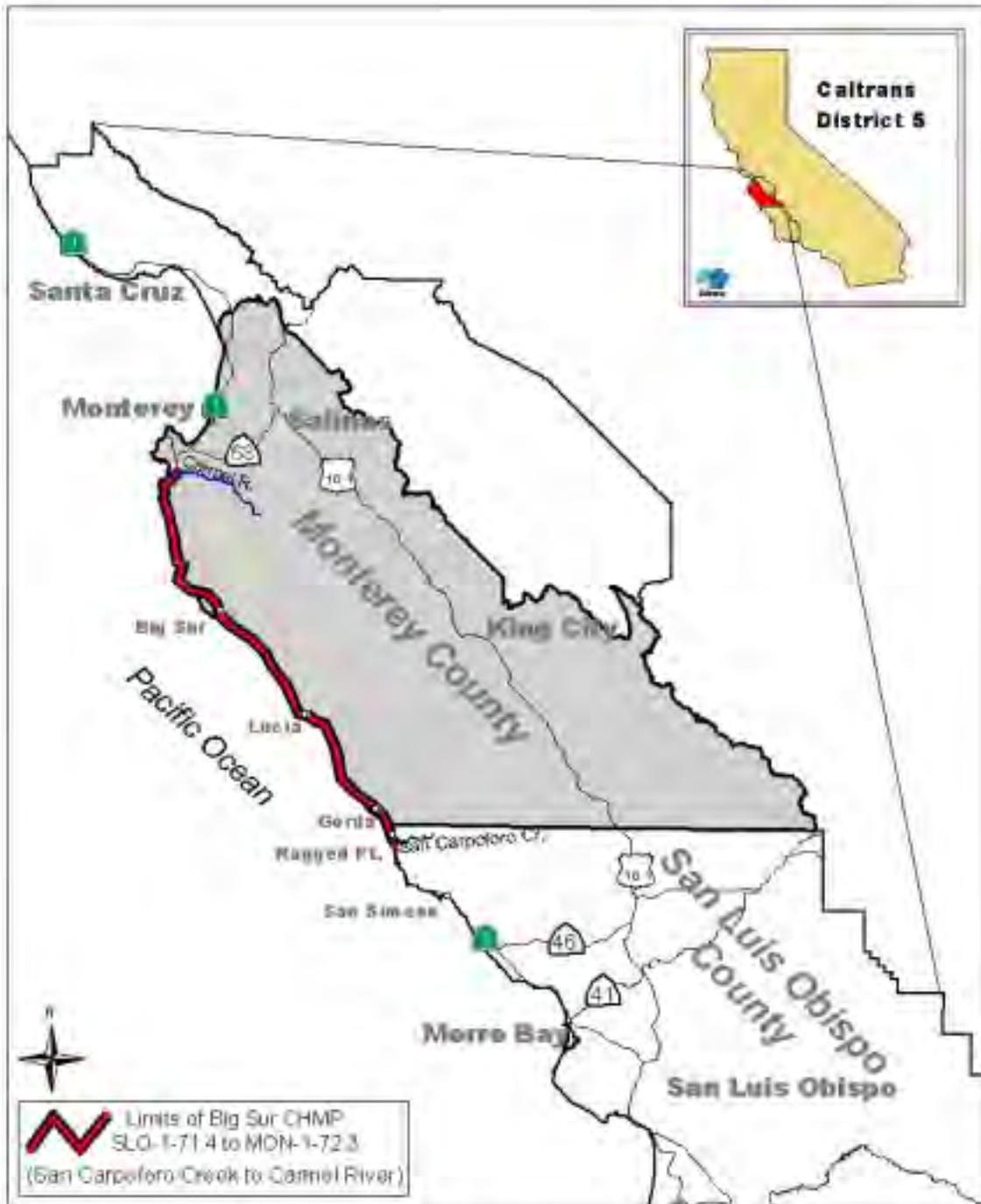


Figure 1. Map of Big Sur Coast Highway Management Plan Area

## STUDY METHODOLOGY

### DEFINITIONS OF TERMS USED IN THIS REPORT

Terms used in this report to describe the study area setting are defined below.

**Right-of-Way:** For the purposes of this study, the state highway right-of-way is an 80-foot (~24 meters) wide corridor, extending out approximately 40 feet (~12 meters) on each side of the centerline of the roadway. This constitutes the average right-of-way; the actual right-of-way limits vary greatly.

**Corridor Study Area:** For the purposes of this study, the corridor study area is a 400-foot wide corridor, approximately 200 feet (~61 meters) as measured from each side of the centerline of the roadway.

**Vicinity:** This area is defined as the region surrounding the corridor study area, generally encompassed by a 10-mile (~16 kilometers) radius.

### STUDIES PERFORMED

A characterization of the natural environments within the Highway 1 corridor study area was conducted from August 29 through September 29, 2000. The primary purpose of the inventory was to identify and map the following: vegetation communities, potential jurisdictional waters, potential wildlife corridors, potentially suitable habitat for special-status species, degree of exotic plant invasion, and relative density of seacliff buckwheat. A copy of the complete data set collected during the field review constitutes Addendum 3 to this report. The surveys focused on the right-of-way; however, vegetation communities and incidental sightings of resources were recorded within the broader corridor study area. All information collected during the field review is being input to a GIS database for the CHMP.

### SURVEY METHODS

#### Mapping

Mapping was accomplished using aerial photographs flown by HJW at 1:72,000 in December 1998 and rectified to USGS DOQQs/USGS Raster Quads and including USGS DEMs as a surface model with an accuracy of +/- 40 to 100 feet (~12 to 30 meters). Resources, such as vegetation communities and potential jurisdictional waters, identified in the field were delineated on the mapping base as distinct points or closed polygons, as appropriate. The protocols for inventorying each primary type of information are described below.

#### Biotic Communities

Vegetation communities were mapped using descriptions and nomenclature in accordance with the *Preliminary Descriptions of Terrestrial Natural Communities of California* (Holland 1986) and previously collected information. Mapping efforts extended out 200 feet (~61 meters) from the centerline along both sides of Highway 1.

**Potential Jurisdictional Waters**

Jurisdictional waters refers to waters that are deemed jurisdictional in accordance with Section 404 of the Clean Water Act, the 1600 series of the California Department of Fish and Game Code, or Section 10 of the Rivers and Harbors Act. Wetland delineations were not conducted during this analysis. Potential jurisdictional waters were identified within the project corridor, and their locations were plotted on the aerial photographs. Potential jurisdictional waters were classified into the following categories: small ephemeral drainage, stream/creek, river, seep/spring, and other. The following information was recorded for each of the potential jurisdictional features: post mile, presence of hydric soils (determined utilizing Monterey and San Luis Obispo County soil surveys obtained from the NRCS), National Wetlands Inventory (NWI) classification, potential to fall under CWA 404 and/or CDFG 1601 jurisdiction, potential to provide habitat for anadromous fish, potential to serve as a wildlife corridor, and potential to provide suitable habitat for special-status species.

**Potential Wildlife Corridor**

Various forms of wildlife corridors exist. These include general movement corridors utilized on a seasonal basis by herbivores such as deer, and corridors that serve to facilitate daily movements to resources such as food, water, and cover. Riparian communities are a commonly recognized type of potential wildlife corridor. Riparian communities may provide essential resources and migration cover for neotropical migrant songbirds, and may also provide movement and/or migration corridors for a number of mammals, amphibians, reptiles, and other birds. Rivers and streams may provide movement/migration corridors for aquatic species, such as anadromous fish. For example, steelhead migrate from the open ocean into fresh water rivers and streams in order to breed.

For the purposes of this study, potential wildlife corridors were defined as drainages lined with significant vegetative cover, potential game trails, and areas along the corridor study area identified as "hot spots" for wildlife crossing due to road kill information. Furthermore, each aquatic feature within the corridor study area was evaluated for its potential to provide habitat for anadromous fish.

Dr. J. Smiley, manager of Landels-Hill Big Creek Reserve is currently conducting an informal survey to help identify and locate roadkill "hot spots" that may correspond with wildlife corridors. The survey began in October 2000 and is currently ongoing (J. Smiley, pers. comm.). For the purposes of the survey, local residents have been asked to record the location, species, date and other relevant information for roadkills that they observe along Highway 1. Survey forms have been made available at appropriate public locations, included in local newsletters, and handed out at various public functions (J. Smiley, pers. comm.).

**Potentially Suitable Habitat for Special-status Species**

Potentially suitable habitat for special-status species is defined as areas where special-status species are known to exist or have the potential to exist based on range, habitat, and presence of important habitat elements. Detailed species-specific studies were not conducted during the field inventory. Therefore, all areas with at least a moderate potential to provide suitable habitat for a particular special-status species were included in the inventory. Each drainage within the corridor study area was evaluated for its potential to provide suitable habitat for steelhead, California red-legged frog, foothill

yellow-legged frog (*Rana boylei*), southwestern pond turtle (*Clemmys marmorata pallida*), and two-striped garter snake. The relative density of seacliff buckwheat was determined for each vegetation community polygon in an effort to help assess habitat suitability for Smith's blue butterfly. Tables 4 and 5 of this report, provide a list of special-status species that were identified by various sources, including the California Natural Diversity Database, U.S. Fish and Wildlife Service, and U.S. Forest Service, as potentially occurring within the corridor study area.

### **Relative Density of Seacliff Buckwheat**

The relative density of seacliff buckwheat within each vegetation community polygon was determined using a modified version of the habitat quality classification system developed by Arnold (1991). During his Garland Ranch study, Arnold was able to make some general conclusions regarding the habitat quality of buckwheat stands for Smith's blue butterfly in terms of high, medium, low or non-habitat, based primarily upon the number of seacliff buckwheat plants present and the relative mixture of age classes within a particular stand (Arnold 1991). Since this system was developed based upon a site-specific study and took into account factors other than buckwheat densities and distribution of age classes, caution must be taken when attempting to extrapolate these results across a broader scale. Previous buckwheat mapping efforts on Los Padres National Forest lands were loosely based upon the classification system developed by Arnold (1991). In an effort to maintain a certain degree of consistency with previous buckwheat mapping efforts conducted within and adjacent to the corridor study area, a modified version of the categories originally developed by Arnold was used during the course of this study. For the purpose of the Coast Highway natural qualities inventory; however, the categories were used to quantify the relative density of buckwheat within each vegetation community polygon as opposed to evaluating habitat quality for Smith's blue butterfly. The categories were defined as:

- Absent = no plants observed within the polygon during the field survey;
- Low = plants sparsely distributed, stands containing fewer than 25 plants per acre;
- Medium = stands containing 25 to several hundred plants per acre; and
- High = stands containing several hundred or more plants per acre, with a mix of age classes.

The relative density of buckwheat within each vegetation community polygon was determined by the stand within that polygon with the highest ranking. Complete counts of the total number of buckwheat plants present within each stand were not conducted; rather, the total number of plants was estimated and the relative density categorized accordingly. For instance, a polygon containing a few (<25/acre) plants scattered over a wide area would be ranked as having a "low" relative density of buckwheat, while a polygon containing a buckwheat stand with several hundred or more plants per acre, with a mixture of age classes, would be considered to have a "high" relative density of buckwheat. The location of each buckwheat stand with a relative density of either medium or high was identified on the base maps, and the nearest post mile was recorded on the data forms.

The decision to use a modified version of the habitat quality assessment methodology developed by Arnold (1991) during his Garland Ranch study was based upon the lack of other, more suitable, methodologies and an effort to maintain a certain degree of

consistency with previous buckwheat mapping efforts conducted within and adjacent to the Highway 1 corridor study area. As other buckwheat mapping methodologies are developed, Caltrans will coordinate with the appropriate agencies to determine if and/or how they should be implemented.

### **Incidental Sightings**

Incidental field sightings were documented for species and/or resources that were not specifically targeted for inventory. Examples of incidental sightings include observations of special-status wildlife species and observations of road-killed wildlife species.

### **Degree of Exotic Plant Invasion**

Degree of exotic plant invasion was determined using a percent cover classification system described in the *Big Sur Management Area Invasive Weed Index* (USFS 1998). This system utilizes the following descriptors:

- Trace = less than 1 percent cover;
- Light = 1 to 5 percent cover;
- Moderate = 5 to 25 percent cover; and
- Severe = 25 to 100 percent cover.

The percent of exotic plant cover was determined for the portion of each vegetation community polygon within the right-of-way, using the descriptors above, and the dominant exotic species within each polygon were recorded. During this effort, special emphasis was placed on documenting the presence of those species included in the above-cited weed index. These include Cape ivy, eupatory, French broom, giant reed (*Arundo donax*), Italian thistle, pampas grass, ice plant, and yellow star-thistle (*Centaurea solstitialis*). Other dominant weed species were also documented when observed. Naturalized European grasses, such as wild oat, Italian ryegrass, ripgut grass, and soft cheat, were not included in this determination of exotic plant invasion. These species were excluded from the analysis due to their relatively long history within the corridor study area and the high level of naturalization that they have attained within this corridor.

### **SURVEY DATES AND PERSONNEL**

Jeannette Owen and Adam Ballard of Parsons Harland Bartholomew & Associates, Inc. conducted the field inventory of the corridor study area from August 29 through September 29, 2000.

### **PROBLEMS ENCOUNTERED AND LIMITATIONS THAT MAY INFLUENCE RESULTS**

Mapping was accomplished using aerial photographs flown in 1998 with an accuracy of +/- 40 to 100 feet. Floristic surveys were conducted only to the level of vegetation community. Species-specific plant surveys were conducted only for seacliff buckwheat. Although the fieldwork took place after the typical bloom period of seacliff buckwheat, the visibility of the plants was determined to be adequate prior to initiation of the fieldwork. Species-specific wildlife surveys were not conducted during the field review. The field inventory was conducted after the nesting season was complete for most bird species, thereby reducing the potential to observe active nesting behaviors. Surveys were not conducted during periods of inclement weather, such as rain or dense fog.

**ENVIRONMENTAL SETTING**

The CHMP corridor study area extends from San Carpoforo Creek in northern San Luis Obispo County to the Carmel River in Monterey County. The corridor study area encompasses approximately 75 miles (~121 kilometers) of highway and ranges in elevation from sea level to approximately 700 feet (~213 meters) above mean sea level. Current land use in the vicinity of the highway corridor is primarily recreational, including several State Parks, the Los Padres National Forest, and the Ventana Wilderness. Table 1 provides a list of State Parks transected by the corridor study area and marine protected areas present along the Big Sur Coast. Approximately 16 miles (~26 kilometers) of the project corridor are within the Los Padres National Forest. A portion of the Landels-Hill Big Creek Reserve, a reserve within the University of California’s Natural Reserve System (NRS) devoted entirely to research and teaching, is also transected by the study area corridor. Other corridor land uses include residential, agricultural (primarily grazing), and open space.

**Table 1**

<b>California State Parks Transected by the Corridor Study Area</b>		
Andrew Molera State Park	John Little State Reserve	Pfeiffer Big Sur State Park
Carmel River State Beach	Julia Pfeiffer Burns State Park	Point Lobos State Reserve
Garrapata State Park	Limekiln State Park	Point Sur State Historic Park
<b>Marine Protected Areas Along the Big Sur Coast</b>		
Carmel Bay Area of Special Biological Significance	Point Lobos State Ecological Reserve	Big Creek Marine Resources Protection Act Ecological Reserve
Carmel Bay State Ecological Reserve	Point Lobos State Reserve	Ocean Area Surrounding the Mouth of Salmon Creek Area of Special Biological Significance
California Sea Otter Game Refuge	Julia Pfeiffer Burns Underwater Park Area of Special Biological Significance	California Coastal National Monument
Point Lobos State Ecological Reserve Area of Special Biological Significance	Julia Pfeiffer Burns State Park Underwater Park	

A number of special-status species have the potential to occur within the corridor study area. These may include, but are not limited to, Smith’s blue butterfly, California red-legged frog, steelhead, California condor, Southern California rufous-crowned sparrow, Little Sur manzanita, Monterey Indian paintbrush (*Castilleja latifolia*), Lewis’s clarkia (*Clarkia lewisii*), Hutchinson’s larkspur, and Monterey pine.

The corridor study area traverses a variety of vegetation communities (described below) and a number of potentially jurisdictional waters. Table 2 identifies prominent waterways that occur within the corridor study area.

**Table 2: Prominent Waterways Within the Corridor Study Area**

San Carpofooro Creek SLO PM 71.5	Kirk Creek MON PM 18.9	Torre Canyon MON PM 39.7	Bixby Creek MON PM 59.4
Salmon Creek MON PM 2.2	Limekiln Creek MON PM 21.0	Lafler Canyon MON PM 40.8	Rocky Creek MON PM 60.1
Soda Springs Creek MON PM 3.8	Vicente Creek MON PM 25.9	Grimes Canyon MON PM 41.8	Palo Colorado Canyon MON PM 61.5
Redwood Gulch MON PM 4.8	Big Creek MON PM 28.1	Castro Canyon MON PM 43.1	Garrapata Creek MON PM 63.0
Villa Creek MON PM 7.1	Rat Creek MON PM 30.1	Graves Canyon MON PM 43.5	Doud Creek MON PM 63.3
Alder Creek, MON PM 8.0	Dolan Creek MON PM 31.2	Mule Canyon Creek MON PM 44.0	Granite Creek MON PM 64.4
Mud Creek MON PM 9.1	Lime Creek MON PM 32.2	Pfeiffer GI MON PM 45.5	Soberanes Creek MON PM 65.9
Spruce Creek MON PM 9.6	Hot Springs Creek MON PM 32.8	Big Sur River MON PM 46.6	Malpasoo Creek MON PM 67.9
Willow Creek MON PM 11.8	Buck Creek MON PM 33.6	Pfeiffer-Redwood Creek MON PM 46.6	MacLean Creek MON PM 68.3
Plaskett Creek MON PM 13.9	Burns Creek MON PM 34.2	Juan Higuera Creek MON PM 48.0	Wildcat Creek MON PM 69.0
Prewitt Creek MON PM 15.1	Anderson Canyon MON PM 35.3	Pheneger Creek MON PM 48.6	Gibson Creek MON PM 69.8
Wild Cattle Creek MON PM 17.4	McWay Canyon MON PM 35.7	Swiss Canyon MON PM 52.5	San Jose Creek MON PM 71.2
Mill Creek MON PM 18.5	Partington Creek MON PM 37.8	Little Sur River MON PM 56.1	Carmel River MON PM 72.4

A variety of references were obtained and reviewed in an effort to incorporate biotic information previously collected within the study area vicinity. Examples of previous studies and reports incorporated into this document include:

- Survey for Smith's blue butterflies along the Big Sur Coast, Monterey County, CA. Kellner, C. 1989.
- Status surveys and habitat assessment for the endangered Smith's blue butterfly at the Garland Ranch Regional Park in Carmel Valley, CA. Arnold. 1991.
- The rare plants of Point Lobos State Reserve. Patterson, Hiss, and David. 1995.
- Big Sur Management Area Invasive Weed Index. USFS. 1998.
- Atlas of the breeding birds of Monterey County, CA. Roberson and Tenney (eds.). 1993.
- Rare plants in the Arroyo de la Cruz endemic area, San Luis Obispo County, CA. Keil and McLeod. 1986.
- Final recovery strategies for six coastal plant species on the Monterey Peninsula. JSA, Inc. 1996.

- Results of two consecutive years of surveys for Yadon’s piperia (*Piperia yadonii*). Allen. 1996.

A list of all references used during the preparation of this document is provided in the References section.

**DESCRIPTION OF BIOLOGICAL COMMUNITIES**

Biological communities identified within the corridor study area during the field review are presented in Table 3. A description of each community and its associated wildlife assemblage is provided below. A list of wildlife species observed during the field inventory, along with the vegetation community association for each is provided in Appendix K. With the exception of ruderal/disturbed and windrow, vegetation community nomenclature and descriptions are in accordance with the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986).

**Table 3: Biotic Communities Documented Within the Corridor Study Area**

Central coastal scrub	Upland redwood forest	Non-native grassland
Coastal sage-chaparral scrub	Monterey pine forest	Coastal terrace prairie
Northern coastal bluff scrub	Monterey cypress forest	Ruderal/disturbed
Central maritime chaparral	California bay forest	Windrow
Central coast riparian scrub	Coast live oak forest	Intertidal <sup>5</sup>
Central coast cottonwood-sycamore riparian forest	Northern foredune	Riverine
	Central dune scrub	

**Central Coastal Scrub**

This community is typically found on exposed, often south-facing slopes with shallow, rocky soils. It is common along the western side of the Santa Lucia range between Monterey and Point Conception, usually below 2,000 feet (~610 meters). It is typically composed of fairly dense shrubs that are 3 to 6 feet (~1 to 2 meters) tall. Characteristic species include coyote brush (*Baccharis pilularis*), California sagebrush (*Artemisia californica*), goldenbush (*Ericameria ericoides*), monkeyflower (*Mimulus aurantiacus*), poison oak (*Toxicodendron diversilobum*), lizard-tail (*Eriophyllum staechadifolium*), golden-yarrow (*Eriophyllum confertiflorum*), and Our Lord’s candle (*Yucca whipplei*). Northern coastal scrub, which is composed of dense low growing shrubs (~ 1.6 to 6.6 feet [0.5 to 2 meters] tall) with scattered grassy openings, was included within the Central coastal scrub type.

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<sup>5</sup> The present characterization of natural resources along the highway corridor was supplemented by the corridor inventory of intertidal resources and sensitive marine habitats prepared by L.A. deWit in 1998, see Appendix R.

Coastal scrub provides essential resources for wildlife such as resting and escape cover, and foraging and breeding habitat. Examples of wildlife species typically found in this community include western fence lizard (*Sceloporus occidentalis*), California legless lizard (*Anniella pulchra*), Pacific gopher snake (*Pituophis melanoleucus catenifer*), western toad (*Bufo boreas*), Allen's hummingbird (*Selasphorus sasin*), Costa's hummingbird (*Calypte costae*), spotted towhee (*Pipilo maculatus*), bushtit (*Psaltriparus minimus*), white-crowned sparrow (*Zonotrichia leucophrys*), California vole (*Microtus californicus*), and black-tailed jackrabbit (*Lepus californicus*). Due to the occurrence of seacliff buckwheat within this community, this community may provide habitat for Smith's blue butterfly.

As shown in Appendix A, Central coastal scrub is prevalent throughout the corridor.

### **Coastal Sage-Chaparral Scrub**

This community is intermediary between coastal scrub and chaparral. It is composed of a mixture of sclerophyllous, woody chaparral species and sage scrub species. Its distribution extends from the Big Sur Coast south to Baja along the Outer Coast Ranges and the Peninsular Range. Characteristic species include *Ceanothus* spp., California sagebrush, black sage (*Salvia mellifera*), and poison oak.

Due to the fact that coastal sage-chaparral scrub is an intermediary between coastal scrub and chaparral, this community will likely share a number of the species found within these communities. Potential wildlife species include California newt (*Taricha torosa*), side-blotched lizard (*Uta stansburiana*), southern alligator lizard (*Gerrhonotus multicarinatus*), Northern Pacific rattlesnake (*Crotalus viridis oreganus*), wrentit (*Chamaea fasciata*), blue-gray gnatcatcher (*Polioptila caerulea*), orange-crowned warbler (*Vermivora celata*), and California thrasher (*Toxostoma redivivum*). Due to the potential for seacliff buckwheat to occur in this community, this community may provide habitat for Smith's blue butterfly.

Coastal sage-chaparral scrub was documented at various locations within the corridor study area (see Appendix A). This community type; however, is most prevalent within the southern portion of the corridor (see Appendix A, Map Sheets 5 to 8).

### **Northern Coastal Bluff Scrub**

This community is typically found on rocky, poorly developed soils, in areas of nearly constant exposure to winds with high salt content. It is composed of low growing (2 to 20 inches [~5 to 51 centimeters] high), often prostrate scrub species, typically forming continuous or somewhat scattered mats. It is found at localized sites along the Monterey County coastline. Characteristic species include coastal onion (*Allium dichlamydeum*), seaside amsinckia (*Amsinckia spectabilis*), seacliff buckwheat, coast buckwheat (*Eriogonum latifolium*), sea-pink (*Armeria maritima* ssp. *californica*), and Monterey Indian paintbrush.

Species that may inhabit this community include Smith's blue butterfly, western fence lizard, side-blotched lizard, coast horned lizard (*Phrynosoma coronatum*), California vole, California mouse (*Peromyscus californicus*), deer mouse (*Peromyscus maniculatus*), and black-tailed jackrabbit. White-tailed kite (*Elanus leucurus*), and red-

tailed hawk (*Buteo jamaicensis*) are examples of raptors that may forage over this community.

Northern coastal bluff scrub was documented at a single location, along the coastal bluffs between Bixby and Rocky creeks (see Appendix A, Map Sheet 49).

### Central Maritime Chaparral

This community is typically found on well-drained, sandy soils. It is a scrub of moderate to high cover (50 to 100 percent), dominated by manzanita (*Arctostaphylos* spp.), found at scattered locations near Monterey. Fire appears to be required for reproduction. Characteristic species include Little Sur manzanita, shaggy-barked manzanita (*Arctostaphylos tomentosa*), Hooker's manzanita (*A. hookeri*), coyote brush, *Ceanothus* spp., and goldenbush. Little Sur manzanita often serves as an indicator species of this community in Big Sur (J. Norman, pers. comm.). Yadon's rein orchid (*Piperia yadonii*), a federally endangered and CNPS List 1B species, is present in central maritime chaparral near the corridor study area (J. Norman, pers. comm.).

Chaparral provides important cover, foraging, and breeding habitat for many wildlife species. Examples of wildlife species typically found in this community include spotted towhee, California thrasher, wren, Bewick's wren (*Thryomanes bewickii*), California quail (*Callipepla californica*), western fence lizard, Northern Pacific rattlesnake, ringneck snake (*Diadophis punctatus*), California whipsnake (striped racer) (*Masticophis lateralis*), Merriam's chipmunk (*Tamias merriami*), California pocket mouse (*Chaetodipus californicus*), and raccoon (*Procyon lotor*).

Within the corridor study area, this community was documented at three locations near Bixby Creek (see Appendix A, Map Sheet 49).

### Central Coast Riparian Scrub

This community may be found in a variety of environments, such as low gradient reaches of rivers and streams, on seasonally flooded, saturated soils (Holland 1986, Sawyer and Keeler-Wolf 1995). Willow species dominate this community, forming scrubby streamside thickets, ranging from open to extremely dense. It is typically located along and at the mouths of both perennial and intermittent streams of the South Coast Ranges, extending from the Bay Area south to the Point Conception vicinity. Characteristic species include arroyo willow (*Salix lasiolepis*), shining willow (*S. lucida* ssp. *lasiandra*), Coulter's willow (*S. sitchensis*), and narrow-leaved willow (*S. exigua*).

Central coast riparian scrub provides a wide range of resources to wildlife, such as movement and migration corridors, cover (nesting, resting, thermal, etc.), water, and a variety of foraging opportunities. Examples of wildlife found in this community include Pacific chorus frog (*Pseudacris regilla*), California red-legged frog, two-striped garter snake, Townsend's warbler (*Dendroica townsendi*), Wilson's warbler (*Wilsonia canadensis*), common yellowthroat (*Geothlypis trichas*), black phoebe (*Sayornis nigricans*), and Pacific-slope flycatcher (*Empidonax difficilis*). This community may also provide a number of essential resources for neotropical migrant songbirds.

Due to the value and scarcity of riparian communities, on both a state and region-wide scale, they are considered a sensitive plant community and are monitored closely by the California Department of Fish and Game.

The riparian community adjacent to the Little Sur River provides a representative example of central coast riparian scrub communities present within the corridor (see Appendix A, Map Sheet 47). As shown in Appendix A, this community occurs at various locations throughout the corridor.

### **Central Coast Cottonwood-Sycamore Riparian Forest**

This community is found along floodplains of sub-perennial streams, canyons, and creeks throughout the South Coast Ranges. Characteristic species include big-leaf maple (*Acer macrophyllum*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), white alder (*Alnus rhombifolia*), various willow species (*Salix* spp.), and western sycamore (*Platanus racemosa*).

Riparian communities provide a number of important resources for wildlife, such as water, thermal cover, movement corridors, and a broad range of nesting and foraging opportunities (Grenfell 1988a). These factors and the structural diversity of riparian forests are largely responsible for the high productivity of this habitat type. Bird species that are characteristic of this habitat include Nuttall's woodpecker (*Picoides nuttallii*), black phoebe, western wood-pewee (*Contopus sordidulus*), California towhee (*Pipilo crissalis*), and song sparrow (*Melospiza melodia*). A number of species nest or roost in riparian communities and feed in adjacent vegetation communities, such as non-native grassland and central coastal scrub. Riparian forests also provide important feeding, resting, and nesting habitat for neotropical migrant songbirds such as warblers, vireos, grosbeaks, and flycatchers. Riparian communities may also provide local movement corridors within fragmented landscapes for a variety of species.

Other wildlife found within this community may include California newt, western toad, Pacific chorus frog, southwestern pond turtle (*Clemmys marmorata pallida*), common king snake (*Lampropeltis getulus californiae*), California red-sided garter snake (*Thamnophis sirtalis infernalis*), Virginia opossum (*Didelphis virginianus*), raccoon, deer mouse, broad-footed mole (*Scapanus latimanus*), striped skunk (*Mephitis mephitis*), gray fox (*Urocyon cinereoargenteus*), and ringtail (*Bassariscus astutus*).

Due to the value and scarcity of riparian communities, on both a state and region-wide scale, they are considered a sensitive habitat type and are monitored closely by the California Department of Fish and Game.

The riparian community adjacent to the Carmel River provides a representative example of Central Coast Cottonwood-Sycamore Riparian Forest communities within the corridor (see Appendix A, Map Sheet 57). As shown in Appendix A, this community occurs at various locations throughout the corridor.

### **Upland Redwood Forest**

This community is usually found on shallow, well-drained soils, often on steep slopes of coastal canyons within reach of summer fogs. Along the Monterey coast, stunted and wind-pruned stands are often created due to exposure. Within Monterey County,

distribution of this community extends from south of Monterey nearly to the San Luis Obispo County line, representing the southernmost extension of this community's range. Characteristic species include coastal redwood (*Sequoia sempervirens*), California bay (*Umbellularia californica*), tanbark oak (*Lithocarpus densiflorus*), big-leaf maple, and western sword fern (*Polystichum munitum*).

Tanbark oak is susceptible to Sudden Oak Death. A brief explanation of Sudden Oak Death is provided in the community description for coast live oak forest.

Upland redwood forests provide food, cover, or other resources for a wide range of vertebrate species (Mayer 1988). Wildlife species that may occur in this community include ensatina (*Ensatina eschscholtzii*), Pacific slender salamander (*Batrachoseps pacificus*), Pacific giant salamander (*Dicamptodon ensatus*), rubber boa (*Charina bottae*), western screech-owl (*Otus kennicottii*), pygmy nuthatch, Allen's hummingbird, purple martin (*Progne subis*), acorn woodpecker (*Melanerpes formicivorus*), Steller's jay (*Cyanocitta stelleri*), Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*), pallid bat (*Antrozous pallidus*), and dusky-footed woodrat (*Neotoma fuscipes*).

Within the corridor study area, the most substantial stands of upland redwood forest occur along the Big Sur River (see Appendix A, Map Sheets 32 to 42). Upland redwood forest also occurs at various other locations within the corridor, including Torre Canyon, Anderson Canyon, and Partington Creek (see Appendix A).

### **California Bay Forest**

This community is typically found on moist, north-facing slopes, forming dense, wind-sheared stands on exposed coastal slopes. The understory is usually poorly developed. California bay dominates while other subdominant species such as snowberry (*Symphoricarpos albus*), and California blackberry (*Rubus ursinus*) may also be present. Its distribution extends from the Oregon border to northern San Luis Obispo County, along the Outer Coast Ranges.

Wildlife species that may be found in this community include ensatina, Pacific slender salamander, arboreal salamander, rubber boa, sharp-tailed snake, coast mountain kingsnake (*Lampropeltis zonata multifasciata*), chestnut-backed chickadee (*Poecile rufescens*), violet-green swallow (*Tachycineta thalassina*), northern flicker (*Colaptes auratus*), western gray squirrel (*Sciurus griseus*), and California mouse.

California bay forest occurs primarily within the southern portion of the corridor study area (see Appendix A, Map Sheets 3 and 4).

### **Monterey Pine Forest**

This community is restricted to well-drained, sandy soils within reach of the summer marine fog incursion. Monterey pines dominate this community, obtaining canopy coverage of up to 80 percent. Only three natural stands occur in California, the largest of which is located near Pt. Lobos State Reserve. This stand occurs within the project vicinity, extending approximately 2.5 miles (~4 kilometers) along the coast between San Jose Creek and Malpaso Creek. Monterey pine forests documented in the project corridor are potentially natural/native stands, but it should be noted that Monterey pines

have been widely planted, becoming naturalized, throughout the project corridor. Other species commonly associated with this community include coast live oak (*Quercus agrifolia*), bent grass (*Agrostis pallens*), California bedstraw (*Galium californicum*), and shaggy-barked manzanita.

Numerous game and non-game wildlife species use this community for foraging and cover (Jensen 1988). Species that may occur in this community include monarch butterfly (*Danaus plexippus*), Pacific slender salamander, northern alligator lizard (*Gerrhonotus coeruleus*), sharp-tailed snake (*Contia tenuis*), brown creeper (*Certhia americana*), pygmy nuthatch (*Sitta pygmaea*), pine siskin (*Carduelis pinus*), Allen's hummingbird, great horned owl (*Bubo virginianus*), red-shouldered hawk (*Buteo lineatus*), western gray squirrel, black-tailed deer (*Odocoileus hemionus*).

Monterey pine forests were primarily identified within the vicinity of Point Lobos and the Carmel Highlands (see Appendix A, Map Sheets 55 and 56). As stated above, these forests may be composed of native and/or naturalized individuals.

### **Monterey Cypress Forest**

This community is restricted to rocky, granitic soils of coastal headlands and bluffs. It is usually composed of pure stands of Monterey cypress (*Cupressus macrocarpa*), with scattered dwarf shrubs and perennial herbs forming the understory. Only two small natural stands are documented in the CNDDDB, one on the north side of Carmel Bay between Point Cypress and Pescadero Point, and the other near Point Lobos on the south side of Carmel Bay. The latter stand is within the project vicinity. Monterey cypress has been widely planted, becoming naturalized throughout much of the corridor. As a result of the widespread planting and subsequent naturalization, Monterey cypress forests documented within the corridor study area are likely composed of naturalized individuals. Other characteristic species of this community include California sagebrush, coyote brush, powdery dudleya (*Dudleya farinosa*), and Douglas' iris (*Iris douglasiana*).

Wildlife species composition in this community is fairly similar to that of the Monterey pine forest. Both forests offer foraging and cover opportunities for a variety of wildlife species. Species that may be encountered in this community include monarch butterfly, pine siskin, chestnut-backed chickadee, pygmy nuthatch, great horned owl, red-tailed hawk, and black-tailed deer.

Monterey cypress forests were documented within the vicinity of Point Lobos and Point Sur. A native Monterey cypress forest is present within the project vicinity near Point Lobos; however, the Monterey cypress forests documented within the corridor study area south of Point Lobos are likely composed of naturalized individuals (see Appendix A, Map Sheet 54). The stand documented near Point Sur is composed entirely of naturalized individuals (J. Norman, pers. comm.) (see Appendix A, Map Sheet 45). The naturalized/non-native stands of Monterey cypress present within the corridor should not be considered a sensitive plant community.

### **Coast Live Oak Forest**

This community may be found along slopes as well as valley bottoms. The canopy is dominated by coast live oak, while the understory typically consists of a poorly developed shrub layer and an herb layer dominated by exotic grass species. Its

distribution extends along the Coast Ranges from Sonoma County to Santa Barbara County. Characteristic species include coast live oak, California bay, and poison oak.

Oak trees and other hardwoods in this community provide shelter, shade, and breeding habitat for wildlife, as well as acorns, which are an important food resource. Additionally, the abundant insect life found in the bark and foliage of oaks provides food for many bird species. This community may also be important to neotropical migrant songbirds (i.e., warblers, vireos, and grosbeaks), providing feeding, resting, and nesting habitat. Examples of wildlife species found in this community include Pacific slender salamander, arboreal salamander (*Aneides lugubris*), southern alligator lizard, Pacific gopher snake, Nuttall's woodpecker, white-breasted nuthatch (*Sitta carolinensis*), dark-eyed junco (*Junco hyemalis*), oak titmouse (*Baeolophus inornatus*), Virginia opossum, and raccoon.

Sudden Oak Death (SOD), first documented in Marin County during the summer of 1995, has caused the loss of large numbers of coast live oak, tanbark oak (commonly found in association with upland redwood forest along the Big Sur coast), and black oak (*Quercus kelloggii*) trees. The causal agent of SOD appears to be a new species of *Phytophthora* (a fungus), while beetles, other fungi, and weather may serve as additional factors. Other susceptible host species include California bay, Pacific madrone (*Arbutus menziesii*), California buckeye, huckleberry (*Vaccinium ovatum*), and the ornamental rhododendron (UCCE in Marin County 2001). However, it is important to note that not all of these species are being killed by the fungus (UCCE in Marin County 2001). As of September 2001, SOD had been identified in the following counties: Alameda, Marin, Mendocino, Monterey, Napa, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma (CAMFER 2001, UCCE in Marin County 2001). *Phytophthora* appears to prefer cool, moist conditions as shown by its primarily central coast distribution. Within Monterey County, SOD has been confirmed at Pfeiffer Big Sur State Park (currently the southernmost known occurrence) and Prunedale (CAMFER 2001).

Within the corridor study area, this community occurs primarily within the vicinity of Big Sur (see Appendix A, Map Sheets 36 to 42).

### **Northern Foredune**

This community is typically found on foredunes, but may also occur on upper beaches. As plants become established, there is a reduction in the amount of blowing sand, allowing the dune to become partially stabilized. Perennial grasses dominate this community, while low, often succulent, perennial herbs and subshrubs serve as subdominants. It is distributed along the coast as far south as Point Conception, occurring in areas of sand accumulation, including all locations where active coastal dunes exist. Characteristic species include yellow sand-verbena (*Abronia latifolia*), beach-bur (*Ambrosia chamissonis*), beach evening primrose (*Camissonia cheiranthifolia*), sea rocket (*Cakile* sp.), and sea lyme-grass (*Leymus mollis* ssp. *mollis*).

Wildlife species that may occur in northern foredune include western snowy plover (*Charadrius alexandrinus nivosus*), Smith's blue butterfly, globose dune beetle (*Coelus globosus*), and the California legless lizard. Both the globose dune beetle and the California legless lizard require loose soil or sand for reproduction, and to escape predation by burrowing. Coast buckwheat, a host foodplant of Smith's blue butterfly, is present at the Little Sur dunes.

Within the corridor study area, this community was documented along the coast south of the Carmel River as well as south of the Little Sur River (see Appendix A, Map Sheets 46, 47, and 57).

### **Central Dune Scrub**

This community is found along the coast on relatively stabilized backdune slopes, ridges, and flats. It consists of low growing (generally less than 3 feet [~1 meter] tall), scattered shrubs, subshrubs, and herbs that may develop considerable cover. The community's distribution extends along the coastal strip from Bodega Bay to Point Conception. Characteristic species include goldenbush (*Ericameria ericoides*), Chamisso's bush lupine (*Lupinus chamissonis*), coastal sagewort (*Artemisia pycnocephala*), and California aster (*Lessingia filaginifolia*).

Central dune scrub intergrades with other coastal communities, such as central coastal scrub, northern foredunes, and coastal sage-chaparral scrub (Holland 1986). The wildlife assemblage of central dune scrub likely contains a number of species found in these other communities. Examples of wildlife that may occur in central dune scrub include California legless lizard, side-blotched lizard, western fence lizard, wrentit, and song sparrow.

Central dune scrub was documented only once within the corridor study area during the course of the field review. The occurrence was located on the dunes south of the Little Sur River (see Appendix A, Map Sheet 47).

### **Non-Native Grassland**

This community is typically found on fine-textured, usually clay soils, which may range from moist, possibly even waterlogged, during the rainy season to very dry during the dry season. It is primarily composed of non-native annual grasses; however, a number of native annual forbs ("wildflowers") may also be present during years of favorable precipitation. Non-native grasslands are found in the valleys and foothills throughout much of the state, characteristic species include *Avena* spp., *Bromus* spp., Italian ryegrass (*Lolium multiflorum*), California poppy (*Eschscholzia californica*), and lupine (*Lupinus* spp.). When evidence was apparent, non-native grasslands were further documented as grazed or previously grazed.

Grasslands provide foraging and nesting habitat for a wide variety of wildlife species including raptors, seed eating birds, small mammals, amphibians and reptiles. Wildlife species typically associated with grasslands include western skink (*Eumeces skiltonianus*), Pacific gopher snake, common garter snake (*Thamnophis sirtalis*), deer mouse, western harvest mouse (*Reithrodontomys megalotis*), California vole, black-tailed deer, western meadowlark (*Sturnella neglecta*), and savannah sparrow (*Passerculus sandwichensis*). Grasslands also provide important foraging habitat for raptors such as the American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), and red-tailed hawk.

Non-native grasslands occur at various locations along the corridor. The grazed grasslands near Point Sur provide a representative example of this community (see Appendix A, Map Sheets 45 and 46).

### Coastal Terrace Prairie

Holland (1986) describes coastal terrace prairie as a dense, tall grassland dominated by perennial grasses. Most stands are quite patchy and vary in species composition, reflecting local variations in soil moisture. This community typically occurs on sandy loams on marine terraces within the coastal fog incursion zone (Holland 1986). Native grass species associated with coastal terrace prairies include oatgrass (*Danthonia californica* var. *americana*), tufted hairgrass (*Deschampsia cespitosa*), purple needlegrass (*Nassella pulchra*), and blue wildrye (*Elymus glaucus*). Other plant species that may be found in this community include sea-pink, velvet grass (*Holcus lanatus*), checker mallow (*Sidalcea malvaeflora*), and coast tarweed (*Hemizonia corymbosa*).

The wildlife assemblage associated with this community is similar to that described above for non-native grassland.

Efforts to restore the coastal marine terrace along the seaward side of Highway 1 within Point Lobos State Reserve through prescribed burning have been largely successful (L. Otter, pers. comm.). A variety of native grasses are now present within this formerly grazed land (L. Otter, pers. comm.).

An example of coastal terrace prairie, located along the marine terrace within Point Lobos State Reserve, is shown on Map Sheet 56 (Appendix A). Native grasslands are a sensitive plant community, and as such, surveys conducted during the appropriate bloom periods are needed to ensure that those present within the corridor study area are identified and mapped.

### Windrow

This community comprises various tree species that have been planted for ornamental or commercial purposes. Typically located in the vicinity of urban development, windrows can be found throughout most of the Big Sur coast. Commonly utilized species include Monterey pine, Monterey cypress, and various *Eucalyptus* species.

Windrows may provide roosts, perches, and nest sites for various bird species, particularly raptors (Pearson 1988). Litter layers created by the exfoliated bark of *Eucalyptus* trees may also provide cover for small vertebrate species, such as southern alligator lizard, gopher snake, and woodrats (*Neotoma* spp.) (Pearson 1988). Other species that may be encountered include red-tailed hawk, red-shouldered hawk, barn owl (*Tyto alba*), great horned owl, chestnut-backed chickadee, and American crow (*Corvus brachyrhynchos*).

Windrows may also provide important nectaring, migratory roosting, and wintering sites for monarch butterflies. Blue gum *Eucalyptus* (*Eucalyptus globulus*), an introduced species, is commonly used by monarch butterflies as nectaring and roosting sites. Monterey pine and Monterey cypress groves may also provide habitat for monarch butterflies. Known "butterfly tree" locations within and adjacent to the corridor study area include San Carpoforo Ranch; Plaskett Creek campground; Big Creek, near its junction with Highway 1; Hot Springs Creek, adjacent to the Esalen Institute; Sycamore Canyon, west of Pfeiffer Beach; Point Sur, approximately one mile south of the Light House turn-off; Point Lobos State Reserve; and Gibson Creek.

As shown in Appendix A, windrows are a common feature throughout much of the corridor study area.

### **Ruderal/Disturbed**

This community type encompasses urban development, highly disturbed vegetation communities, highly eroded/disturbed areas, erosion control areas, and active or fallow croplands. It was inventoried at various localities throughout the length of the Big Sur coast. These areas typically had a high incidence of exotic plant invasion. Commonly identified exotics included pampas grass, fennel (*Foeniculum vulgare*), mustard, and French broom.

A distinguishing characteristic of urban habitats is the mixture of native and exotic plant species. Exotic plant species may provide valuable habitat elements such as cover for nesting and roosting, as well as food sources such as nuts or berries (McBride and Reid 1988). Native and introduced animal species that are tolerant of human activities often thrive in urban habitats. These species include western fence lizard, barn swallow (*Hirundo rustica*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), house mouse (*Mus musculus*), raccoon, striped skunk, and Virginia opossum.

Croplands are located on flat to gently rolling terrain that is tilled prior to commencement of crop production (Zeiner 1988). Due to the artificially controlled growth and harvesting regime, croplands do not conform to normal seral stages (i.e., growth stage of habitat). These habitats may either be annual or perennial depending upon the crop-rotation system and geographic location. Examples of wildlife that have adapted to croplands include red-winged blackbird (*Agelaius phoeniceus*), Brewer's blackbird (*Euphagus cyanocephalus*), American goldfinch (*Carduelis tristis*), house mouse, and deer mouse.

Wildlife species associated with highly disturbed vegetation communities, highly eroded/disturbed areas, and erosion control areas are likely to be either habitat generalists, such as deer and house mice, or species that have ventured in from adjoining vegetation communities.

Due to the potential for the occurrence of seacliff buckwheat on recently exposed/disturbed sites, potentially suitable habitat for Smith's blue butterfly may occur within this community.

As shown in Appendix A, ruderal/disturbed communities are widespread within the corridor study area.

### **Riverine**

Riverine environments may be associated with various terrestrial vegetation communities. Riparian communities, such as central coast cottonwood-sycamore riparian forest, line the banks of many rivers and streams (Grenfell 1988c). The riverine environment provides resources for a large assemblage of wildlife species. Anadromous fish, such as steelhead, use these waterways as migration/movement corridors, breeding habitat, and rearing habitat. Numerous insectivorous bird species, such as swallows, swifts, and flycatchers, forage over water. Other wildlife species that may be encountered include Pacific lamprey (*Lampetra tridentata*), Pacific chorus frog, foothill

yellow-legged frog, southwestern pond turtle, western aquatic garter snake (*Thamnophis couchii*), two-striped garter snake, belted kingfisher (*Ceryle alcyon*), black phoebe, violet-green swallow, and bat species (*Myotis* sp.). The larger creeks within the corridor study area, San Carpoforo Creek and Big Creek for instance, exhibit many of these riverine characteristics.

The Big Sur, Little Sur, and Carmel rivers best exemplify the riverine environments within the corridor study area (see Appendix A, Map Sheets 39 to 43, 47, and 57, respectively).

### **Intertidal**

The intertidal zone is the strip of shoreline between the land and the open ocean. During the high and low tides, this land is regularly covered and uncovered by the advance and retreat of the tides. Intertidal communities occur on sandy beaches, in bays and estuaries, and along rocky shorelines.

Due to adverse conditions, hardy and adaptable plants and animals typically inhabit these areas. These species include the California brown pelican (*Pelecanus occidentalis californicus*), pelagic cormorant (*Phalacrocorax pelagicus*), Brandt's cormorant (*Phalacrocorax penicillatus*), southern sea otter (*Enhydra lutris nereis*), harbor seal (*Phoca vitulina*), northern sea lion (*Eumetopias jubatus*), northern elephant seal (*Mirounga angustirostris*), and a variety of invertebrates.

During the course of the field review, this community was documented at several locations within the corridor study area (See Appendix A, Map Sheets 8, 9, 15, 18, 51, etc.).

Additional work is necessary to characterize the nearshore environment along the Big Sur Coast Highway study area. L.A. deWit prepared a cursory review of corridor intertidal resources and sensitive habitats in 1998; these results are presented in Appendix R of this report. Further efforts are expected to focus on identifying areas of sensitivity based on proximity to the highway and related activities. The Monterey Bay National Marine Sanctuary (MBNMS) is the lead agency in this effort.

### **EXISTING LEVELS OF DISTURBANCE**

In an effort to begin to assess the existing level of disturbance along the Coast Highway corridor, the field inventory recorded the apparent degree of exotic plant invasion. Natural geologic instabilities, although not a focus of this report, also contribute to background levels of disturbance within the corridor.

#### **Degree of Exotic Invasion**

During the field inventory, the percent cover of exotic plants within each vegetation community polygon was documented, and the dominant exotic species within each polygon were noted. The effort to document the degree of exotic invasion was focused within the average right-of-way; however, incidental information pertaining to the degree of invasion for the area extending from the outer edge of the right-of-way out to 200 feet (~61 meters) was also recorded. Special emphasis was placed on documenting the presence and degree of invasion of the weeds listed in the *Big Sur Management Area Invasive Weed Index*. These weeds included pampas grass, Italian thistle, French broom, eupatory, Cape ivy, ice plant, and yellow star-thistle; however, other dominant

weeds were also noted. Examples of weeds commonly observed, other than those listed in the USFS weed index, include kikuyu grass, greater periwinkle, mustard, fennel, and English ivy. A list of the weeds documented during the field inventory is provided in Appendix L. This list should not be regarded as all-inclusive, in that not every exotic/invasive weed species observed in the corridor study area was documented. Rather, the list focuses on the dominant species.

The California Department of Food and Agriculture, Division of Plant Health and Pest Prevention Services' list of *Pest Ratings of Noxious Weed Species and Noxious Weed Seed*, and the California Exotic Pest Plant Councils' list of *Exotic Pest Plants of Greatest Ecological Concern in California* were referenced for each weed documented during the field inventory. The ratings for each weed are shown in Appendix L.

Table 4 provides the percentage of vegetation polygons within the corridor study area exhibiting each of the exotic plant cover classifications. As noted above, the effort to document the extent of exotic plant invasion was focused within the average Highway 1 right-of-way; however, incidental information pertaining to the extent of invasion outside the right-of-way was also recorded.

**Table 4: Percentage of Polygons Per Exotic Plant Cover Classification**

<b>Classification</b>	<b>Within Right-of-Way</b>	<b>Outside Right-of-Way</b>
<b>Trace</b>	28%	39%
<b>Light</b>	17%	16%
<b>Moderate</b>	19%	12%
<b>Severe</b>	22%	15%
<b>Unknown</b>	2%	14%
<b>N/A</b>	12%	4%

Source: Natural Qualities Database

**Exotic Plant Cover Classifications:**

Trace = less than 1 percent cover;

Light = 1 to 5 percent cover;

Moderate = 5 to 25 percent cover;

Severe = 25 to 100 percent cover;

Unknown = unable to determine the extent of exotic plant cover within the polygon

N/A = polygon not located within the particular area of interest, for example if a polygon was located entirely outside of the average right-of-way then the exotic plant cover classification for "Within Right-of-Way" would equal "N/A"

Overall, the degree of exotic invasion is greatest within the highway right-of-way. This is due in large part to the level of disturbance associated with highway repair and maintenance activities, as well as natural geologic instabilities. Outside of the right-of-way, exotic/invasive plant invasion is most often associated with previously disturbed areas, such as areas where landslides have occurred and areas where sidecasting has

been conducted. Exotic/invasive plant invasion is also typically high in areas surrounding urban development. A number of ornamentals and cultivars, such as English ivy, Cape ivy, greater periwinkle, and garden nasturtium, have escaped and become invasive species. Blue gum Eucalyptus, an ornamental tree native to southeast Australia, can be observed spreading rather aggressively in certain locations within and adjacent to the study area corridor. Stands of blue gum Eucalyptus present within the corridor study area were mapped as windrows and are described in the Description of Biological Communities section of this report.

Provided below is a list of the primary exotic/invasive plant species that were identified within the corridor study area. Appendix L of this report provides a complete listing of all the exotic/invasive species documented during the field review. A brief description of the species, its point of origin, and its distribution within the corridor study area is provided for each. Please refer to the natural qualities GIS database for specific information pertaining to the occurrence of each of these species. This list is not meant to be all-inclusive; rather, it focuses on the dominant, widespread or highly invasive species observed during the field review.

### **Ice plant**

Ice plant is a member of the Fig-Marigold Family (Aizoaceae), native to South Africa, which has been widely planted along highways and dunes for stabilization purposes. A smooth, glabrous shrub, its bloom period extends from May to October during which it produces flowers with pink or yellow aging pink petals (Hickman 1993, Matthews 1997). Ice plant is most prevalent in the northern portion of the corridor (approx. MON PM 54.0 northward); however, scattered occurrences do exist within the southern portion of the corridor. Examples of severely infested areas include the Little Sur Dunes (approx. MON PM 55.3 to 55.8) and the bluffs surrounding Garrapata Creek (MON PM 63.0).

### **Pampas Grass**

Pampas grass is an escaped cultivar, native to South America, which is capable of rapidly spreading at disturbed sites. A member of the Grass Family (Poaceae), this perennial species forms large tufts of tough sharp-edged leaf blades. The bloom period of this species extends from July to September (Matthews 1997). All plants are pistillate and are capable of producing fruit asexually (Hickman 1993, Matthews 1997). Although pampas grass can be found throughout the corridor study area, it is much more sporadic and isolated in the northern portion of the corridor. Beginning at approximately MON PM 45.0 and moving southward, the infestation becomes far more pronounced. Pampas grass has spread aggressively across disturbed sites as well as open vegetation communities.

### **Kikuyu Grass**

Kikuyu grass, a member of the Grass Family (Poaceae) native to East Africa, typically invades disturbed places and along roadsides (Hickman 1993). Within the corridor study area, kikuyu grass is most prevalent along the disturbed margins of Highway 1. The current distribution of this species appears to extend south from approximately MON PM 55.0 to near the Monterey-San Luis Obispo County line.

**Giant Reed**

Giant reed, a native of North Africa and Eurasia, is an invasive weed that typically inhabits moist places, ditches, rivers, etc. (Matthews 1997). A member of the Grass Family (Poaceae), this perennial species may reach up to 24 feet (~7 meters) in height (Hickman 1993). Giant reed's bloom period extends from March to September (Matthews 1997). This species currently appears to have a limited distribution within the corridor study area. It was documented in 34 vegetation community polygons (approx. 3 percent of the total number of polygons), most often in central coastal scrub and central coastal riparian scrub. The majority of the documented occurrences were located between MON PM 40.0 and 60.0.

**Eupatory**

Eupatory is an invasive perennial shrub, native to Mexico, which may be seriously invasive in mild coastal environments (Hickman 1993). A member of the Sunflower Family (Asteraceae), this species blooms most months producing flowers with white, pink tinged corollas, and has opposite leaves with deltoid-ovate, serrate blades (Hickman 1993, Matthews 1997). Eupatory has spread aggressively into the southern portion of the corridor study area. The current distribution of this species within the corridor study area appears to extend southward from approximately MON PM 44.0, occurring primarily in central coastal scrub and ruderal/disturbed communities.

**Italian Thistle**

Italian thistle is a Mediterranean native that commonly invades roadsides, pastures, disturbed sites and waste places (Hickman 1993, Matthews 1997). A member of the Sunflower Family (Asteraceae), this annual or biennial species has glabrous or slightly wooly stems and flowers ranging from pink to purple (Hickman 1993). Italian thistle's bloom period extends from April to June (Matthews 1997). This species currently appears to have a fairly limited distribution within the corridor study area. The majority of the occurrences were documented within the northern portion of the corridor, north of MON PM 50.0. This species was most commonly associated with ruderal/disturbed environments and along the roadside margins of central coastal scrub. The characterization of this species' occurrence and distribution within the corridor study area may have been hindered as a result of the field surveys being conducted outside the typical bloom period of this species.

**Yellow star-thistle**

Yellow star-thistle is a noxious weed native to the Mediterranean that typically invades pastures, roadsides, disturbed grasslands or woodlands (Hickman 1993). A member of the Sunflower Family (Asteraceae), this species' bloom period extends from July to December (Matthews 1997). Yellow star-thistle currently appears to have a very limited distribution within the corridor study area, having been documented in only six vegetation community polygons (less than 1 percent of the total number of polygons). All of the occurrences were documented within the southern portion of the corridor, almost exclusively within central coastal scrub. Two of the occurrences were documented between MON PM 36.8 and 39.2, while the remaining four occurrences were documented south of MON PM 4.1.

**Cape Ivy (also known as German Ivy)**

Cape ivy is a highly invasive species, native to South Africa, that has rapidly spread into many of the riparian or stream-side areas within Monterey County. A member of the Sunflower Family (Asteraceae), Cape ivy is a perennial, herbaceous vine with sharply palmately 5 to 9 lobed leaves (Hickman 1993). The bloom period of this species extends from February to June (Matthews 1997). Cape ivy was documented at locations throughout the corridor study area within a variety of communities, including, but not limited to, central coastal riparian scrub, upland redwood forest, central coastal scrub, and central coast cottonwood-sycamore riparian forest. Cape ivy now occurs in a number of the corridor's prominent waterways including San Carpoforo Creek (SLO PM 71.5), Dolan Creek (MON PM 31.2), Burns Creek (MON PM 34.2), Little Sur River (MON PM 56.1), Bixby Creek (MON PM 59.4), Rocky Creek (MON PM 60.1), Garrapata Creek (MON PM 63.0), Malpaso Creek (MON PM 67.9), and Wildcat Creek (MON PM 69.0).

**French Broom**

French broom is an invasive woody shrub, native to the Canary Islands (Matthews 1997). A member of the Legume Family (Fabaceae) capable of growing up to 9 feet (~3 meters) in height, its bloom period extends from March to May (Matthews 1997). This species can be found throughout the corridor study area, having attained a near corridor-wide distribution, inhabiting a wide range of communities.

**Spanish Broom**

Spanish broom is an unarmed shrub, native to the Mediterranean, that typically inhabits disturbed sites. A member of the Legume Family (Fabaceae) growing up to 9 feet in height, exhibiting generally leafless stems and yellow flowers (Hickman 1993). Spanish broom's bloom period extends from March to June (Matthews 1997). This species currently appears to have a limited distribution within the corridor study area. Spanish broom was documented within seven vegetation community polygons (less than 1 percent of the total number of polygons). Spanish broom was observed in the following communities: central coastal scrub, upland redwood forest, windrow, and coastal sage-chaparral scrub. Five of the documented occurrences were located between MON PM 32.1 and 32.6, while the remaining two occurrences were located between MON PM 2.3 and 2.4.

**Fennel**

Fennel is a member of the Carrot Family (Apiaceae), native to Europe, that has widely escaped cultivation in the Western Hemisphere, typically invading roadsides and waste areas (Hickman 1993, Matthews 1997). This anise- or licorice-scented species blooms between May and September, producing yellow flowers (Hickman 1993, Matthews 1997). Fennel currently occurs throughout the corridor study area, most commonly along the margins of the highway and within disturbed areas, such as those created by landslides and side-casting.

**Mustard**

Mustard is a member of the Mustard Family (Brassicaceae), native to the Mediterranean, that commonly invades roadsides, creek bottoms, and waste areas (Hickman 1993, Matthews 1997). This species blooms between May and October, producing pale-yellow

to white flowers (Hickman 1993, Matthews 1997). Like fennel, this species has attained a near corridor-wide distribution, occurring primarily along the margins of the highway and other disturbed sites.

### **Garden Nasturtium**

Garden nasturtium is a garden escapee, native to Peru, that typically inhabits cool, often moist, shaded ravines and intermittent streams (Hickman 1993). A member of the Nasturtium Family (Tropaeolaceae), this species may be either annual or perennial, growing to less than 3 feet (~1 meter) in height, with round to kidney-shaped leaves with palmate veins and generally orange flowers (Hickman 1993). Garden nasturtium blooms most of year (Matthews 1997). This species currently appears to have a fairly limited distribution within the corridor study area and is usually found in close proximity to residential/commercial developments. Garden nasturtium was documented in ten vegetation community polygons (less than 1 percent of the total number of polygons). Community types within which this species was documented included windrow, ruderal/disturbed, upland redwood forest, Monterey pine forest, central coastal scrub, and central coastal riparian scrub. The occurrences were documented within the following areas: MON PM 9.5 to 15.1, MON PM 22.8 to 24.7, and MON PM 69.1 to 69.6.

### **Castor Bean**

Castor bean is a cultivated oil crop, native to Europe, that typically inhabits ditchbanks, roadsides, and waste areas (Whitson *et al.* 1999, Matthews 1997). A member of the Spurge Family (Euphorbiaceae), this sometimes tree-like shrub, typically 3 to 9 feet (~1 to 3 meters) in height, has round, palmately lobed, sharply toothed leaves (Hickman 1993). Castor bean blooms most of the year, producing spiny fruit (Hickman 1993, Matthews 1997). This species currently appears to have a very limited distribution within the corridor study area. Castor bean was documented within six vegetation community polygons (less than 1 percent of the total number of polygons), in the following communities: central coastal scrub, coastal sage-chaparral scrub, and ruderal/disturbed. Five of the six occurrences were observed between MON PM 32.2 and 34.2 near Esalen Institute, while the remaining observation occurred between MON PM 25.1 and 25.5.

### **Periwinkle**

Periwinkle is a garden escapee, native to Europe, that typically inhabits sheltered areas, especially along waterways (Hickman 1993, Matthews 1997). A member of the Dogbane Family (Apocynaceae), periwinkle's bloom period extends from March to July, producing purplish blue, rarely white, flowers (Hickman 1993, Matthews 1997). Periwinkle was identified in thirty vegetation community polygons (approx. 2 percent of the total number of polygons) at isolated locations throughout the corridor study area. This species was most often observed in shaded/sheltered environments provided by communities such as windrows, upland redwood forest, and Monterey pine forest.

### **English Ivy**

English ivy is a woody vine, native to Eurasia, that occasionally escapes from cultivation and may spread aggressively (Hickman 1993, Matthews 1997). A member of the Ginseng Family (Araliaceae), English ivy's leaves on juvenile stems are simple and palmately 3 to 5 lobed (Hickman 1993). English ivy was documented within fifteen

vegetation community polygons (approx. 1 percent of the total number of polygons) during the field review. Ten of these occurrences were located near Big Sur between MON PM 46.0 and 49.0. Each of the documented occurrences of this species was in close proximity to residential or commercial developments.

## **IMPORTANT BIOLOGICAL RESOURCES IN THE CORRIDOR STUDY AREA**

The following sources provided information pertaining to the occurrence or potential occurrence of special-status species within the corridor study area:

California Natural Diversity Database (CNDDDB/Rarefind July 2001). A copy of the CNDDDB/Rarefind report, in the list of elements and status by common name format, is included in Appendix M. The full condensed CNDDDB/Rarefind report is provided as Addendum 1.

In addition to the CNDDDB/Rarefind report, the following current lists prepared by the CDFG's Habitat Conservation Division were reviewed:

- Special Animals (July 2001);
- State and Federally Listed Endangered and Threatened Animals of California (July 2001);
- Special Vascular Plants, Bryophytes, and Lichens List (July 2001); and
- State and Federally Listed Endangered, Threatened, and Rare Plants of California (July 2001).

California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (Electronic Version 1.5.2 1994-2000). A copy of the CNPS report is included in Appendix N.

U.S. Fish and Wildlife Service (USFWS) list of federally listed and proposed threatened and endangered species that may occur in the study area vicinity (letter from Ms. Diane Noda, Field Supervisor, USFWS Ventura Office, July 14, 2000 [covering the area encompassed by the Coast Highway Management Plan in Monterey and San Luis Obispo Counties]). A copy of the letter is included in Appendix O.

U.S.D.A. Forest Service list of Forest Service sensitive species found within the Los Padres National Forest. A copy of the list provided by Jeff Kwasny, Resource Officer, Monterey Ranger District, Los Padres National Forest, dated August 2000, is included in Appendix P.

The special-status species sections of the Resource Elements for the following California State Parks transected by the corridor study area: Andrew Molera State Park, Garrapata State Park, John Little State Reserve, Julia Pfeiffer Burns State Park, Pfeiffer Big Sur State Park, and Point Sur State Park (provided by Tom Moss, Resource Ecologist, California State Parks). A summary of the information provided within these Resource Elements is provided in Appendix Q.

## **SENSITIVE SPECIES LIKELY TO OCCUR IN THE STUDY AREA VICINITY**

Special-status plant and wildlife species are species that have been afforded special recognition and protection by federal, state, or local resource conservation agencies and organizations. These species are generally considered rare, threatened, or endangered due to declining or limited populations.

Tables 5 and 6 present a list of all special-status species that were identified by the sources described above as potentially occurring in the corridor study area or vicinity. Additionally, these Tables provide the current state, federal, or other agency status; a description of the habitat utilized by each of these species; the extent of CNDDDB occurrences within the study area vicinity for each of these species; and an evaluation of the potential for each species to occur in the project corridor. The blooming period and elevational range of each plant species is also included in Table 5.

Information on the biology, distribution, taxonomy, status, and other aspects of the special-status species that could occur in the project vicinity was obtained from various references on biological resources. References used for the biology and taxonomy of plants included Abrams (1923, 1944, 1951), Abrams and Ferris (1960), Hickman, ed. (1993), Keil and McLeod (1986), Matthews (1997), Munz (1959), Patterson *et al.* (1995), and Skinner and Pavlik (1994). References used for the biology and taxonomy of wildlife included Dunn and Garret (1997), Ingles (1965), Jameson and Peeters (1988), Mayer and Laudenslayer, eds. (1988), McGinnis (1984), Peterson (1990), Rising (1996), Stebbins (1985), Williams (1986), and Zeiner *et al.* (1988, 1990a, 1990b).

Table 5: Special-Status Plant Species Potentially Occurring Within the Study Area Vicinity

Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State	CNPS					
<i>Abies bracteata</i> Bristlecone fir	None	None	1B	Broadleafed upland forest, chaparral, lower montane coniferous forest. Endemic to the Santa Lucia Mountains.	N/A	210-1,600 m	None	Yes
<i>Allium hickmanii</i> Hickman's onion	FSC	None	1B	Closed-cone coniferous forest, maritime chaparral, coastal prairie, coastal scrub, valley and foothill grassland.	April-May	20-185 m	Monterey (12)	Yes
<i>Arctostaphylos cruzensis</i> Arroyo de La Cruz manzanita	FSC/FSS	None	1B	Broadleafed upland forest, coastal bluff scrub, closed-cone coniferous forest, chaparral, coastal scrub, and grassland.	December -March	60-310 m	Cape San Martin (2)	Yes
<i>Arctostaphylos edmundsii</i> Little Sur manzanita	FSC/FSS	None	1B	Coastal bluff scrub and chaparral. Endemic to Monterey County.	November -April	30-105 m	Big Sur (1), Pfeiffer Point (2), Point Sur (4), and Soberanes Point (3)	Yes
<i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i> Hooker's manzanita	None	None	1B	Chaparral, coastal scrub, closed-cone coniferous forest, and cismontane woodland. Known only from Monterey and Santa Cruz counties.	February-May	85-350 m	Monterey (4) and Soberanes Point (1)	Yes

\*Please refer to the key at the end of the table.

Table 5: Special-Status Plant Species Potentially Occurring Within the Study Area Vicinity

Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State	CNPS					
<i>Arctostaphylos luciana</i> Santa Lucia manzanita	FSC/FSS	--	1B	Chaparral typically associated with shale. Currently only San Luis Obispo County records exist.	February-March	500-700m	None	No
<i>Arctostaphylos morroensis</i> Morro manzanita	FT	--	1B	Coastal dunes and coastal chaparral. Known from fewer than twenty occurrences in the Morro Bay area.	January-March	<200m	None	No
<i>Arctostaphylos pilosula</i> Santa Margarita manzanita	FSC/FSS	--	1B	Closed-cone coniferous forest, chaparral, and cismontane woodland.	December-March	170-1,100m	None	No
<i>Arctostaphylos pumila</i> Sandmat manzanita	FSC	--	1B	Sandy soils within closed-cone coniferous forest, maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub.	February-May	3-205m	Monterey (9)	Yes
<i>Arenaria paludicola</i> Marsh sandwort	FE	SE	1B	Boggy meadows and marshes. Thought to be nearly extinct, fewer than 20 plants found in 1993. Only known extant occurrences in the U.S. are at Black Lake Canyon and Oso Flaco Lake in San Luis Obispo County.	May-August	<300m	None	No

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Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
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<i>Astragalus tener</i> var. <i>titi</i> Coastal dunes milk-vetch	FE	SE	1B	Inhabits small swales on coastal terraces. Single known population currently in existence today, occurs along 17 Mile Drive in Pebble Beach (Ferreira 1995).	March-May	<20m	Monterey (1)	Yes
<i>Baccharis plummerae</i> ssp. <i>glabrata</i> San Simeon baccharis	--	--	1B	Coastal scrub. Occurs in San Luis Obispo and Monterey counties. Known from occurrences, near San Simeon, Arroyo de la Cruz, and Fort Hunter Ligget.	June	50-100m	Burro Mountain (1)	Yes
<i>Calochortus obispoensis</i> San Luis mariposa lily	FSS	--	1B	Chaparral, coastal scrub, and valley and foothill grasslands, often serpentinite. Currently records exist only for San Luis Obispo County.	May-July	100-500m	None	Yes
<i>Calochortus palmeri</i> var. <i>palmeri</i> Palmer's mariposa lily	FSC/FSS	--	1B	Chaparral, lower coniferous forests, and meadows. Declining rapidly; occurs in wet meadows that are heavily grazed. There are currently no records for Monterey County.	May-July	1,200-2,200m	None	No

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Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State	CNPS					
<i>Calochortus weedii</i> var. <i>vestus</i> Late-flowered mariposa lily	FSC/FSS	--	1B	Chaparral and cismontane woodland, often on serpentinite.	June-August	275-900m	Alder Peak (1), Burro Mountain (8), Cape San Martin (1), and Villa Creek (1)	No
<i>Calycadenia villosa</i> Dwarf calycadenia	FSS	--	1B	Chaparral, cismontane woodland, meadows, valley and foothill grasslands. Known from only two extant occurrences.	May-October	285-1,350m	Alder Peak (7) and Burro Mountain (1)	No
<i>Carex obispoensis</i> San Luis Obispo sedge	FSS	--	1B	Closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland. Usually in transition zone of sand, clay, or serpentine; in seeps. In addition to the CNDDB record for Burro Mountain, the CNPS inventory documents occurrences within the Lopez Point and Cape San Martin quads.	April-June	5-790m	Burro Mountain (1)	Yes
<i>Carlquistia muirii</i> Muir's tarplant	--	--	1B	Chaparral, and lower and upper montane coniferous forests. A synonym of <i>Raillardiopsis muirii</i> in the Jepson Manual.	July-August	1,100-2,500m	Ventana Cones (1)	No

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Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
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<i>Castilleja densiflora</i> ssp. <i>obispoensis</i> Obispo Indian paintbrush	--	--	1B	Coastal grasslands.	March-May	10-400m	None	No
<i>Castilleja latifolia</i> Monterey Indian paintbrush	--	--	4	Coastal scrub, coastal dunes, closed-cone coniferous forest, and openings in cismontane woodlands.	February-September	0-185m	None	Yes
<i>Ceanothus cuneatus</i> var. <i>rigidus</i> Monterey ceanothus	--	--	4	Closed-cone coniferous forest, coastal scrub, and chaparral.	February-March	<200m	None	Yes
<i>Chorizanthe blakleyi</i> Blakley's spineflower	FSS	--	1B	Chaparral, cismontane woodland.	April-June	600-1,600m	None	No
<i>Chorizanthe breweri</i> Brewer's spineflower	FSS	--	1B	Closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub, often serpentinite. Records currently exist only for San Luis Obispo County.	May-June	<800m	None	Yes
<i>Chorizanthe douglasii</i> Douglas's spineflower	--	--	4	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest on sandy or gravelly soils.	April-July	55-1,600m	None	Yes

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<i>Chorizanthe palmeri</i> Palmer's spineflower	--	--	4	Chaparral, cismontane woodland, and valley and foothill grasslands, occurring on rocky serpentine soils.	May-August	60-700m	None	Yes
<i>Chorizanthe pungens</i> var. <i>pungens</i> Monterey spineflower	FT	--	1B	Occurs on sandy soils in coastal dunes, coastal scrub, maritime chaparral, cismontane woodland, and valley and foothill grasslands of Monterey and Santa Cruz counties. Collected in San Luis Obispo County once (1842), now thought to be extirpated from that county.	April-June	3-450m	Monterey (4)	No
<i>Chorizanthe rectispina</i> Straight-awned spineflower	FSC/FSS	--	1B	Chaparral, cismontane woodland, and coastal scrub. Records exist for both Monterey and San Luis Obispo counties.	June-July	200-600m	None	No
<i>Chorizanthe robusta</i> var. <i>robusta</i> Robust Spineflower	FE	--	1B	Occurs on sandy soils in openings of coastal dunes, coastal scrub and cismontane woodlands. Currently known from seven sites.	May-September	3-120m	Monterey (1)	No
<i>Cirsium fontinale</i> var. <i>obispoense</i> Chorro Creek bog thistle	FE	SE	1B	Cismontane woodland, chaparral, in association with serpentinite seeps and wetlands. Records currently exist only for San Luis Obispo County.	February-July	<300m	None	No

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Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
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<i>Cirsium loncholepis</i> La Graciosa thistle	FE	ST	1B	Coastal dunes, brackish marshes, and riparian scrub.	June-August	4-220m	Cape San Martin (1)	Yes
<i>Cirsium occidentale</i> var. <i>compactum</i> Compact cobwebby thistle	FSC	--	1B	Chaparral, coastal dunes, coastal prairie, and coastal scrub.	April-June	5-150m	Point Sur (1)	Yes
<i>Clarkia jolonensis</i> Jolon clarkia	--	--	1B	Chaparral, cismontane woodland, and coastal scrub.	June	20-660m	None	Yes
<i>Clarkia lewisii</i> Lewis's clarkia	--	--	4	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub.	May-July	30-610m	None	Yes
<i>Clarkia speciosa</i> ssp. <i>immaculata</i> Pismo clarkia	FE	Rare	1B	Woodlands and sandy hills near the coast. Known from only four extant occurrences. Records currently exist only for San Luis Obispo County.	May-June	<100m	None	No
<i>Collinsia multicolor</i> San Francisco collinsia	--	--	1B	Closed-cone coniferous forest, and coastal scrub, sometimes on serpentinite.	March-May	30-250m	None	Yes
<i>Cordylanthus maritimus</i> spp. <i>maritimus</i> Salt marsh bird's-beak	FE	SE	1B	Coastal salt marsh and dunes. Nearest records are from the Morro Bay area; distribution extends from San Luis Obispo County south to Baja California.	May-October	<10m	None	No

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Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
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<i>Cordylanthus rigidus</i> ssp. <i>littoralis</i> Seaside bird's-beak	FSC	SE	1B	Closed-cone coniferous forest, maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, sandy, often disturbed sites.	May-September	0-215m	None	No
<i>Corethrogyne leucophylla</i> Branching beach aster	--	--	3	Closed-cone coniferous forest and coastal dunes. A synonym of <i>Lessingia filaginifolia</i> var. <i>filaginifolia</i> in the Jepson Manual; taxonomic work is needed.	July-October	3-60m	None	Yes
<i>Cryptantha rattanii</i> Rattan's cryptantha	--	--	4	Cismontane woodland, riparian woodland, and valley and foothill grassland.	April-July	245-915m	None	Yes
<i>Cupressus goveniana</i> ssp. <i>goveniana</i> Gowen cypress	FT	--	1B	Closed-cone pine/cypress forest and maritime chaparral. Known from only two occurrences in the Monterey area.	N/A	30-300m	Monterey (3)	Yes
<i>Cupressus macrocarpa</i> Monterey cypress	FSC	--	1B	Closed-cone coniferous forest. Endemic to Monterey County. Known from only two native occurrences in the Monterey area, widely planted and naturalized elsewhere.	N/A	10-30m	Monterey (2)	Yes

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Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
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<i>Delphinium hutchinsoniae</i> Hutchinson's larkspur	FSC	--	1B	Broadleafed upland forest, chaparral, coastal prairie, and coastal scrub. Endemic to Monterey County.	March-June	0-400m	Big Sur (2), Lopez Point (2), Monterey (2), Partington Ridge (2), Pfeiffer Point (3), Point Sur (1), and Soberanes Point (5)	Yes
<i>Delphinium umbraculorum</i> Umbrella larkspur	--	--	1B	Cismontane woodland, typically mesic sites.	May-June	400-1,600m	None	No
<i>Eriastrum luteum</i> Yellow-flowered eriastrum	--	--	1B	Broadleafed upland forest, chaparral, and cismontane woodland.	May-June	290-1,000m	None	No
<i>Ericameria fasciculata</i> Eastwood's goldenbush	FSC	--	1B	Closed-cone coniferous forest, maritime chaparral, coastal dunes, coastal scrub, sandy open areas. Known from fewer than 20 occurrences in the Monterey Bay area.	July-October	30-275m	Monterey (4) and Mt. Carmel (1)	Yes

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Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State	CNPS					
<i>Eriodictyon altissimum</i> Indian Knob mountainbalm	FE	SE	1B	Maritime chaparral and cismontane woodlands. Known from six occurrences in the Irish Hills. All current records are from San Luis Obispo County.	March-June	+/- 250m	None	No
<i>Eriogonum butterworthianum</i> Butterworth's buckwheat	FSC/FSS	Rare	1B	Chaparral, sandstone. Known from four occurrences near Arroyo Seco in the Santa Lucia Mountains.	June-July	585-730m	Cone Peak (5)	No
<i>Eriogonum nortonii</i> Pinnacles buckwheat	--	--	1B	Chaparral, and valley and foothill grasslands. Sandy soils; often on recent burns; in the western Santa Lucias.	May-June	390-975m	Soberanes Point (1)	No
<i>Erysimum menziesii</i> spp. <i>menziesii</i> Menzies' wallflower	FE	SE	1B	Coastal dunes. Nearly extirpated on the Monterey Peninsula.	March-June	0-35m	Monterey (7)	No
<i>Erysimum menziesii</i> ssp. <i>yadonii</i> Yadon's wallflower	FE	SE	1B	Coastal dunes. Known only from the Monterey Bay area near Marina.	March-June	0-300m	None	No
<i>Fritillaria falcata</i> Talus fritillary	FSC/FSS	--	1B	Chaparral, cismontane woodland, and lower montane coniferous forest, often on talus, serpentinite.	March-May	300-1,525m	Ventana Cones (2)	No

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Table 5: Special-Status Plant Species Potentially Occurring Within the Study Area Vicinity

Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
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<i>Fritillaria liliacea</i> Fragrant fritillary	FSC	--	1B	Coastal scrub, valley and foothill grassland, and coastal prairie. Often on serpentine.	February-April	3-410m	Big Sur (1), Monterey (1), and Pfeiffer Point (1)	Yes
<i>Fritillaria viridea</i> San Benito fritillary	FSC/FSS	--	1B	Chaparral, typically serpentine slopes. Some concern that plants collected in Monterey County may be another taxon.	March-May	200-1,525m	Cone Peak (1)	No
<i>Galium californicum</i> ssp. <i>luciense</i> Cone Peak bedstraw	FSC/FSS	--	1B	Broadleaved upland forest, lower montane coniferous forest, and cismontane woodland. Endemic to Monterey County.	March-July	875-1,525m	Alder Peak (1), Burro Mountain (2), Cone Peak (1), Cape San Martin (1), Lopez Point (1), Partington Ridge (1), and Ventana Cones (1)	No
<i>Galium clementis</i> Santa Lucia bedstraw	--	--	1B	Lower and upper montane coniferous forest, granitic or serpentinite, sandy.	May-July	1,130-1,780m	None	No

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<i>Galium hardhamiae</i> Hardham's bedstraw	FSS	--	1B	Closed-cone coniferous forests; serpentinite. Often found in association with Sargent cypress ( <i>Cupressus sargentii</i> ).	April-October	390-975m	Alder Peak (3), Burro Mountain (11), Cape San Martin (1), and Villa Creek (2)	No
<i>Gilia tenuiflora</i> ssp. <i>arenaria</i> Sand gilia	FE	ST	1B	Coastal sand dunes, coastal scrub, maritime chaparral, and cismontane woodlands.	April-May	<30m	Monterey (5)	No
<i>Grindelia hirsutula</i> var. <i>maritima</i> San Francisco gumplant	FSC	--	1B	Coastal bluff scrub, coastal scrub, and valley and foothill grassland. Sandy and serpentine soils.	August-September	15-400m	None	Yes
<i>Horkelia cuneata</i> ssp. <i>sericea</i> Kellogg's horkelia	FSC	--	1B	Closed-cone coniferous forest, maritime chaparral, coastal scrub, sandy or gravelly openings. According to CNPS, historical occurrences need field surveys.	April-September	10-200m	Monterey (3)	Yes
<i>Layia carnosa</i> Beach layia	FE	SE	1B	Coastal sand dunes, dune scrub and open areas.	May-July	<60m	Monterey (4)	No
<i>Layia heterotricha</i> Pale-yellow layia	FSC/FSS	--	1B	Cismontane woodland, and valley and foothill grasslands; open clay soils. Thought to be extirpated from Monterey and San Luis Obispo counties.	March-June	<1,600m	None	Yes

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<i>Layia jonesii</i> Jones's layia	FSC	--	1B	Chaparral, and valley and foothill grassland; clay or serpentinite.	March-May	5-400m	Monterey (1)	Yes
<i>Lomatium parvifolium</i> Small-leaved lomatium	--	--	4	Closed-cone coniferous forest and chaparral, often on serpentinite rock outcrops.	February-June	70-150m	None	Yes
<i>Lupinus albifrons</i> var. <i>abramsii</i> Abram's lupine	--	--	3	Broadleaved upland forest and lower montane coniferous forest.	April-June	450-2,000m	None	No
<i>Lupinus ludovicianus</i> San Luis Obispo County lupine	FSC/FSS	--	1B	Open grassy limestone in oak woodlands. Records currently exist only for San Luis Obispo County.	April-July	50-500m	None	No
<i>Lupinus nipomensis</i> Nipomo Mesa lupine	FE	SE	1B	Stabilized sand dunes. Known from only five occurrences on Nipomo Mesa. Records currently exist only for San Luis Obispo County.	March-May	<25m	None	No
<i>Lupinus tidestromii</i> Tidestrom's lupine	FE	SE	1B	Coastal dunes.	May-June	<100m	Monterey (11)	No
<i>Malacothamnus palmeri</i> var. <i>involucratus</i> Carmel Valley bush mallow	FSC	--	1B	Chaparral, cismontane woodland, and coastal scrub.	May-August	30-1,100m	Monterey (1) and Mt. Carmel (1)	Yes

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<i>Malacothamnus palmeri</i> var. <i>lucianus</i> Arroyo Seco bush mallow	FSC/FSS	--	1B	Chaparral, meadows and seeps. Endemic to Monterey County. Known from only three occurrences: two near Big Sur, and one in Arroyo Seco in the Santa Lucia Mountains.	May-August	10-915m	Big Sur (3)	Yes
<i>Malacothamnus palmeri</i> var. <i>palmeri</i> Santa Lucia bush mallow	--	--	1B	Chaparral. Distribution in Monterey County is in question; Monterey County plants need confirmation.	May-July	60-360m	None	No
<i>Malacothrix saxatilis</i> var. <i>arachnoidea</i> Carmel Valley cliff-aster	FSC	--	1B	Chaparral (rocky) on Monterey formation shales.	June-December	25-335m	Mt. Carmel (1)	No
<i>Microseris paludosa</i> Marsh microseris	--	--	1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grasslands.	April-June	5-300m	None	Yes
<i>Monardella antonina</i> ssp. <i>antonina</i> San Antonio Hills monardella	--	--	3	Chaparral and cismontane woodland.	June-August	500-1,000m	None	No
<i>Monardella palmeri</i> Palmer's monardella	--	--	1B	Chaparral and cismontane woodland; serpentinite.	June-August	200-800m	None	No

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<i>Pedicularis dudleyi</i> Dudley's lousewort	FSC/FSS	Rare	1B	Maritime chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland.	April-June	60-490m	Big Sur (6)	Yes
<i>Pentachaeta exilis</i> ssp. <i>aeolica</i> Slender pentachaeta	FSC/FSS	--	1B	Cismontane woodland, and valley and foothill grassland. Known from approximately five occurrences near The Indians (Monterey County) and Hernandez (San Benito County).	April-May	640-855m	Cone Peak (2)	No
<i>Perideridia gairdneri</i> ssp. <i>gairdneri</i> Gairdner's yampah	--	--	4	Mesic environments in broadleafed upland forest, chaparral, coastal prairie, valley and foothill grassland, and vernal pools.	June-October	0-365m	None	Yes
<i>Pinus radiata</i> Monterey pine	FSC	--	1B	Closed-cone coniferous forest and cismontane woodland. Only three native stands in CA, at Ano Nuevo, Cambria, and the Monterey Peninsula; introduced in many areas.	N/A	25-185m	Monterey (2) and Soberanes Point (1)	Yes
<i>Piperia yadonii</i> Yadon's rein orchid	FE	--	1B	Monterey pine forest, and dwarf maritime chaparral; on sandy soils.	May-August	10-415m	Monterey (11) and Soberanes Point (2)	Yes

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<i>Plagiobothrys uncinatus</i> Hooked popcorn-flower	FSC/FSS	--	1B	Chaparral, cismontane woodland, valley and foothill grassland, and coastal bluff scrub.	May	300-820m	Alder Peak (2), Burro Mountain (1), and Tassajara Hot Springs (1)	No
<i>Pogogyne clareana</i> Santa Lucia mint	FSC	SE	1B	Riparian woodland; endemic to Monterey County. Tributaries of the Nacimiento River, in moist sandy soil. Known from approximately five occurrences near Ft. Hunter Liggett.	May-June	300-490m	Alder Peak (5) and Burro Mountain (1)	No
<i>Potentilla hickmanii</i> Hickman's cinquefoil	FE	SE	1B	Vernally mesic meadows within Monterey pine forests and moist grasslands.	April-August	10-135m	Monterey (3)	Yes
<i>Quercus dumosa</i> Nuttall's scrub oak	FSC/FSS	--	1B	Chaparral and coastal scrub; generally sandy soils near coast.	February-March	<200m	None	No
<i>Ribes sericeum</i> Santa Lucia gooseberry	--	--	4	Broadleaved upland forest and North Coast coniferous forest. Known only from the Santa Lucia Mountains.	February-April	305-1,220m	None	Yes

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<i>Rorippa gambellii</i> Gambel's water cress	FE	ST	1B	Marshes, stream banks, and lake margins. Nearly extinct in the U.S., known in California from three extant occurrences, Black Lake Canyon, and Oso Flaco Lake in San Luis Obispo County and Vandenberg Air Force Base in Santa Barbara County.	April-June	<1,250m	None	No
<i>Rosa pinetorum</i> Pine rose	--	--	1B	Closed-cone coniferous forest. Possibly hybrids of ground rose ( <i>R. spithamea</i> ), wood rose ( <i>R. gymnocarpa</i> ), or others; further study is needed.	May-July	<300m	None	Yes
<i>Sanicula maritima</i> Adobe sanicle	FSC/FSS	Rare	1B	Meadows and seeps, valley and foothill grassland, chaparral, and coastal prairie.	April-May	30-240m	Big Sur (1) and Cape San Martin (1)	Yes
<i>Sidalcea hickmanii</i> ssp. <i>anomala</i> Cuesta Pass checkerbloom	FSC/FSS	Rare	1B	Closed-cone coniferous forest. Known from only three occurrences on Cuesta Ridge in the Los Padres National Forest.	May	600-800m	None	No
<i>Sidalcea hickmanii</i> ssp. <i>hickmanii</i> Hickman's checkerbloom	FSS	--	1B	Chaparral.	June-July	335-1,200m	Alder Peak (3), Burro Mountain (1), and Tassajara Hot Springs (1)	No

\*Please refer to the key at the end of the table.

Table 5: Special-Status Plant Species Potentially Occurring Within the Study Area Vicinity

Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State	CNPS					
<i>Sidalcea malachroides</i> Maple-leaved checkerbloom	--	--	1B	Broadleafed upland forest, coastal prairie, coastal scrub, and north coast coniferous forest, often in disturbed areas.	May-August	2-700m	Big Sur (2), Monterey (1), Mt. Carmel (2), Point Sur (1), and Soberanes Point (1)	Yes
<i>Streptanthus albidus</i> ssp. <i>peramoenus</i> Most beautiful jewel-flower	FSC	--	1B	Chaparral, valley and foothill grassland, and cismontane woodland; serpentine outcrops. Similar plants from San Luis Obispo County are likely a different species but further taxonomic work is needed.	April-June	120-730m	Alder Peak (4) and Burro Mountain (3)	Yes
<i>Suaeda californica</i> California seablite	FE	--	1B	Margins of coastal salt marshes. Currently only extant in Morro Bay.	July-October	<5m	None	No
<i>Trifolium polyodon</i> Pacific Grove clover	FSC	Rare	1B	Seasonally wet coastal prairie, meadows within or near closed-cone coniferous forest, and valley and foothill grasslands. Known from only three occurrences on the Monterey Peninsula.	May-June	5-120m	Monterey (8)	Yes

\*Please refer to the key at the end of the table.

Table 5: Special-Status Plant Species Potentially Occurring Within the Study Area Vicinity

Species	Status			Habitat Description	Bloom Period	Elevational Range	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State	CNPS					
<i>Trifolium trichocalyx</i> Monterey clover	FE	SE	1B	Closed-cone coniferous forests in seasonally wet openings and along the forest edge, a fire follower. Known from only two occurrences on the Monterey Peninsula.	April-June	30-240m	Monterey (2)	Yes
<i>Triteleia ixioides</i> ssp. <i>cookii</i> Cook's triteleia	--	--	1B	Closed-cone coniferous forest, cismontane woodland, serpentinite seeps.	May-June	150-500m	None	Yes

Federal status data from USFWS letter dated 14 July 2000, Threatened, Endangered, and Sensitive Species of Los Padres National Forest (August 2000), and California Natural Diversity Data Base (CDFG 2000).

- FE Listed as endangered under the Federal Endangered Species Act (FESA)
- FT Listed as threatened under the FESA
- PE Proposed for listing as endangered under the FESA
- PT Proposed for listing as threatened under the FESA
- PD Proposed for delisting under the FESA
- FC Candidate species for listing under the FESA
- FSC Species of concern as identified by the USFWS
- FD A species that has been Delisted pursuant to the FESA
- FSS Listed as a Los Padres National Forest sensitive species by the U.S.D.A. Forest Service

State status data from California Natural Diversity Data Base (CDFG 2000).

- SE Listed as endangered under the California Endangered Species Act (CESA)
- ST Listed as threatened under the CESA
- CSC Species of concern as identified by the CDFG
- Rare Species identified as rare by the CDFG

California Native Plant Society (CNPS) Listing Categories (Skinner & Pavlik 1994).

- 1B Plant species considered rare, threatened, or endangered in CA or elsewhere.
- 3 Plant species that lack necessary information to assign them to a listing status.
- 4 Plant species that have a limited distribution or that are infrequent throughout a broader area in California.

Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
Invertebrates					
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	FE	--	Inhabits large vernal pools with highly turbid water. Known from disjunct populations in Tehama, Solano, Glenn, Merced, and Ventura counties (USFWS 1994d).	None	No
<i>Branchinecta longiantenna</i> Longhorn fairy shrimp	FE	--	Inhabits clear to turbid vernal pools in grasslands and clear water pools in sandstone depressions. Its known distribution extends along the eastern margin of the central coast range from Contra Costa County to San Luis Obispo County (USFWS 1994b).	None	No
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT	--	Most commonly associated with grass or mud-bottomed swales, or basalt flow depression pools in unplowed grasslands. Range extends from Shasta County south through most of the central valley to Tulare County, along the central coast range from Solano County to San Benito County, and disjunct populations occur in northern San Luis Obispo County, Santa Barbara County, and Riverside County (USFWS 1994d).	None	No
<i>Coelus globosus</i> Globose dune beetle	FSC	--	Inhabits coastal sand dunes.	Pfeiffer Point (1)	Yes

\*Please refer to the key at the end of the table.

Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Danaus plexippus</i> Monarch butterfly (wintering sites)	--	--	Roosts located in wind-protected tree groves ( <i>Eucalyptus</i> , Monterey pine, & cypress) with nectar and water sources nearby.	Big Sur (2), Burro Mountain (2), Cape San Martin (1), Lopez Point (1), Monterey (13), Partington Ridge (2), Pfeiffer Point (2), Point Sur (2), and Soberanes Point (4)	Yes
<i>Euphilotes enoptes smithi</i> Smith's blue butterfly	FE	--	Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz counties. <i>Eriogonum latifolium</i> and <i>E. parvifolium</i> serve as host plants.	Big Sur (1), Burro Mountain (1), Cape San Martin (7), Cone Peak (2), Lopez Point (8), Monterey (3), Mt. Carmel (1), Partington Ridge (8), Point Sur (1), Soberanes Point (5), and Villa Creek (1)	Yes
<i>Meta dolloff</i> Dolloff cave spider	FSC	--	Known from caves in the Santa Cruz area.	Big Sur (1, tentative identification)	No
Fish					
<i>Lampetra tridentata</i> Pacific lamprey	FSS	--	Most coastal streams and rivers of California.	None	Yes

\*Please refer to the key at the end of the table.

Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Oncorhynchus mykiss</i> Steelhead – South-Central California Coast	FT	--/ Southern Steelhead trout = CSC	All runs in coastal basins from the Pajaro River south to, but not including, the Santa Maria River. Records from San Carpoforo Creek, Big Sur River, Garrapata Creek, and other locations.	Big Sur (1), Burro Mountain (1), Cone Peak (1), Lopez Point (1), Monterey (1), Mt. Carmel (1), Pfeiffer Point (1), Partington Ridge (1), Soberanes Point (1), Tassajara Hot Springs (1), Ventana Cones (1), and Villa Creek (1)	Yes
<i>Eucyclogobius newberryi</i> Tidewater goby	FE, PD (for populations north of Orange County only)	CSC	Prefers semi-closed estuaries or lagoons of coastal streams that are low in salinity.	None	Yes
<b>Amphibians</b>					
<i>Ambystoma californiense</i> California tiger salamander	FC	CSC	Annual grasslands and grassy understory of valley-foothill hardwood habitats in central and northern California. Requires underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Alder Peak (4) and Mt. Carmel (2)	Yes
<i>Taricha torosa torosa</i> Coast range newt (SLO south)	--	CSC	Coastal drainages from Mendocino County to San Diego County. Utilizes a number of terrestrial habitats and breeds in ponds, reservoirs and slow moving streams.	Ventana Cones (1)	Yes

\*Please refer to the key at the end of the table.

**Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity**

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Bufo microscaphus californicus</i> Arroyo toad	FE	CSC	Gravelly ponds adjacent to sandy terraces.	None	No
<i>Rana aurora draytonii</i> California red-legged frog	FT	CSC	Lowlands and foothills in a variety of aquatic, riparian and upland environments, near permanent sources of water.	Monterey (1), Mt. Carmel (1), Partington Ridge (1), Pfeiffer Pt. (1), and Ventana Cones (1)	Yes
<i>Rana boylei</i> Foothill yellow-legged frog	FSC/FSS	CSC	Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Burro Mountain (1)	Yes
<b>Reptiles</b>					
<i>Clemmys marmorata pallida</i> Southwestern pond turtle	FSC/FSS	CSC	Inhabits permanent or nearly permanent bodies of water in a variety of environments..	Burro Mountain (1), Cone Peak (1), Monterey (1), Mt. Carmel (1), and Ventana Cones (2)	Yes
<i>Phrynosoma coronatum frontale</i> California horned lizard	FSC	CSC	Found in a variety of habitats including scrubland, grassland, coniferous forest, and broadleafed forests. Common in lowlands along sandy washes where scattered low shrub provide cover.	None	Yes
<i>Anniella pulchra</i> California legless lizard	FSS	--	Requires loose soil for burrowing. Frequents the sparse vegetation of beaches, coastal dunes, chaparral, coastal scrub, and streamside growth of sycamores, cottonwoods and oaks.	None	Yes

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**Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity**

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Anniella pulchra nigra</i> Black legless lizard	FSS	CSC	Inhabits sandy soil/dune areas with bush lupine and mock heather as dominant plants. Moist soil is essential.	Monterey (10)	Yes
<i>Thamnophis hammondi</i> Two-striped garter snake	FSS	CSC	Found in or near permanent fresh water, often along streams with rocky beds bordered by willows or other streamside vegetation.	None	Yes
<b>Birds</b>					
<i>Gavia immer</i> Common loon (nesting)	--	CSC	A fairly common migrant along the coast of Monterey and San Luis Obispo counties, occurring in estuarine and subtidal marine environments. Breeding within these counties is not expected.	None	Yes
<i>Oceanodroma homochroa</i> Ashy storm-petrel (rookery site)	FSC	CSC	Colonial nester on off-shore islands. Forages over open ocean.	None	Yes
<i>Pelecanus occidentalis californicus</i> California brown pelican (nesting colony)	FE	SE/CFP	Colonial nester on coastal islands just outside the surf line. Historically bred in small numbers near Point Lobos State Reserve; however, breeding has not occurred within Monterey County since 1966 (Roberson and Tenney 1993). Individuals may be observed year round, although they are most common as post-breeding visitants (Roberson and Tenney 1993).	Monterey (1)	Yes
<i>Phalacrocorax auritus</i> Double-crested cormorant (rookery site)	--	CSC	Typically associated with inland and estuarine waters, individuals breeding within Monterey County do so on coastal rocks and cliffs along the southern Big Sur coast (Roberson and Tenney 1993).	Partington Ridge (1)	Yes

\*Please refer to the key at the end of the table.

**Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity**

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Histrionicus histrionicus</i> Harlequin duck (nesting)	FSC	CSC	Breeds on large, turbulent mountain rivers. Previously breed on Sierran rivers from Madera to Tuolumne counties. This species occurs along the coast as a rare winter migrant from San Luis Obispo County north. Although nesting is not anticipated within the corridor study area, suitable wintering habitat is present.	None	Yes
<i>Gymnogyps californianus</i> California condor	FE	SE/CFP	Prior to severe population declines, this species bred in the southern Santa Lucia Mountains of Monterey County (Roberson and Tenney 1993). Nests in cliffs and caves near large trees for roosting. Five individuals were observed during field review in the vicinity of Andrew Molera State Park on 9/20/00. Breeding habitat is not present within the corridor study area; however, occurrence is expected.	None	Yes
<i>Circus cyaneus</i> Northern harrier (nesting)	--	CSC	Inhabits a variety of open environments, including meadows, grasslands, open rangelands, and emergent wetlands.	None	Yes
<i>Elanus leucurus</i> White-tailed kite (nesting)	--	CFP	Low rolling foothills/valley margins with scattered oaks and river bottomlands or marshes adjacent to deciduous woodland. Open grasslands, meadows, or marshes are utilized for foraging. Isolated, dense-topped trees in close proximity to foraging areas are used for nesting and perching.	None	Yes

\*Please refer to the key at the end of the table.

**Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity**

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Accipiter cooperi</i> Cooper’s hawk (nesting)	--	CSC	Most commonly associated with dense stands of live oak, riparian deciduous or other forest communities near water.	None	Yes
<i>Accipiter striatus</i> Sharp-shinned hawk (nesting)	--	CSC	Breeds in riparian deciduous, mixed conifer, black oak, ponderosa pine, and Jeffrey pine communities. During winter may be found in a wide variety of communities.	None	Yes
<i>Accipiter gentilis</i> Northern goshawk (nesting)	FSC/FSS	CSC	Found in northern coniferous forests and extensions. Typically nests on north slopes in the vicinity of water. Red fir, lodgepole pine, Jeffrey pine, and aspens are commonly used as nest trees.	None	No
<i>Aquila chrysaetos</i> Golden eagle (nesting and wintering)	--	CSC/CFP	Rolling foothills, mountain areas, grasslands, savannahs, deserts, and early successional stages of forests and shrub communities. Cliffs and large trees are utilized for nesting. One individual was observed during the field review in flight over central coastal scrub on 9/6/00.	None	Yes
<i>Haliaeetus leucocephalus</i> Bald eagle (nesting and wintering)	FT, PD	SE/CFP	Inhabits large trees near rivers, lakes, marshes or other wetland areas. Historically nested in small numbers along the Big Sur coast (Roberson and Tenney 1993).	None	Yes

\*Please refer to the key at the end of the table.

Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Pandion haliaetus</i> Osprey (nesting)	--	CSC	A winter visitant along the Big Sur Coast, breeding along the California coast occurs from the vicinity of Santa Cruz County north. Breeding is not expected within the corridor study area. Uses large snags and open trees, primarily in ponderosa pine through mixed conifer community types, near large bodies of water. One individual was observed in flight over central coastal scrub on 9/16/00 and another observed in flight over coastal sage-chaparral on 9/15/00.	None	Yes
<i>Buteo regalis</i> Ferruginous hawk (wintering)	FSC	CSC	Uncommon winter resident along the coast ranges, inhabiting prairies and brushy open country.	None	Yes
<i>Buteo swainsoni</i> Swainson's hawk (nesting)	FSS	ST	Typically breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannah. Requires adjacent suitable foraging areas, such as grasslands, or alfalfa or grain fields.	None	No
<i>Falco columbarius</i> Merlin (wintering)	--	CSC	An uncommon winter migrant that frequents coastlines, open grasslands, savannahs, woodlands, and wetlands	None	Yes

\*Please refer to the key at the end of the table.

**Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity**

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Falco mexicanus</i> Prairie falcon (nesting)	--	CSC	A scarce and local resident of the interior portions of southern and eastern Monterey County (Roberson and Tenney 1993). Inhabits dry, open terrain including annual and perennial grasslands, savannahs, and rangeland. Breeding typically occurs in areas with canyons, cliffs, escarpments, and rock outcrops. Foraging far afield, even to ocean shores. Breeding is not expected within the corridor study area. One individual was observed during the field review in flight over non-native grassland on 9/7/00.	Big Sur (1) and Ventana Cones (1)	Yes
<i>Falco peregrinus anatum</i> American peregrine falcon	FD/FSS	SE/CFP	A rare, permanent resident of the Big Sur coast (Roberson and Tenney 1993). Inhabits open country, breeding near rivers, wetlands, lakes, or other aquatic features, nests on cliffs, banks, dunes, mounds, and human-made structures. Along Big Sur, nests located primarily along coastal cliffs. One individual was observed in flight over central coastal scrub on 9/13/00.	None	Yes
<i>Charadrius alexandrinus nivosus</i> (coastal population) Western snowy plover (nesting)	FT	CSC	Sandy beaches on marine and estuarine shores. Within the study area vicinity, Point Sur Beach and Arroyo Hondo Creek Beach have been designated as critical habitat for the coastal population of this species.	Monterey (1) & Point Sur (1)	Yes

\*Please refer to the key at the end of the table.

**Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity**

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Charadrius montanus</i> Mountain plover (wintering)	PT	CSC	A winter visitant to California, this species inhabits short grass plains, low rolling grass hills, freshly plowed agricultural fields, and newly sprouting grain fields. Often associated with short vegetation and bare ground.	None	No
<i>Larus californicus</i> California gull (nesting colony)	--	CSC	A common transient and winter visitor to both Monterey and San Luis Obispo counties. Non-breeders are uncommon to common along the coast. Breeding occurs in inland lakes and marshes. Preferred environments along the coast include sandy beaches, rocky intertidal, pelagic areas, and fresh and saline emergent wetlands. Inland environments frequented by this species include landfills, lakes, rivers, urban areas, and agricultural fields. Breeding within the corridor study area is not anticipated	None	Yes
<i>Sterna antillarum browni</i> California least tern (nesting colony)	FE	SE/CFP	Historically, a common breeding summer resident along the beaches of the Monterey Bay (Roberson and Tenney 1993). Inhabits beaches bordering shallow water in estuaries. Breeding within California appears to be limited to the San Francisco Bay and isolated locations along the coast of southern California.	None	No
<i>Sterna elegans</i> Elegant tern (nesting colony)	FSC	CSC	Inhabits inshore coastal waters, bays, estuaries, and beaches. Post-nesting, summer visitor to coastal California.	None	Yes

\*Please refer to the key at the end of the table.

Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity

Species	Status		Habitat Association	CNDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Brachyramphus marmoratus marmoratus</i> Marbled murrelet (nesting)	FT	SE	Breeding occurs in mature, coastal coniferous forests, in close proximity to coastal waters. Breeding has been documented only as far south as Santa Cruz County. No historic breeding records exist for Monterey County. Breeding within the corridor study area is not expected. A number of pre- and post-breeding records exist for the coastal waters of Monterey County (Roberson and Tenney 1993).	None	Yes
<i>Cerorhinca monocerata</i> Rhinoceros auklet (nesting colony)	--	CSC	A common non-breeding migrant along the coast of Monterey County (Roberson and Tenney 1993). Nesting along the coast of California is currently restricted to two off-shore islands (CDFG 2000).	None	Yes
<i>Fratercula cirrhata</i> Tufted puffin (nesting colony)	--	CSC	A rare and irregular pelagic visitor to Monterey County throughout the year (Roberson and Tenney 1993). Open-ocean bird; nests along the coast on islands, islets, or (rarely) mainland cliffs. The southernmost suspected breeding colony in California was identified within the Point Sur Quadrangle; however, breeding has not been confirmed.	Point Sur (1)	Yes
<i>Asio otus</i> Long-eared owl	--	CSC	Along the coast this species primarily inhabits dense riparian (willow and cottonwood) and live oak thickets adjacent to open areas.	None	Yes

\*Please refer to the key at the end of the table.

**Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity**

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Strix occidentalis occidentalis</i> California spotted owl	FSC/FSS	CSC	Inhabits coniferous forests and densely wooded canyons, usually containing at least two canopy layers, and a total canopy cover in excess of seventy percent. A rare and local resident of the Santa Lucia Mountains.	None	Yes
<i>Athene cunicularia</i> Burrowing owl (burrow sites)	FSC	CSC	Open, dry annual or perennial grasslands, deserts, and scrublands with low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel. Within Monterey County, this species is now a very scarce and local resident of suitable habitat in the Salinas Valley (Roberson and Tenney 1993). Burrowing owls disperse widely during the non-breeding season, accounting for vagrants along the Monterey Coast (Roberson and Tenney 1993). Breeding within the study area corridor is not anticipated.	None	Yes
<i>Cypseloides niger</i> Black swift (nesting)	--	CSC	Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and on sea-bluffs above surf.	Big Sur (1), Burro Mountain (1), Lopez Point (1), Monterey (1), Pfeiffer Point (1), and Point Sur (1)	Yes

\*Please refer to the key at the end of the table.

Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Empidonax traillii</i> Willow flycatcher (nesting)	FSS	SE	A spring and fall migrant throughout much of the state, primarily utilizing riparian communities with dense willows. Previously bred throughout most of lowland and montane California. Breeding is now primarily limited to the Sierra Nevada and Cascade Ranges. Three subspecies of the willow flycatcher are recognized in California. The southwestern willow flycatcher ( <i>E. t. extimus</i> ), explained below; little willow flycatcher ( <i>E. t. brewsteri</i> ), which occurs along the west slope of the Sierra Nevada and northern California; and <i>E. t. adastus</i> , which occurs east of the Sierra/Cascade crest (Craig <i>et al.</i> 1992). The most recent breeding record for this species within Monterey County was recorded at the Carmel River mouth in 1974 (Roberson 2000).	None	Yes
<i>Empidonax traillii extimus</i> Southwestern willow flycatcher (nesting)	FE	SE	Primarily uses dense riparian communities in close proximity to surface water or saturated soil. This is the southwestern subspecies of the willow flycatcher ( <i>Empidonax traillii</i> ). Kern and Inyo counties represent the current northern limits of this subspecies range (Craig <i>et al.</i> 1992). The Santa Ynez River in Santa Barbara County represents the northernmost coastal drainage supporting breeding (Finch and Stoleson 2000).	None	Yes
<i>Progne subis</i> Purple martin (nesting)	--	CSC	Inhabits open forests and woodlands with snags during the breeding season. Riparian areas, forests, and woodlands are utilized for foraging habitat.	None	Yes

\*Please refer to the key at the end of the table.

Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Lanius ludovicianus</i> Loggerhead shrike	--	CSC	An uncommon resident of Monterey County (Roberson and Tenney 1993). Along the coast, shrike numbers typically increase with the arrival of migrants from the north (Roberson and Tenney 1993). Inhabits open areas with sparse shrubs, trees, and other perches. One individual was observed during the field review in non-native grassland on 9/7/00.	None	Yes
<i>Vireo bellii pusillus</i> Least Bell's vireo (nesting)	FE	SE	A rare, local, summer resident in willows and other dense valley riparian communities, and lower extensions of canyons. The nearest viable nesting population is located along the upper Santa Ynez River, Santa Barbara County (Roberson and Tenney 1993).	None	No
<i>Dendroica petechia brewsteri</i> Yellow warbler (nesting)	--	CSC	Inhabits willow dominated riparian woodlands, which may also include cottonwoods, alders, sycamores, and maples. Yellow warblers are a locally common summer resident of appropriate habitats in Monterey County (Roberson and Tenney 1993).	None	Yes
<i>Icteria virens</i> Yellow-breasted chat (nesting)	--	CSC	A summer resident associated with riparian thickets of willow, blackberry, wild grape and other brushy species near waterways.	None	Yes
<i>Aimophila ruficeps canescens</i> Southern California rufous-crowned sparrow	FSC	CSC	Frequents xeric rocky hillsides and canyons with California sage interspersed with grassy areas.	None	Yes

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**Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity**

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Amphispiza belli belli</i> Bell's sage sparrow (nesting)	FSC	CSC	Inhabits dense chaparral (often dominated by chamise), coastal sagebrush, and dry foothills. This species is a fairly common resident of Monterey County (Roberson and Tenney 1993).	None	Yes
<i>Agelarius tricolor</i> Tricolored blackbird (nesting colony)	FSC	CSC	Within Monterey County, this species is a fairly uncommon and very local permanent resident (Roberson and Tenney 1993). Inhabits cattail/tule marshes, marshy meadows and rangeland.	None	Yes
<b>Mammals</b>					
<i>Antrozous pallidus</i> Pallid bat	FSS	CSC	Roosts in caves, mine tunnels, crevices in rocks, buildings, and trees in a variety of environments.	None	Yes
<i>Corynorhinus (=Plecotus) townsendii townsendii</i> Townsend's western big-eared bat	FSC/FSS	CSC	Occurs in the humid, coastal regions of northern and central California in a variety of communities (Williams 1986). Roosts in caves, buildings, and mine tunnels.	None	Yes
<i>Eumops perotis</i> Western mastiff bat	FSC (spp. <i>californicus</i> )	CSC	An uncommon resident along the coast, this species utilizes a wide range of open habitats including coastal scrub, annual grasslands, and conifer woodlands. Mastiff bats appear to prefer rugged, rocky areas where suitable crevices provide day roosts (Williams 1986). Roosts in or on buildings, crevices in cliffs, trees, and in tunnels.	None	Yes
<i>Lasiurus blossevillii</i> Western red bat	FSS	--	Wooded areas; typically roosts in trees, occasionally enters caves.	None	Yes

\*Please refer to the key at the end of the table.

Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Dipodomys nitratooides brevinasus</i> Short-nosed kangaroo rat	FSC	CSC	Occurs in flat and gently sloping terrain and on hilltops, commonly associated with <i>Atriplex</i> in desert-shrub associations (Williams 1986). Its range extends along the western edge of the San Joaquin Valley, from Merced Co. south. It also occurs in the Panoche Valley, San Benito Co., the Sunflower Valley, Kings Co., the Antelope Plain in Kern Co., the Carrizo Plain in San Luis Obispo Co., and the Cuyama Valley in San Luis Obispo and Santa Barbara counties (Williams 1986).	None	No
<i>Dipodomys ingens</i> Giant kangaroo rat	FE	SE	Prefers fine sandy loam with sparse vegetation in native annual grasslands, occurring along the southwestern edge of the San Joaquin Valley to southwestern Kern County and northern Santa Barbara County.	None	No
<i>Neotoma fuscipes luciana</i> Monterey dusky-footed woodrat	FSC	CSC	Heavy chaparral, streambank thickets, deciduous or mixed woods.	None	Yes
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE	ST	Open, level areas with loose-textured soils are preferred. Inhabits a variety of communities including sagebrush scrub, alkali meadows, creosote bush scrub, and valley grasslands.	None	No
<i>Bassariscus astutus</i> Ringtail	--	CFP	Inhabits riparian environments, and brush stands of many forest and shrub communities. Nests in rock crevices, hollow trees, snags, and abandoned burrows.	None	Yes

\*Please refer to the key at the end of the table.

**Table 6: Special-Status Wildlife Species Potentially Occurring Within the Study Area Vicinity**

Species	Status		Habitat Association	CNDDDB Occurrences Per Quad	Suitable Habitat Within Corridor
	Federal	State			
<i>Enhydra lutris nereis</i> Southern sea otter	FT	CFP	Kelp beds and rocky shores.	None	Yes
<i>Eumetopias jubatus</i> Steller (Northern) sea lion (rookery)	FT	--	Chiefly marine, but sometimes goes up river. Rests on open beaches and rocks.	None	Yes
<i>Mirounga angustirostris</i> Northern elephant seal	--	CFP	Inhabit pelagic waters along the coast. Breeding primarily occurs on isolated or protected beaches on islands and a few mainland sites from mid-December to March. During the remainder of year, individuals feed at sea or haul out to molt at rookeries.	None	Yes

\*Please refer to the key at the end of the table.

Federal status data from USFWS letter dated 14 July 2000, Threatened, Endangered, and Sensitive Species of Los Padres National Forest (August 2000), and California Natural Diversity Data Base (CDFG 2000).

- FE Listed as endangered under the Federal Endangered Species Act (FESA)
- FT Listed as threatened under the FESA
- PE Proposed for listing as endangered under the FESA
- PT Proposed for listing as threatened under the FESA
- PD Proposed for delisting under the FESA
- FC Candidate species for listing under the FESA
- FSC Species of concern as identified by the USFWS

- FD A species that has been Delisted pursuant to the FESA
- FSS Listed as a Los Padres National Forest sensitive species by the U.S.D.A. Forest Service

State status data from California Natural Diversity Data Base (CDFG 2000).

- SE Listed as endangered under the California Endangered Species Act (CESA)
- ST Listed as threatened under the CESA
- CSC Species of concern as identified by the CDFG
- CFP Listed as Fully Protected by the California Fish and Game Code
- Rare Species identified as rare by the CDFG

**POTENTIAL WILDLIFE CORRIDORS**

Riparian lined drainages constituted the majority of potential wildlife corridors identified during the field review. Potential game trails were also documented at several locations. Potential wildlife corridors identified within the study area corridor are presented in Appendix H.

Dr. J. Smiley, manager of the Landels-Hill Big Creek Reserve is currently conducting an informal survey to help identify and locate roadkill "hot spots" that may correspond with wildlife corridors. The survey should also help to illustrate the magnitude of roadkill within the corridor and the diversity of species affected. The survey began in October 2000 and is currently ongoing (J. Smiley, pers. comm.). An example of the form being used for the survey and a tabular summary of the information collected between October 2000 and October 2001 are included in Appendix I. Incidental roadkill observations documented during the CHMP field review have also been included in this Appendix.

Various factors inherent within this informal survey methodology, such as observer variability, including species identification skills and level of effort; typical travel patterns of the participants, and lack of scientific structure, impose limitations on the applicability of the data collected. It is hoped that by collecting data over a period of at least one year that geographic, and possibly temporal, patterns might become evident.

A total of 157 sightings have been reported during the course of the survey. It should be noted that some of the sightings included either multiple individuals of a single species (e.g. 2 rabbits), or individuals of multiple species (e.g. black-tailed deer and raccoon). No fewer than 25 species were identified during the course of the survey. The percentages of total roadkill observations per class are as follows:

- Mammals = 84 percent;
- Reptiles = 10 percent; and
- Birds = 5 percent.

Black-tailed deer, rabbit, opossum, raccoon, and squirrel (all squirrel species lumped into a single category) represented approximately 79 percent of the total mammalian records. The percentages of total mammalian roadkill observations per species are as follows:

- Rabbit = 24 percent;
- Black-tailed deer = 22 percent;
- Squirrel = 16 percent;
- Raccoon = 10 percent;
- Opossum = 7 percent; and
- Other = 21 percent.

From a temporal standpoint, 79 percent of the documented roadkill sightings occurred during the months of May, June, July, August, and September. Table 7 provides the percentages of total roadkill observations documented per month.

**Table 7: Percentages of Total Roadkill Observations Documented By Month**

	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>%</b>	2	1	6	4	20	8	9	19	23	3	0	4

Source: Appendix I of this report

During this first phase of the informal roadkill survey, multiple roadkills were documented at several locations. Prominent waterways within the corridor study area for which multiple roadkill sightings were documented included Vicente Creek (MON PM 25.9), Lime Creek (MON PM 32.2), Anderson Canyon (MON PM 35.3), Big Sur River (MON PM 46.6), Little Sur River (MON PM 56.1), Bixby Creek (MON PM 59.4), and Palo Colorado Canyon (MON PM 61.5).

Areas other than waterways with multiple roadkill observations included Gorda (MON PM 10.1), Pacific Valley (approx. MON PM 13.7 to 16.0), Lopez Point (MON PM 24.0), Dolan Point (MON PM 29.7), Esalen (MON PM 32.6), Loma Vista (MON PM 45.0), Big Sur (MON PM 45.3 to 46.6), Andrew Molera State Park (MON PM 51.2), El Sur Ranch (MON PM 53.3), Point Sur (MON PM 54.0), and Hurricane Point (approx. MON PM 58.3). As shown in Appendix I, the majority of the roadkill sightings (approx. 60 percent) occurred between the Esalen Institute and Bixby Creek. Several factors including the limited number of participants, the travel patterns of the participants, and the relatively small data set may be contributing to this concentration of sightings.

**IMPORTANT NATURAL COMMUNITIES**

Important natural communities are vegetation communities documented within Holland (1986) and the CNDDDB/Rarefind database as sensitive communities due to restricted distribution and/or threats, and are either known or believed to be of high priority for inventory. Table 8 presents a list of sensitive plant communities documented within the study area corridor during the field review and provides a description of the site requirements and the extent of previously documented occurrences within the study area vicinity for each of these communities. Due to the restricted distribution of naturally occurring Monterey Cypress stands, the stands documented within the corridor study area are likely naturalized planted stands. The following sensitive plant communities have been previously documented within the study area vicinity (CDFG 2000), but were not identified during the field review: Monterey pygmy cypress forest, Northern Bishop pine forest, sycamore alluvial woodland, and Valley oak woodland.

**Table 8: Sensitive Vegetation Communities Identified Within the Corridor Study Area During the Field Review**

<b>Vegetation Community</b>	<b>Site Requirements</b>	<b>CNDDB Occurrences Within the Study Area Vicinity</b>
California Bay Forest	Moist, north facing slopes, forming dense, wind-sheared stands on exposed coastal slopes.	None
Central Coast Cottonwood-Sycamore Riparian Forest	Floodplains of sub-perennial streams, canyons, and creeks throughout the South Coast Ranges.	None
Central Coast Riparian Scrub	Variety of environments, such as low gradient reaches of rivers and streams, on seasonally flooded, saturated soils (Holland 1986, Sawyer and Keeler-Wolf 1995).	None
Central Dune Scrub	Stabilized backdune slopes of bars, river mouths, and splits along the coast on sandy soils.	Monterey (1)
Northern Coastal Bluff Scrub	Rocky, poorly developed soils, in areas of nearly constant exposure to winds with high salt content.	None
Central Maritime Chaparral	Well-drained sandy soils along coast.	Monterey (2) and Soberanes Point (1)
Coastal Terrace Prairie	Sandy loams on marine terraces near the coast within the coastal fog incursion zone.	None
Monterey Cypress Forest	Headlands on granitic-derived soils. Only two native stands have been documented in California.	Monterey (2)
Monterey Pine Forest	Maritime terraces, headlands on excessively drained soils. Only three native stands have been documented in California.	Monterey (6) and Soberanes Point (1)

## IN DEPTH STUDIES FOR SPECIAL LAWS

### STATE AND FEDERAL STATUTES

Statutes that would be applicable to projects to be carried out within the CHMP management area include:

- National Environmental Policy Act (42 U.S.C. 4321 et seq.);
- Federal Endangered Species Act (16 U.S.C. 1531-1543);
- Section 404 of the Clean Water Act (33 U.S.C. 1251-1376);
- Section 10 of the Rivers and Harbors Act (33 U.S.C. 401 et seq.);
- Fish and Wildlife Coordination Act (16 U.S.C. 661-666);
- Executive Order 11990, Protection of Wetlands (May 24, 1977);
- California Environmental Quality Act (P.R.C. 21000 et seq.);
- California Endangered Species Act (California Fish and Game Code 2050 et seq.);
- Native Plant Protection Act (California Fish and Game Code 1900-1913);
- Fish and Wildlife Protection and Conservation (California Fish and Game Code 1601-1603);
- Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711).
- National Marine Sanctuary Regulations (15 CFR, Sec. 944)
- Marine Mammal Protection Act
- California Coastal Act
- Local Coastal Programs

### REGULATORY CONTEXT

#### Federal Endangered Species Act

The Federal Endangered Species Act of 1973 (Act) recognized that many species of fish, wildlife, and plants are in danger of or threatened with extinction and established a national policy that all federal agencies should work toward conservation of these species. The Secretary of the Interior and the Secretary of Commerce are designated in the Act as responsible for identifying endangered and threatened species and their critical habitats, carrying out programs for the conservation of these species, and rendering opinions regarding the impact of proposed federal actions on endangered species. The Act also outlines what constitutes unlawful taking, importation, sale, and possession of endangered species and specifies civil and criminal penalties for unlawful activities.

Biological assessments are required under Section 7(c) of the Act if listed species or critical habitat may be present in the area affected by any major construction activity conducted by, or subject to issuance of a permit from, a federal agency as defined in Part 404.02. Under Section 7(a)(3) of the Act every federal agency is required to consult with the United States Fish and Wildlife Service or National Marine Fisheries Service on a proposed action if the agency determines that its proposed action may affect an endangered or threatened species.

Section 9 of the Act prohibits the "take" of any fish or wildlife species listed under the Act as endangered or threatened. Take, as defined by the Act, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any

such action." However, Section 10 allows for the "incidental take" of endangered and threatened species of wildlife by non-Federal entities. Incidental take is defined by the Act as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Section 10(a)(2)(A) requires an applicant for an incidental take permit to submit a "conservation plan" that specifies, among other things, the impacts that are likely to result from the taking and the measures the permit applicant will undertake to minimize and mitigate such impacts. Section 10(a)(2)(B) provides statutory criteria that must be satisfied before an incidental take permit can be issued.

### **Migratory Bird Treaty Act**

The federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711) makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21).

### **California Endangered Species Act**

The California Endangered Species Act (Fish and Game Code Sections 2050-2098) established a State policy to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat. The Fish and Game Commission is charged with establishing a list of endangered and threatened species. State agencies must consult with the Department of Fish and Game to determine if a proposed Project is likely to jeopardize the continued existence of any endangered or threatened species.

The California Fish and Game Code defines "take" (Section 86) and prohibits "taking" of a species listed as endangered or threatened under the California Endangered Species Act (California Fish and Game Code Section 2080) or as fully protected (as defined in California Fish and Game Code Sections 3511, 4700, and 5050). Impacts on individuals of those species are considered significant if they result in the following effects: a) direct mortality; b) permanent or temporary loss of occupied habitat that would result in mortality to or reduced productivity of at least one individual of the species; c) avoidance of biologically important habitat for substantial periods resulting in mortality to or reduced productivity of at least one individual of the species.

Section 2081 of the Fish and Game Code allows the "take" of a species listed as threatened or endangered by the California Endangered Species Act. Take is defined as any act that involves direct mortality or other actions that may result in adverse impacts when attempting to take individuals of a listed species. Under Section 2081, the state Department of Fish and Game may issue a permit to authorize take for scientific, educational or management purposes, or take that is incidental to otherwise lawful activities.

### **California Fish and Game Code Native Plant Protection Policy**

The goals of Chapter 10 of the California Native Plant Protection Policy are as follows:

The intent of the Legislature and the purpose of this chapter is to preserve, protect, and enhance endangered or rare plants of this state (Section 1900). For purposes of this Chapter, a 'native plant' means a plant that grows in a wild uncultivated state, which is normally found native to the plant life of this state (Section 1901).

The commission may adopt regulations governing the taking, possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants. Such regulations may include, but shall not be limited to, requirements for persons who perform any of the foregoing activities to maintain written records and to obtain permits, which may be issued by the department (Section 1907).

No person shall import into this state, or take, possess, or sell within this state, except as incident to the possession or sale of the real property on which the plant is growing, any native plant, or any part or product thereof, that the commission determines to be an endangered native plant or a rare native plant, except as otherwise provided in this chapter (Section 1908).

All state departments and agencies shall, in consultation with the department, utilize their authority in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered or rare native plants. Such programs include, but are not limited to, the identification, delineation, and protection of habitat critical to the continued survival of endangered or rare native plants (Section 1911).

#### **California Fish and Game Code Section 1601**

The CDFG also regulates activities that may affect streambeds. Division 2, Chapter 6, Section 1601 of the California Fish and Game Code states that "...general plans sufficient to indicate the nature of a project for construction by, or on the behalf of, any government agency, state or local, and any public utility, of any project which will divert, obstruct or change the natural flow or bed, channel, or bank of any river, stream, or lake designated by the Department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit, or will use material from the streambeds designated by the Department, shall be submitted to the Department."

#### **Wetlands and Other Jurisdictional Waters of the United States**

The CEQA Guidelines (1994) state that effects on the environment that conflict with adopted environmental plans or goals are normally regarded as significant. A "no net loss of wetland acreage or value" policy is established within both the state and federal executive branches (California Wetlands Conservation Policy 1993). Ditching, filling, or other activities, which could alter the characteristic physical, chemical, biological, or public interest values (as defined by 40 CFR 230 Subparts C-F) associated with wetlands and other waters of the U.S. are considered impacts under U.S. Army Corps authority.

#### **National Marine Sanctuary Regulations**

The Monterey Bay National Marine Sanctuary (MBNMS) was designated in accordance with the National Marine Sanctuaries Act (NMSA) in 1992. The Sanctuary extends from Marin to Cambria, encompassing 276 miles of shoreline and 5,322 square miles of ocean. The MBNMS was established in order to provide for resource protection, as well as opportunities for research, education, and public use.

The National Oceanic and Atmospheric Administration (NOAA), a Federal agency, is responsible for managing National Marine Sanctuaries and has developed regulations and permit requirements uniquely suited to protect the resources within each sanctuary

(NOAA 1998). Section 922.132 Prohibited or Otherwise Regulated Activities (U.S. Code of Federal Regulations, Title 15) provides a list of activities prohibited within the Sanctuary. Of the prohibited activities, the following are of particular importance to the CHMP:

1. (i) Discharging or depositing, from within the boundary of the Sanctuary, any material or other matter except:
  - a. Fish, fish parts, chumming materials or bait used in or resulting from traditional fishing operations in the Sanctuary;
  - b. Biodegradable effluent incidental to vessel use and generated by marine sanitation devices approved in accordance with section 312 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1322 et seq.;
  - c. Water generated by routine vessel operations excluding oily wastes from bilge pumping;
  - d. Engine exhaust; or
  - e. Dredged material deposited at disposal sites authorized by the U.S. Environmental Protection Agency (in consultation with the U.S. Army Corps of Engineers) prior to the effective date of Sanctuary designation (January 1, 1993), provided that the activity is pursuant to, and complies with the terms and conditions of, a valid Federal permit or approval existing on January 1, 1993.
- (ii) Discharging or depositing, from beyond the boundary of the Sanctuary, any material or other matter that subsequently enters the Sanctuary and injures a Sanctuary resource or quality, except those listed above in (1)(i) (a) through (d) and dredged material deposited at the authorized disposal sites, provided that the dredged material disposal is pursuant to, and complies with the terms and conditions of, a valid Federal permit or approval.
2. Drilling into, dredging or otherwise altering the seabed of the Sanctuary; or constructing, placing or abandoning any structure, material or other matter on the seabed of the Sanctuary, except as incidental result of:
  - a. Anchoring vessels;
  - b. Aquaculture, kelp harvesting or traditional fishing operations;
  - c. Installation of navigation aids;
  - d. Harbor maintenance in the areas necessarily associated with Federal Projects in existence on January 1, 1993, including dredging of entrance channels and repair, replacement or rehabilitation of breakwaters and jetties; or
  - e. Construction, repair, replacement or rehabilitation of docks or piers.

3. Taking any marine mammal, sea turtle or seabird in or above the Sanctuary, except as permitted by regulations, as amended, promulgated under the Marine Mammal Protection Act, as amended, 16 U.S.C. 1361 et seq., the Endangered Species Act, as amended, 16 U.S.C. 1531 et seq., and the Migratory Bird Treaty Act, as amended, U.S.C. 703 et seq.

### **Marine Mammal Protection Act**

The Marine Mammal Protection Act of 1972, as amended in subsequent years, established a Federal responsibility to conserve marine mammals, seeking to maintain stocks at, or recover stocks to, their optimum sustainable population levels. In order to achieve this goal, protection of essential habitats including rookeries, mating grounds and areas of similar significance is emphasized. The Department of Interior was made responsible for management of sea otter, walrus, polar bear, dugong, and manatee, while the Department of Commerce is responsible for cetaceans and pinnipeds, other than the walrus.

### **California Coastal Act**

The California Coastal Act (California Public Resources Code § 30000 et seq) was enacted by the State Legislature in 1976 to provide long-term protection of California's 1,100-mile coastline for the benefit of current and future generations. The coastal protection program initiated on a temporary basis by Proposition 20 – the "Coastal Conservation Initiative" approved by California voters in November 1972 was made permanent by this Act (California Resources Agency 1999). The Act places emphasis on environmental protection and public recreation and access. The highest priority is placed upon the protection and preservation of natural resources, including environmentally sensitive habitat areas, such as wetlands, dunes, and other areas inhabited by rare, threatened, or endangered plant and animal life (Monterey County Planning Department 1985).

In accordance with the Coastal Act, the State (acting through the California Coastal Commission) and local governments cooperate through a comprehensive planning and regulatory program to manage the conservation and development of coastal resources (California Resources Agency 1999). Implementation of Coastal Act policies is accomplished primarily through the preparation of local coastal programs (LCPs) [described below] that are required to be completed by each of the counties and cities located entirely or partially within the coastal zone.

### **Local Coastal Programs**

Local coastal programs (LCPs) are required to be completed by each of the 15 counties and 58 cities located in whole or in part in the coastal zone. As stated above, implementation of Coastal Act policies is accomplished primarily through the preparation of LCPs. Upon their completion, LCPs must be submitted to the California Coastal Commission (CCC) for review and approval. Coastal Act policies serve as the standards by which the CCC evaluates the adequacy of each LCP. Local coastal programs include a land use plan (LUP), from the local general plan, including any maps required to administer it, and the zoning ordinances, zoning district maps, and other legal instruments necessary to implement the LUP. The CCC is required to review each certified LCP at least once every five years, to ensure that coastal resources are adequately protected in light of changing circumstances.

**Land Use Plans**

During the planning process for the Local Coastal Program of Monterey County, the County's coastal zone was divided into four segments, these being North County, Del Monte, Carmel, and Big Sur, for the purposes of preparing plans for these distinctly different areas (Monterey County Planning Department 1985). Of these, the Carmel and Big Sur segments are of particular relevance to the CHMP planning process.

The Carmel Area Land Use Plan, encompassing the area between Pescadero Canyon in the north and Malpaso Creek in the south, was amended and certified by the Coastal Commission on January 22, 1985. The Big Sur Coast Land Use Plan, covering approximately 70 miles of coastline from the Carmel River to the San Luis Obispo County line, was certified by the Coastal Commission on April 10, 1986. Of particular importance to this report is each Plan's policies regarding environmentally sensitive habitats. The Plans define environmentally sensitive habitats as "areas in which plant or animal life or their habitats are rare or particularly valuable because of their special nature or role in the ecosystem" (Monterey County Planning Department 1985, Monterey County Planning Department 1986). Examples of these environmentally sensitive habitats include Areas of Special Biological Significance identified by the State Water Resources Control Board; riparian corridors; rare and endangered species habitat; all marine wildlife haul-out, breeding, and nesting areas; all coastal wetlands and lagoons; and wilderness and primitive areas. According to the Plans, all practical efforts shall be made to maintain, restore, and if possible, enhance environmentally sensitive habitats (Monterey County Planning Department 1985, Monterey County Planning Department 1986). Furthermore, the development of all categories of land use, both public and private, should be subordinate to the protection of these areas (Monterey County Planning Department 1986). Other natural resources addressed in these Land Use Plans include water and marine resources and forestry and soil resources.

**PRELIMINARY BIOLOGICAL ASSESSMENT**

Tables 4 and 5 of this report provide a listing of special-status plant and wildlife species that may occur within the corridor study area or vicinity. The following section presents a preliminary Biological Assessment (BA) that has been prepared to address federal and state listed endangered, threatened, and candidate species that have potential to be affected by the management and maintenance activities to be formulated and implemented by the CHMP.

For each species a description of the species' background and general life requirements, as well as its historical presence within the study area vicinity is provided. Since project-specific details are not available at this point in time, information pertaining to the species' presence in the specific impact areas and potential effects of specific activities is not included. It is anticipated that wildlife and floristic plant surveys will be conducted in proposed maintenance and management areas during the appropriate activity or blooming periods. This will provide additional information to help qualify the potential for special-status species to be affected by a particular project or activity. Table 9 identifies those federal and state listed threatened, endangered, or candidate species that were considered for potential presence within the Coast Highway corridor but then withdrawn from further consideration, with the reason(s) why they were withdrawn.

**Table 9: Endangered, Threatened, and Candidate Species Withdrawn from Further Consideration for the Big Sur CHMP**

Species	Status		Reason(s) for Withdrawal from Further Consideration
	Federal	State/CNPS	
Plants			
<i>Arctostaphylos morroensis</i> Morro manzanita	FT	--/1B	Corridor is outside of geographic range. This species known range is currently restricted to the Morro Bay area (USFWS 1994c).
<i>Arenaria paludicola</i> Marsh sandwort	FE	SE/1B	Corridor is outside of geographic range. Currently known from two extant occurrences near Black Lake Canyon and Oso Flaco Lake in San Luis Obispo County (USFWS 1998b).
<i>Astragalus tener</i> var. <i>titi</i> Coastal dunes milk-vetch	FE	SE/1B	Corridor is outside of current geographic range. This species has been eliminated from all of its known historic sites except one (V. Yadon, pers. comm.). The single known population is located along 17-mile drive in Pebble Beach (Ferreira 1995).
<i>Chorizanthe robusta</i> var. <i>robusta</i> Robust spineflower	FE	--/1B	Corridor is outside of geographic range. This species is currently known only from southern Santa Cruz County and northern Monterey County (USFWS 1994b).
<i>Chorizanthe pungens</i> var. <i>pungens</i> Monterey spineflower	FT	--/1B	Corridor is outside of geographic range. On February 15, 2001, the USFWS proposed critical habitat for this species (USFWS 2001b). The Asilomar Unit, which represents the nearest proposed critical habitat unit in relation to the corridor study area, is located approximately 5 miles (~8 kilometers) north-west of the Carmel River. Fort Ord currently contains the most significant number of known populations, representing upwards of 70 percent of the range of Monterey spineflower (USFWS 1994b).
<i>Cirsium fontinale</i> var. <i>obispoense</i> Chorro Creek bog thistle	FE	SE/1B	Corridor is outside of geographic range. This species is currently known from only nine locations; eight of these are located south and west of San Luis Obispo, and the ninth occurs near San Simeon (USFWS 1994c). All records within the CNDDDB are located within San Luis Obispo County.

\*Please refer to the key at the end of the table.

Table 9: Endangered, Threatened, and Candidate Species Withdrawn from Further Consideration for the Big Sur CHMP

Species	Status		Reason(s) for Withdrawal from Further Consideration
	Federal	State/CNPS	
<i>Clarkia speciosa</i> ssp. <i>immaculata</i> Pismo clarkia	FE	Rare/1B	Corridor is outside of geographic range. There are currently five known extant populations of this species, all of which are located between San Luis Obispo and the Nipomo Mesa area (USFWS 1994c).
<i>Cordylanthus maritimus</i> spp. <i>maritimus</i> Salt marsh bird's-beak	FE	SE/1B	Corridor is outside of geographic range. Primarily a species of Southern California, Morro Bay represents the northern extent of its documented geographic range (CNDDDB 2000, Skinner and Pavlik 1994).
<i>Eriodictyon altissimum</i> Indian Knob mountainbalm	FE	SE/1B	Corridor is outside of geographic range. Currently only six stands are known to exist, all of which occur between Arroyo Grande and San Luis Obispo (USFWS 1994c).
<i>Erysimum menziesii</i> ssp. <i>menziesii</i> Menzie's wallflower	FE	SE/1B	Corridor is outside of geographic range. The southernmost populations occur within the Monterey Peninsula dune system in two general areas: Point Pinos to Point Joe and north of Point Cypress (USFWS 1992). This species is believed to be nearly extirpated on the Monterey Peninsula (Skinner and Pavlik 1994).
<i>Erysimum menziesii</i> ssp. <i>yadonii</i> Yadon's wallflower	FE	SE/1B	Corridor is outside of geographic range. Known only from the Monterey Bay area near Marina (Skinner and Pavlik 1994).
<i>Gilia tenuiflora</i> spp. <i>arenaria</i> Sand gilia	FE	ST/1B	Corridor is outside of geographic range. Along the Monterey Peninsula, populations of this species range from Point Pinos to Point Joe (USFWS 1992).
<i>Layia carnosa</i> Beach layia	FE	SE/1B	Corridor is outside of geographic range. Within Monterey County this species is restricted to the Monterey Peninsula dune system. Two of the four known occurrences of this species within this dune system have been extirpated (USFWS 1992).
<i>Lupinus nipomensis</i> Nipomo Mesa lupine	FE	SE/1B	Corridor is outside of geographic range. This species is restricted to the Guadalupe dunes of southwestern San Luis Obispo County (USFWS 2000d).

\*Please refer to the key at the end of the table.

**Table 9: Endangered, Threatened, and Candidate Species Withdrawn from Further Consideration for the Big Sur CHMP**

Species	Status		Reason(s) for Withdrawal from Further Consideration
	Federal	State/CNPS	
<i>Lupinus tidestromii</i> Tidestrom's lupine	FE	SE/1B	Corridor is outside of geographic range. The populations of this species along the Monterey Peninsula, which represent the southernmost extension of the species range, occur from Point Pinos to Pebble Beach (USFWS 1992). The state listing refers to Monterey County plants ( <i>L. t. var. tidestromii</i> ).
<i>Rorippa gambellii</i> Gambel's water cress	FE	ST/1B	Corridor is outside of geographic range. In California, this species is known from only three extant occurrences: Black Lake Canyon and Oso Flaco Lake in San Luis Obispo County, and Vandenberg Air Force Base in Santa Barbara County (USFWS 1998b).
<i>Suaeda californica</i> California seablite	FE	--/1B	Corridor is outside of geographic range. This species is currently only known from the perimeter of Morro Bay (USFWS 1994c).
<i>Trifolium trichocalyx</i> Monterey clover	FE	SE/1B	Corridor is outside of geographic range. Currently only known from the Huckleberry Hill area on the Monterey Peninsula (USFWS 1998a).
<b>Invertebrates</b>			
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	FE	--	Corridor is outside of known geographic range. This species is known from disjunct populations in Tehama, Solano, Glenn, Merced and Ventura counties (USFWS 1994d). Suitable habitat does not appear to be present within the corridor.
<i>Branchinecta longiantenna</i> Longhorn fairy shrimp	FE	--	Corridor is outside of the known geographic range. This species is found along the eastern margin of the central coast range from Contra Costa County to San Luis Obispo County (USFWS 1994d). Suitable habitat does not appear to be present within the corridor.

\*Please refer to the key at the end of the table.

**Table 9: Endangered, Threatened, and Candidate Species Withdrawn from Further Consideration for the Big Sur CHMP**

Species	Status		Reason(s) for Withdrawal from Further Consideration
	Federal	State/CNPS	
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT	--	Corridor is outside of the known geographic range. This species occurs from Shasta County south through most of the central valley to Tulare County, along the central coast range from north Solano County to San Benito County, and in disjunct populations in northern San Luis Obispo County, Santa Barbara County, and Riverside County (USFWS 1994d). Suitable habitat does not appear to be present within the corridor.
Amphibians			
<i>Bufo microscaphus californicus</i> Arroyo toad	FE	CSC	The corridor study area is outside of the known geographic range of this species. A population along the San Antonio River within the Fort Hunter Liggett Military Reservation (the northern extent of this species range) represents the nearest occurrence of this species to the corridor (USFWS 1999a)
Birds			
<i>Charadrius montanus</i> Mountain plover (wintering)	PT	CSC	The corridor study area is located outside of this species' primary geographic range. The mountain plover is a winter visitant in California, occurring primarily in the Central Valley, south of Sacramento and the Imperial Valley (USFWS 1999d).
<i>Sterna antillarum browni</i> California least tern (nesting colony)	FE	SE	A former breeding bird within Monterey County, it is currently only a rare migrant to the County (Roberson and Tenney 1993). Breeding within California appears to be limited to the San Francisco Bay and isolated locations along the Southern California coast.
<i>Brachyramphus marmoratus marmoratus</i> Marbled murrelet (nesting)	FT	SE	This species occurs along the coast of Monterey County as a migrant; however, breeding has been documented only as far south as Big Basin State Park in Santa Cruz County.

\*Please refer to the key at the end of the table.

**Table 9: Endangered, Threatened, and Candidate Species Withdrawn from Further Consideration for the Big Sur CHMP**

Species	Status		Reason(s) for Withdrawal from Further Consideration
	Federal	State/CNPS	
<i>Empidonax trailii</i> Willow flycatcher	FSS	SE	Three subspecies of the willow flycatcher are recognized in California. The southwestern willow flycatcher ( <i>E. t. extimus</i> ), explained below; little willow flycatcher ( <i>E. t. brewsteri</i> ), which occurs along the west slope of the Sierra Nevada and northern California; and <i>E. t. adastus</i> , which occurs east of the Sierra/Cascade crest (Craig <i>et al.</i> 1992). The potentially suitable habitat within the corridor study area appears most suitable for the southwestern willow flycatcher (the reason for the withdrawal of this species from consideration is explained below). The most recent willow flycatcher breeding record within Monterey County was documented at the Carmel River mouth in 1974 (Roberson 2000).
<i>Empidonax trailii extimus</i> Southwestern willow flycatcher	FE	SE	Corridor is outside of current geographic range. Nearest breeding populations are along the Kern River in Kern County and the Santa Ynez River in Santa Barbara County (Finch and Stoleson 2000).
<i>Vireo bellii pusillus</i> Least Bell's vireo (nesting)	FE	SE	Corridor is outside of current geographic range. The nearest viable nesting population is located along the upper Santa Ynez River, Santa Barbara County (Roberson and Tenney 1993).
<b>Mammals</b>			
<i>Dipodomys ingens</i> Giant kangaroo rat	FE	SE	Corridor is outside of this species' geographic range. The giant kangaroo rat occurs along the southwestern edge of the San Joaquin Valley to southwestern Kern County and northern Santa Barbara County. Within Monterey County there are currently no known occurrences of this species. Within San Luis Obispo County there are currently three extant populations, located in the San Juan Creek Valley, Carrizo Plain Natural Area, and Cuyama Valley, all of which are well outside of the project vicinity (USFWS 1998c).
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE	ST	The corridor is outside of the species' current geographical range. Within Monterey County, the nearest occurrence records are from Fort Hunter Liggett (USFWS 1998c).

\*Please refer to the key at the end of the table.

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Federal status data: USFWS letter dated 14 July 2000, Threatened, Endangered, and Sensitive Species of Los Padres National Forest (August 2000), and CNDDDB (CDFG 2000).

FE	Listed as endangered under the Federal Endangered Species Act (FESA)	FT	Listed as threatened under the FESA
PT	Proposed for listing as threatened under the FESA	PD	Proposed for delisting under the FESA
FC	Candidate species for listing under the FESA		

State status data: California Natural Diversity Data Base (CDFG 2000).

SE	Listed as endangered under the California Endangered Species Act (CESA)	ST	Listed as threatened under the CESA
CSC	Species of concern as identified by the CDFG	Rare	Species identified as rare by the CDFG

California Native Plant Society (CNPS) Listing Categories (Skinner & Pavlik 1994).

IB Plant species considered rare, threatened, or endangered in CA or elsewhere

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## Wildlife

### **Smith's Blue Butterfly**

The Smith's blue butterfly (*Euphilotes enoptes smithi*) was federally listed as Endangered on June 1, 1976. Its distribution extends along the coast and in the Santa Lucia Mountains within Monterey County. The only records of the butterfly within San Luis Obispo County are from just north of San Carpoforo Creek, first observed in 1998, and observed again in 2000 (T. Edell, pers. comm.). Along the Big Sur Coast, seacliff buckwheat serves as the principal host plant for Smith's blue butterfly; however, coast buckwheat has also been documented as a host plant.

The Smith's blue butterfly has a single generation per year (univoltine) (Arnold 1991). Individual adult males and females have a life span of approximately one week, during which they forage for nectar, bask, search for mates, breed, and lay their eggs (Arnold 1991). Much of this time is spent in close association with *Eriogonum* flowerheads (Kellner 1989, Arnold 1991). Females typically lay the eggs singly on mature buckwheat flowers (Kellner 1989, Arnold 1991). There are five instars (stage between molts), each of which feeds on the flowers or developing seeds of *Eriogonum* (Kellner 1989). Adult butterflies emerge the following spring, having spent the previous 10 months (including winter) in the pupal stage (Kellner 1989, Arnold 1991).

In accordance with the Endangered Species Act, any buckwheat species that may be utilized by the Smith's blue butterfly as food plants are considered to be habitat for the species. As such the loss or damage of these buckwheat plants may be interpreted as "take", an illegal activity under the Endangered Species Act (Arnold 1991).

Recognized threats to Smith's blue butterfly populations include residential development, increased automobile and foot traffic, exotic plant invasion, highway maintenance, sidecasting, and vegetational succession (Kellner 1989, Arnold 1991). Construction activities related to residential development may cause both direct and indirect harm to the butterfly, if these activities result in the removal or loss of host plants (Kellner 1989). Numerous introduced plants, such as ice plant, have served to stabilize the formerly very active dune systems of the California coast. Many plants, including the Smith's blue butterfly's host *Eriogonum*, are adapted to conditions of active sand and require disruption in order to spread successfully (Arnold 1991). Exotic plants may also negatively impact *Eriogonum* through competitive exclusion (Kellner 1989). Highway maintenance activities may result in the loss of buckwheat plants, through removal or burial. Plants growing along the margins of the highway and along pull-outs are likely the most susceptible to loss or damage due to maintenance activities (Kellner 1989). Sidecasting and exotic/invasive plant control measures may also cause a loss of plants if they are present in areas where these activities are conducted. Finally, vegetational succession may cause a reduction in the number of buckwheat plants in a particular area. Through the process of succession, communities move towards a dominance of mesic adapted species, such as coyote brush and poison oak, which are capable of out-competing buckwheat (Kellner 1989). Over the past five or six years, Caltrans has commonly included seacliff buckwheat in seed mixes used during revegetation efforts.

A means of assessing habitat quality for Smith's blue butterfly was developed for a site-specific study by Arnold (1991), in which habitat quality was assessed based primarily on the number of buckwheat plants present and the relative mixture of age classes within a particular stand. This system was based on information gathered during a study

at Garland Ranch Regional Park in the Carmel Valley. For the purposes of the 1991 study, high quality habitat was represented by stands of seacliff buckwheat containing several hundred or more plants, with a mixture of age classes. Medium quality habitat sites were typically smaller in size and contained fewer (less than several hundred) buckwheat plants. Low quality habitat sites were represented by stands one acre or less in size with fewer than 25 individual seacliff buckwheat plants (Arnold 1991). Since this was a site-specific study, caution must be taken when attempting to extrapolate these results across a broader scale. For instance, Arnold points out that flower numbers as opposed to plant numbers may provide a better indicator of habitat conditions (Arnold 1991). Furthermore, small ("low quality") stands in close proximity to larger stands or aggregations of smaller stands may provide necessary resources for dispersing butterflies (Kellner 1989, Arnold 1991).

Suitable habitat for Smith's blue butterfly occurs at numerous locations within the corridor study area. Seacliff buckwheat serves as the principal host plant for the endangered Smith's blue butterfly along the Big Sur Coast; as such, its distribution and relative density within the corridor study area is of special interest to Caltrans. A classification system (as shown in the methodologies portion of this report) derived from the habitat quality classification system developed by Arnold (1991) was used to determine the relative density of buckwheat within each vegetation community polygon. During the field review, the relative density of buckwheat within each vegetation community polygon was determined by the stand within that polygon with the highest relative density. The mapping contained within Appendix A provides the relative density of buckwheat for each polygon, as observed during the field review. The location of each buckwheat stand of medium or high relative density was denoted on the aerial photographs and the nearest milepost was recorded on the data sheets. Appendix J provides the post mile, relative density, and associated vegetation community for all buckwheat stands with a relative density of either medium or high. These stands were most often located in central coastal scrub communities and along roadcuts; however, they were also located in coastal sage-chaparral scrub communities, and ruderal/disturbed areas. It should be noted that stands of buckwheat with a low relative density comprised the majority of the observations. Although these smaller stands may not be capable of supporting viable populations of Smith's blue butterfly, they may be capable of providing necessary resources for dispersing butterflies (Kellner 1989, Arnold 1991).

The CNDDDB includes thirty-eight records of Smith's blue butterfly within the study area vicinity. During a 1989 survey for Smith's blue butterfly along the Big Sur coast in Monterey County, thirty-nine individual butterflies were observed at twenty-three localities (Kellner 1989).

### **Steelhead**

South-Central California Coast steelhead (*Oncorhynchus mykiss*) occupy marine and fresh water habitats along the coast from the Pajaro River in Santa Cruz to (but not including) the Santa Maria River. Steelhead are typically associated with upper perennial riverine habitat. Spawning and juvenile rearing take place in the upper reaches of smaller tributaries where suitable spawning gravels are present and cooler water persists throughout the summer months. The South-Central California Coast steelhead do not migrate to arctic waters like most steelhead. A strong summer upwelling in the ocean south of Cape Blanco, Oregon provides a highly productive food

source for the steelhead, potentially shortening their migration to the arctic waters in Alaska.

Biologically, steelhead can be divided into two basic run-types based on sexual maturity at the time of river entry and duration of spawning migration (Burgner 1992). The stream-maturing type (summer-run) enters fresh water in a sexually immature condition and requires several months in fresh water to mature and spawn. The ocean-maturing type (winter-run) enters fresh water with well-developed reproductive organs and spawns shortly thereafter. The steelhead that inhabit the study area vicinity enter fresh water between November and April and are considered to be winter-run (C. Collin, pers. comm.).

Potential threats to existing populations of steelhead include water diversions, dams, streambed materials extraction, the introduction of brown trout into watersheds, increasing water temperatures, and sediment depositions caused by logging or road development.

On October 17, 1997 the South-Central California Coast steelhead was federally listed as Threatened by the National Marine Fisheries Service (NMFS). The CDFG designates it as a Species of Special Concern. On February 16, 2000 the NMFS designated critical habitat for 19 evolutionarily significant units (ESUs) of chinook (*Oncorhynchus tshawytscha*), chum (*O. keta*), coho (*O. kisutch*), and sockeye salmon (*O. nerka*), and steelhead trout (*O. mykiss*) previously listed under the Endangered Species Act (ESA) (NMFS 2000). Critical habitat consists of the water, substrate, and adjacent riparian zone of estuarine and riverine reaches in hydrologic units and counties identified for each ESU (NMFS 2000). Critical habitat for South-Central California Coast steelhead was designated to include all river reaches and estuarine areas accessible to listed steelhead in coastal river basins from the Pajaro River (inclusive) to, but not including, the Santa Maria River (NMFS 2000). Areas excluded from the critical habitat designation for South-Central California Coast steelhead include areas above specific dams identified in the Federal Register Notice, areas above longstanding naturally impassable barriers, and all Indian lands (NMFS 2000).

The CNDDDB/Rarefind database currently includes 12 records of documented occurrences within the study area vicinity. These records do contain duplicates for drainages, such as the Big Sur River, that occur in multiple quads. Streams, creeks and rivers within the corridor study area that are known to support steelhead are identified below in Table 10 (J. Nelson, pers. comm., T. Moss, pers. comm., CDFG 2000, NMFS 2000). Although these are the only areas in the corridor study area where steelhead have been documented, there is potential that they occur in additional streams, creeks and tributaries that exhibit suitable habitat. For example, during the CHMP Recreation and Access survey conducted during July 2001, significant-sized fish (potentially steelhead) were observed in Malpaso Creek beneath the Highway 1 bridge (L. Otter and R. Hyman, pers. comm.). Further survey work is needed to improve our understanding of the distribution of steelhead along the Big Sur coast.

**Table 10: Waterways within the Corridor Study Area Known to Support Steelhead**

San Carpofo Creek SLO PM 71.5	Prewitt Creek MON PM 15.1	Partington Creek MON PM 37.8	Rocky Creek MON PM 60.1
Salmon Creek MON PM 2.2	Mill Creek MON PM 18.5	Big Sur River MON PM 46.6	Garrapata Creek MON PM 63.0
Alder Creek MON PM 8.0	Limekiln Creek MON PM 21.0	Juan Higuera Creek MON PM 48.0	San Jose Creek MON PM 71.2
Willow Creek MON PM 11.8	Big Creek MON PM 28.1	Little Sur River MON PM 56.1	Carmel River MON PM 72.4
Plaskett Creek MON PM 13.9	Lime Creek MON PM 32.2	Bixby Creek MON PM 59.4	

**Tidewater Goby**

The tidewater goby (*Eucyclogobius newberrii*) is a California endemic fish species that inhabits coastal brackish water environments along the California coast. The historic range of this species extended from the Smith River, Del Norte County, south to Agua Hedionda Lagoon, San Diego County (USFWS 1994a).

On March 7, 1994, the tidewater goby was listed as a federally endangered species. The tidewater goby is also designated as a Species of Special Concern by the California Department of Fish and Game.

The tidewater goby is a small (not exceeding 2 inches (50mm) standard length), elongate, grey-brown fish, with large, dusky pectoral fins and a ventral sucker-like disk formed by the complete fusion of the pelvic fins (USFWS 1994a). The brackish environments inhabited by this species typically occur at the upper edge of tidal bays and within coastal lagoons formed at the mouth of large coastal rivers, streams, or seasonally wet canyons (USFWS 2000f). The tidewater goby is a short-lived species with an estimated life cycle of approximately one-year (USFWS 2000f). The feeding habits of the tidewater goby are largely that of a generalist, feeding on a variety of small benthic invertebrates, crustaceans, snails, and aquatic insect larvae (Irwin and Soltz 1984, Swift *et al.* 1989, USFWS 2000f). Reproduction peaks from late April or May to July and may extend into November or December depending upon seasonal temperature and rainfall (USFWS 2001f). The male goby prepares burrows 3 to 4 inches (75 to 100 mm) deep in clean coarse sand into which the female deposits the eggs (USFWS 1999f). The male goby remains in the burrow following egg deposition, in order to provide protection for the eggs (USFWS 1999f). Larvae emerge within seven to ten days (USFWS 2000f). Newly hatched larvae are planktonic until they reach 0.3 to 0.8 inches (8 to 18 mm) in length, after which they become substrate oriented (USFWS 2000f).

As adults and sub-adults, gobies commonly migrate up to 1.2 miles (2.0 km) upstream from the estuary into tributaries (USFWS 2000f). Migration occurs during summer and fall and there is little evidence that reproduction occurs in the upper regions of tributaries (USFWS 2000f).

Lagoons inhabited by tidewater gobies typically range in size from less than 0.25 acres (0.10 ha) of surface area to approximately 2,000 acres (800 ha) (USFWS 2000f). However, the majority of those lagoons containing tidewater goby populations are in the range of 1.25 to 12.5 acres (0.5 to 5.0 ha) (USFWS 2000f).

Recognized threats to the species include habitat loss and degradation as a result of urban, agricultural, and industrial development in and around coastal wetlands and the conversion of seasonally closed lagoons to tidal bays and harbors (USFWS 2000f, USFWS 2001f). Other potential threats include predation by non-native species, pollution, upstream water diversions, and extreme weather and streamflow conditions (USFWS 2000f, USFWS 2001f).

Through the use of electrophoretic and mitochondrial DNA analysis, the Orange and San Diego counties population was found to represent a genetically distinct population and was determined to constitute a distinct population segment (USFWS 1999f). This population located approximately 80 miles (129 km) south of the nearest extant population, also represents the most geographically isolated population (USFWS 1999f). In the time since the original listing, a significant number of populations that were thought to be extirpated have recolonized naturally, and a significant number of populations thought to be in decline have stabilized or increased in size (USFWS 1999f). Following a reevaluation of all the factors believed to be threatening the existence of the tidewater goby, the USFWS determined that north of Orange and San Diego counties, more populations exist than were known at the time of listing, that threats to these populations are less severe than previously thought, and that the tidewater goby has a greater ability to recolonize areas from which it is temporarily absent than was known at the time of the original listing (USFWS 1999b). Subsequently, the USFWS proposed to remove the northern populations of the tidewater goby from the list of endangered and threatened wildlife (USFWS 2000f). In 2000, the USFWS designated critical habitat for the Orange and San Diego counties population of the tidewater goby (USFWS 2000f).

There are currently no CNDDDB records for the tidewater goby within the corridor study area. However, suitable habitat may exist in coastal lagoons formed at the mouth of coastal rivers, streams, and intermittent drainages along the corridor. Examples include San Carpoforo Creek, Prewitt Creek, Big Sur River, Little Sur River, Sycamore Canyon Stream, Garrapata Creek, San Jose Creek, and the Carmel River.

### **California Tiger Salamander**

The U.S. Fish and Wildlife Service currently designates the California tiger salamander (*Ambystoma californiense*) as a Candidate species. The Santa Barbara County Distinct Vertebrate Population Segment (DPS) was federally listed as Endangered on September 15, 2000. At the state level, this species is listed as a Species of Special Concern by the CDFG.

The California tiger salamander is a large salamander that reaches lengths of 8 inches or more, with a broad rounded snout and small protruding eyes with black irises (Jennings and Hayes 1994). Coloration is primarily black with white or pale yellow spots or bars sparsely distributed over the entire body (Stebbins 1985). The belly is highly variable in pattern, ranging from almost entirely white or pale yellow to variegated white or pale yellow and black.

The range of California tiger salamander includes the Central Valley from Yolo County south to Kern County, and coastal regions from the vicinity of the San Francisco Bay south to Santa Barbara County. The known elevational range of this species extends from 10 feet to 3,458 feet (3 m to 1054 m) (Jennings and Hayes 1994).

Adult California tiger salamanders inhabit rolling grassland and oak savannah. Adults spend most of the year in subterranean retreats such as small mammal burrows, but may be found on the surface during migration to breeding sites. Preferred breeding sites include vernal pools and other temporary pools; however, permanent man-made ponds may be used if predatory fish are absent.

California tiger salamander adults begin migrating to ponds after the first heavy rains of fall and are found in or around the breeding ponds from approximately December 1<sup>st</sup> to February 15<sup>th</sup> (Zeiner *et al.* 1988). In extremely dry years, California tiger salamanders may not reproduce. After mating, females lay several small clusters of eggs, ranging from 1 to small groups of 2 to 4 (Jennings and Hayes 1994). The eggs are deposited on both emergent and submergent vegetation, as well as submerged detritus. Completion of larval development through metamorphosis requires approximately 10 weeks, at which time the larvae will normally weigh about 10 grams (Jennings and Hayes 1994). Long lasting, and subsequently large in size, temporary pools are required due to the species' long developmental interval (Jennings and Hayes 1994). Larvae able to remain in pools for a longer time period may grow to much larger sizes (Jennings and Hayes 1994). Following metamorphosis, juvenile California tiger salamanders migrate in mass at night from the drying breeding sites to refuge sites (Jennings and Hayes 1994). Prior to this migration, the juveniles spend anywhere from a few hours to a few days near the edge of the breeding site (Zeiner *et al.* 1988). Preliminary data suggest that most individuals reach sexual maturity at two years of age; however, some may take longer (Jennings and Hayes 1994).

Adult California tiger salamanders are largely opportunistic feeders, preying upon arthropod and annelid species that occur in burrow systems, as well as aquatic invertebrates found within seasonal pools.

The primary cause of decline in California tiger salamander populations is the loss of vernal pools and other ephemeral water bodies due to urban development and agricultural land conversions. Introduction of exotic and transplanted predatory fishes, such as mosquitofish (*Gambusia affinis*), and bullfrogs may also negatively affect this species through predation and/or competition.

There are currently no CNDDDB occurrence records for this species within the corridor study area. However, there are currently six CNDDDB occurrence records for this species within the study area vicinity. Four of the records were documented within the Fort Hunter Liggett Military Reservation. The other two occurrences were documented within the Mt. Carmel quadrangle near Rancho San Carlos. Suitable habitat within the Highway 1 corridor is present at locations such as the El Sur Ranch and Andrew Molera State Park (J. Norman, pers. comm.).

### **California Red-legged Frog**

The California red-legged frog (*Rana aurora draytonii*) is a large brown to reddish brown frog that historically occurred in coastal habitats from the vicinity of Point Reyes National

Seashore (Marin County), and inland from the vicinity of Redding (Shasta County), southward to northwestern Baja California, Mexico (Jennings and Hayes 1994, USFWS 2000a). The species has been extirpated from seventy percent of its historic range (USFWS 2000a). Though still common in the San Francisco Bay area (including Marin County) and along the central coast, the remainder of the California red-legged frog's distribution has been reduced to isolated localities in the Sierra Nevada, northern Coast Range, and northern Transverse Range (USFWS 2000a).

The California red-legged frog inhabits a variety of aquatic, upland, and riparian environments, including ephemeral and permanent ponds, seasonal wetlands, perennial creeks, intermittent streams, manmade aquatic features, riparian corridors, blackberry (*Rubus* sp.) thickets, non-native annual grasslands, and oak savannahs (USFWS 2000b). This species appears to be capable of utilizing almost any aquatic system provided a permanent source of water, ideally lacking non-native predators, is nearby (Stebbins 1985, Jennings and Hayes 1994, USFWS 2000b). "The importance of riparian vegetation for this species is not well understood" (USFWS 2000b). The ability of this species to disperse relatively great distances ( $\geq 2$  miles [ $\sim 3$  kilometers]), serves as an important key to its long term survival, by enabling it to recolonize areas subjected to localized extinctions and colonize new or previously uncolonized areas (USFWS 2000b).

Breeding occurs during winter and early spring (late November through April) (Jennings and Hayes 1994, USFWS 1997a). Following amplexus, the female attaches egg masses containing 2,000 to 6,000 eggs to emergent vegetation at or near the water's surface (Jennings and Hayes 1994, USFWS 1997a). The embryos hatch within 6 to 14 days after fertilization, and the larvae typically complete metamorphosis between July and September, 3.5 to 7 months after the eggs were laid (Storer 1925, Jennings and Hayes 1994, USFWS 2000a). Sexual maturity is attained in 2 years by males and 3 years by females (Jennings and Hayes 1994, USFWS 2000a). Juveniles may be active both diurnally and nocturnally, while adults are highly nocturnal (Jennings and Hayes 1994).

California red-legged frog is listed as Threatened by the USFWS and is designated as a Species of Special Concern by the California Department of Fish and Game. Beginning with excessive exploitation (hunting and fishing) for the restaurant industry prior to the turn of the century, this species has been subject to a variety of pressures that have resulted in its decline and disappearance over the majority of its historic range (Jennings and Hayes 1994). Other factors that have contributed to the decline of California red-legged frog include destruction of riparian habitat due to development, agriculture, or flood control practices, and the introduction of exotic predators such as bullfrogs, crayfish, and a variety of non-native fishes (Jennings and Hayes 1994).

The Draft Recovery Plan for California Red-Legged Frogs (USFWS 2000a) identifies four core areas for focused recovery within the project vicinity. The core areas are the Carmel River watershed, the Little Sur/Big Sur watersheds, Fort Hunter Liggett Military Reservation, and the Cambria/San Simeon area. Core areas are portions of recovery units in which recovery actions will be focused. "The core areas were chosen for focused recovery either because they represent viable populations or because the locations will contribute to connectivity of habitat and thus increase dispersal opportunities between populations" (USFWS 2000a). The project corridor bisects the Carmel River watershed and the Little Sur/Big Sur watersheds core areas.

On September 11, 2000, the USFWS proposed designation of critical habitat pursuant to the Endangered Species Act of 1973, as amended, for the California red-legged frog. On March 13, 2001, the USFWS released its final determinations of critical habitat for the California red-legged frog (USFWS 2001d). "Critical habitat includes: (a) essential aquatic habitat; (b) associated uplands; and (c) dispersal habitat connecting essential aquatic habitat" (USFWS 2001d). Two critical habitat units, the Carmel River Unit and the San Simeon Unit – Morro Bay Unit, occur within the study area vicinity. Of these two, only the Carmel River Unit occurs within the corridor study area. The San Simeon Unit – Morro Bay Unit is located to the south of the corridor study area. The Carmel River Unit consists of drainages comprising the Carmel River watersheds in Monterey County, encompassing approximately 155,620 acres (62,976 ha) (USFWS 2001d). Approximately 26 percent of this land is managed by the Los Padres National Forest and the California Department of Parks and Recreation, while the remaining 74 percent is privately owned (USFWS 2001d).

Although potentially suitable habitat for California red-legged frog occurs in several drainages throughout the study area vicinity, the CNDDDB/Rarefind includes only five occurrence records for the California red-legged frog within the study area vicinity. Two of the five records documented red-legged frogs in the Carmel River. Four adult frogs were observed upstream of the Los Padres reservoir and one adult and multiple tadpoles were observed at the north end of Paso Del Rio Road near Garland Park. A single adult red-legged frog observed on Carmel Valley Road just west of Highway 1 in Carmel represents the third record. In August of 1998, a single adult was observed at a stock trough fed by a perennial creek, located between Castro Canyon and Grimes Canyon, east of Highway 1. The location of this observation is approximately 200 yards (~183 meters) east of the corridor study area (J. Norman, pers. comm.). The trough was located within a redwood grove surrounded by coastal sage scrub. The remaining record was documented near the Post Ranch Inn, along the west side of Highway 1. More than 100 individuals, primarily juveniles, were observed in a pond approximately 0.5 acre (~0.2 ha) in size, surrounded by redwood forest, ruderal grassland, and mixed evergreen forest. The location of the Post Ranch observation is approximately 100 yards (~91 meters) west of the corridor study area (J. Norman, pers. comm.). No California red-legged frogs have been observed during amphibian surveys at Big Creek (J. Smiley, pers. comm.). According to the Draft Recovery Plan "nearly all coastal drainages [in Monterey County] from Garrapata Creek south to Salmon Creek, including the Little and Big Sur drainages and the vicinity of Pfeiffer State Beach, support frogs [California red-legged frogs] (USFWS 2000a). Within San Luis Obispo County the Draft Recovery Plan states that California red-legged frogs also occur in San Carpoforo Creek (USFWS 2000a).

### **California Brown Pelican**

The California brown pelican (*Pelecanus occidentalis californicus*) was federally listed as Endangered on October 13, 1970 and state endangered on June 27, 1971.

California brown pelicans are typically found in estuarine, marine subtidal, and marine pelagic waters along California's coast (Zeiner *et al.* 1990a). A very gregarious species, individuals congregate in large flocks throughout much of the year. The species feeds primarily on fish and may require up to four pounds of fish a day (USFWS 1995a). Other prey include crustaceans, carrion, and young of their own species (Palmer 1962, Zeiner *et al.* 1990a). A colonial nesting species, breeding usually occurs on coastal islands

beyond the surf line from March to early August (Zeiner *et al.* 1990a). Young are born altricial and are cared for by both parents (Zeiner *et al.* 1990a). Juveniles are able to fly at about nine weeks of age, becoming independent sometime later (Zeiner *et al.* 1990a). Sexual maturity is not attained until about two or three years of age (Zeiner *et al.* 1990a).

Beginning in the 1940s, the widespread use of DDT and other chlorinated hydrocarbons lead to the dramatic decline of this species throughout its range. Eggshell thinning, caused by DDT bioaccumulation, and altered parental behavior resulted in severe reproductive failure (Zeiner *et al.* 1990a). Following the ban on the use of DDT in the United States and the enactment of heavier restrictions on the use of other pesticides by the Environmental Protection Agency in 1972 as well as other conservation efforts, California brown pelican numbers have begun to recover.

Along the Monterey coast, this species is primarily a post-breeding visitor; however, individuals may be observed throughout the year (Roberson and Tenney 1993). Historically (prior to 1966), California brown pelicans bred in small numbers on Bird Island near Point Lobos State Reserve (Roberson and Tenney 1993). This colony represented the only known breeding colony north of the Channel Islands, Southern California. Breeding has not been documented within Monterey County since 1966 (Roberson and Tenney 1993).

The CNDDDB contains a single record for this species within the vicinity of the corridor study area. The record documents the location of the historic nesting colony on Bird Island near Point Lobos (CDFG 2000).

### **California Condor**

The California condor (*Gymnogyps californianus*) was federally listed as Endangered on March 11, 1967 and state listed as Endangered on June 27, 1971.

California condors nest in shallow caves on cliff faces that usually have large trees for roosting nearby. Sexual maturity is not reached until six years of age and they may not start breeding until seven or eight. A single egg is laid between late January and early April, which is incubated by both parents and hatches after approximately 56 days (USFWS 1984). Both parents provide parental care and the young bird may not be fully independent of its parents until the following year (USFWS 1984). As a result of the extended period of parental care, adult breeding pairs typically nest every other year. Depending upon the time of year the nestling fledges and the availability of food, an adult pair may be capable of breeding the following year (USFWS 1984).

Factors that are thought to have contributed to the decline of this species include random shooting, lead poisoning, collision, the collection of condors and their eggs, and various other forms of poisoning (DDT, cyanide, strychnine, compound 1080) (USFWS 1984).

In response to the dramatic decline of this species, the effort to capture condors for captive breeding was begun in the early 1980s. The original intent was to leave at least some condors in the wild; however, the decision to capture all remaining wild condors was made following the disappearance of members of four of the five remaining breeding pairs during the winter of 1984-85 (USFWS 1998d). Captive breeding programs were instituted at the San Diego Wild Animal Park, the Los Angeles Zoo, and

the World Center for Birds of Prey in Boise, Idaho. The last remaining wild condor was captured in 1987. In 1998, two captive birds successfully mated and produced the first captive-bred chick. California condors were first reintroduced into the wild in 1992. Through the efforts of the U.S. Fish and Wildlife Service, the Ventana Wilderness Society, the breeding facilities, and various other agencies and organizations the total number of wild birds in California has risen to 30, with an additional 24 in Arizona.

Prior to the severe population declines noted above, California condors bred in the southern Santa Lucia Mountains of Monterey County (Roberson and Tenney 1993). The Central California population of wild birds currently includes 19 individuals, five of which were released in April of this year (J. Davis, pers. comm.). Although another release in Big Sur is not anticipated for the next few years, discussions in regard to the release of condors in the San Simeon area within the next five years are currently underway (J. Davis, pers. comm.).

The captive breeding and release of California condors, although successful, has not been without challenges. Due to the species' highly curious nature, it is easily attracted to human activity. As a result, the birds may be exposed to various human hazards and food. Examples of this curiosity include the observation of young birds congregating on large roadwork equipment and conflicts at human residences (J. Davis, pers. comm.). The Ventana Wilderness Society is currently in the process of developing a mobile deterrent system that will be used on a site-specific basis to attempt to discourage the birds from human interactions (J. Davis, pers. comm.). Concerns have also been raised about the proximity to human activity when condors are visible from the highway. While condors were visible at McWay Canyon landslide (described below), members of the Ventana Wilderness Society erected a plastic fence and helped direct traffic in an effort to protect the birds, spectators, and motorists (J. Davis, pers. comm.).

Historically the condor was known to forage at the Ano Nuevo elephant seal rookery where dead pups and adults, as well as birthing placenta, provided a nutrient rich food source. Recently, condors were documented feeding communally on a beached pinniped near McWay Canyon landslide (Julia Pfeiffer Burns State Park) (J. Davis, pers. comm.). The birds continued to visit the site long after the food was scavenged, illustrating that they may have become habituated to the area (J. Davis, pers. comm.). It is hoped that the birds will discover the Piedras Blancas and Ano Nuevo rookeries (J. Davis, pers. comm.). The elephant seal colony located near Gorda represents an additional potential foraging location for the condors (L. Otter and R. Hyman, pers. comm.).

Five individuals were observed during the field review in the vicinity of Andrew Molera State Park on September 20, 2000.

### **Bald Eagle**

The bald eagle (*Haliaeetus leucocephalus*) was originally listed as federally Endangered on March 11, 1967, its status was lowered to Threatened on August 11, 1995, and by July 6, 1999 it was proposed for delisting. It was state listed as Endangered on June 27, 1971.

Bald Eagles inhabit large trees near rivers, lakes, marshes or other wetland areas. Large, old-growth trees or snags in remote, mixed stands near water are required

(Zeiner *et al.* 1990a). The bald eagle's breeding season extends from February through July, with peak activity occurring between March and June (Zeiner *et al.* 1990a). Individuals usually first breed at four to five years of age. Semialtricial young hatch following an incubation period of 34 to 36 days (Zeiner *et al.* 1990a, Kaufman 1996). Both parents bring prey to the nest, with at least one parent remaining with young almost constantly for the first two weeks (Kaufman 1996). Young typically take first flight at about 10 to 12 weeks of age (Kaufman 1996). Highly susceptible to human disturbance, territories have been abandoned after disturbance from logging, recreational development, and other human activities near nests (Thelander 1973, Zeiner *et al.* 1990a). Typically will not initiate nesting in areas where human disturbance is evident (Zeiner *et al.* 1990a).

Bald eagles have been subjected to a variety of threats including habitat loss, degradation, and disturbance; direct killing for feathers and trophies; direct killing due to misconceptions regarding their impact on domestic livestock; lead poisoning; and bioaccumulation of DDT (USFWS 1995b, USFWS 1999g).

Bald eagles historically nested in small numbers along the Big Sur coast (Roberson and Tenney 1993). Historic nest sites included Torre Canyon and Lafler Canyon (Roberson and Tenney 1993). Breeding was last documented along the Big Sur coast prior to 1937 (Roberson and Tenney 1993). Completion of Coast Highway 1 and the subsequent increase in traffic are thought to be principal causes in the displacement of these local breeders (Roberson and Tenney 1993). Current breeding sites include Lake San Antonio, Lake Nacimiento, Fort Hunter Ligget, and the area between Lake San Antonio and Lake Nacimiento (J. Davis, pers. comm.) There are currently five breeding pairs dispersed across these sites (J. Davis, pers. comm.). During the winter, the local population receives a significant influx of winter migrants and individuals may occur in nearly all habitat types.

Through a contract with the USFWS, the Ventana Wilderness Society has taken an active role in the restoration of bald eagles to the wild. During the course of the reintroduction program begun in 1986, the Ventana Wilderness Society has released 70 eagles to the central coast of California (Ventana Wilderness Society 2000a). The Pacific States Bald Eagle Recovery Plan called for four breeding territories in the Central Coast region, which extends from San Francisco to Ventura, California (Ventana Wilderness Society 2000b, J. Davis, pers. comm.). This objective has been exceeded and breeding bald eagles are now present in the following counties: Alameda, Monterey, San Luis Obispo, and Santa Barbara (Ventana Wilderness Society 2000b).

There are currently no CNDDDB records for this species within the corridor study area. As stated above, the nearest active breeding sites are at Fort Hunter Ligget, Lake San Antonio and Lake Nacimiento. Bald eagles do, however, currently forage along the coast within and adjacent to the Highway 1 corridor (J. Smiley, pers. comm.). Furthermore, bald eagles have been observed perching above Square Black Rock seal beach (J. Smiley, pers. comm.).

### **American Peregrine Falcon**

The American peregrine falcon (*Falco peregrinus anatum*) was federally listed as Endangered on October 13, 1970 and state listed as Endangered on June 27, 1971. On August 25, 1999, the American peregrine falcon was officially delisted in accordance

with the Endangered Species Act. Delisting of a species indicates that the current population is stabilized so that the species is no longer in danger of becoming extinct.

Although the peregrine falcon is a recovering nesting species in California (especially along the central coast), the state population increases significantly during September to early May when northern migrants arrive to winter. These individuals typically winter in areas containing large numbers of shorebirds or waterfowl.

Peregrine falcons traditionally nest on open ledges of vertical cliffs overlooking rivers, lakes or the ocean where waterfowl, shorebird and other bird prey are readily available. City buildings and bridges may also provide nesting sites (Biosystems 1994). Inland marshes, riparian corridors, and coastal wetlands are important foraging areas for breeding, migrating and wintering peregrines (Zeiner *et al.* 1990a).

The American peregrine falcon was once common throughout most of California. Eggshell thinning associated with high DDT concentrations in prey species led to a drastic decline in population numbers beginning in the 1940s. By the mid 1970s, the California population of American peregrine falcon was reduced to approximately 10 breeding pairs (CDFG 1992). The active recovery efforts of various organizations and agencies, such as the Peregrine Fund, the Santa Cruz Predatory Bird Research Group, USFWS, CDFG, USFS, and the Bureau of Land Management, and the restricted use of contaminant pesticides have resulted in the re-establishment of the falcon as a nesting species along the Big Sur coast as well as other portions of its former range.

As of 1993, the breeding population within Monterey County, extending from approximately Hurricane Point to the San Luis Obispo County line, was composed of six to nine pairs (Roberson and Tenney 1993). The presence each year of young birds and non-breeding adult "floaters" make it difficult to determine the exact population size along the Big Sur coast (Roberson and Tenney 1993). Within the study area vicinity, there are currently no CNDDDB records for this species.

### **Western Snowy Plover**

The Pacific coastal populations of the western snowy plover (*Charadrius alexandrinus nivosus*) were federally listed as Threatened on April 5, 1993. The Pacific coastal populations of this species are also designated as a Species of Special Concern by the CDFG.

Western snowy plovers nest singularly or in loose colonies at the upper reaches of sandy coastal beaches, on sandpits, bare beach strands, dune-backed beaches, river estuaries, and around salt evaporator ponds and agricultural drainage ponds (Grinnel and Miller 1944, Page *et al.* 1986, Biosystems 1994). This species is polyandrous, with males building the nests and providing the primary post-hatching care for the young. Females lay an average of 3 eggs per nest. Incubation is shared by both parents and the eggs hatch in approximately 30 days. Both parents feed the young, but the female usually leaves the family group about six days after hatching (Biosystems 1994). The male continues care of the young until fledging, which occurs about one month after hatching. Emancipated from parental care duties, the female usually breeds sequentially with two or three other males. Male snowy plovers will not initiate a second brood until the young from the first brood have fledged.

While this breeding strategy provides the biological basis for rapid population growth, significant declines in western snowy plover numbers have resulted from high levels of disturbance and destruction of nesting sites. Human use of nesting beaches has been the primary cause of decline in this subspecies. Predation by feral animals and introduced red fox, in addition to habitat loss due to the spread of European beach grass, have also contributed to the decline. The federal listing of this subspecies grants protected status to all nesting colonies on the California coast and on offshore islands.

The snowy plover is an uncommon and local resident of suitable habitat in Monterey County (Roberson and Tenney 1993). The local population is composed of permanent residents, migrant breeders, and non-breeding migrants that augment the breeding population during the winter (Roberson and Tenney 1993). Two nesting colonies, located within the study area vicinity, are currently documented in the CNDDDB. Within Monterey County, breeding occurs primarily along the sandy beaches extending from the Pajaro River mouth south to City of Monterey; however, breeding has also been documented near Point Sur, in much smaller numbers (2-3 pairs) (CDFG 2000, Roberson and Tenney 1993). The Draft Recovery Plan for the Pacific Coastal population of this species lists Point Sur and San Carpoforo Creek as current or historic breeding and wintering areas and the Carmel River mouth as a wintering area (USFWS 2001g). During the winter months the number of snowy plovers increases as winter migrants add to the resident population. At Point Sur the winter population may reach 70 to 80 birds (Roberson and Tenney 1993).

### **Swallows**

The swallows present along the Big Sur Coast can be subdivided into two principal groups: mud-nesting swallows and cavity-nesting swallows. Mud-nesting swallows include cliff swallows (*Petrochelidon pyrrhonota*) and barn swallows (*Hirundo rustica*), both of which form colonial nesting aggregations where they build mud nests that adhere to the underside of bridges, in culverts, and on the sides of buildings. The cavity-nesting swallows include the purple martin (*Progne subis*), tree swallow (*Tachycineta bicolor*), violet green swallow (*Tachycineta thalassina*), and northern rough-winged swallow (*Stelgidopteryx serripennis*). Both species of mud-nesting swallows are common summer residents of the Monterey County lowlands (Roberson and Tenney 1993).

The purple martin is a scarce and local summer resident of Monterey County (Roberson and Tenney 1993). With the exception of two colonies using man-made structures, Torre Canyon Bridge and Buck Creek Bridge, all current colonies nest in cavities within dead pines and live sycamores, although cottonwoods and oaks have also been used historically (Roberson and Tenney 1993).

The tree swallow is a fairly common, but local, summer resident of Monterey County (Roberson and Tenney 1993). Nest sites are typically associated with lowland lakes, rivers, and ponds (Roberson and Tenney 1993). Breeding along the Big Sur Coast appears to be very limited, 1989 records from the Big Sur River mouth represent the only tree swallow breeding records for this portion of the coast (Roberson and Tenney 1993).

The violet-green swallow is a common summer resident of Monterey County, inhabiting oak savannah, montane coniferous forest, and closed-cone pine forest (Roberson and

Tenney 1993). Nesting has been documented along much of the Big Sur coastline (Roberson and Tenney 1993).

Of the cavity-nesting swallows, only the northern rough-winged swallow does not use cavities excavated by woodpeckers as its primary nesting habitat. The northern rough-winged swallow is a fairly common summer inhabitant of lowland waterways, in close proximity to appropriate nesting sites, throughout Monterey County (Roberson and Tenney 1993). Natural cavities in riverbanks, seacliffs, and man-made sea walls, and old bank swallow burrows may be used as nest sites (Roberson and Tenney 1993). This species breeds in small numbers at a few locations along the Big Sur coastline, including Point Lobos (Roberson and Tenney 1993).

These swallows are protected under the provisions of the Migratory Bird Treaty Act, and take of these species, including disturbance to or destruction of nesting sites, is prohibited. With the exception of the purple martin, the CNDDDB does not track populations of the above listed swallows. There are currently no CNDDDB records for the purple martin within the study area vicinity; however, breeding was confirmed at various locations within the study area vicinity during the Monterey County Breeding Bird Atlas project (Roberson and Tenney 1993).

### **Southern Sea Otter**

The southern sea otter (*Enhydra lutris nereis*) was federally listed as Threatened on January 14, 1977 and is also protected under the Marine Mammal Protection Act. This species is also designated as Fully Protected by the CDFG.

The southern sea otter is found from Half Moon Bay south to Gaviota, California (USFWS 2000e). Approximately 2,300 individuals make up the population of southern sea otters, with an additional 20 otters at San Nicolas Island (USFWS 2000e, G. Sanders, pers. comm.). The otters at San Nicolas Island were translocated there in an effort to establish an external California population (USFWS 2000e). Sea otters occupy hard and soft sediment habitats from the littoral zone to depths of about 164 to 328 feet (~50 to 100 meters) in protected bays to exposed outer coasts (USFWS 2001e). Southern sea otters prefer unpolluted waters that are free from human disturbances and that contain sufficiently abundant prey to fulfill their energy and nutritional requirements (USFWS 2000e).

The southern sea otter is the smallest of the marine mammals in North America (Boitani 1982). Adult males of the species weigh approximately 64 pounds (~30 kilograms), while females weigh approximately 44 pounds (~20 kilograms) (USFWS 2001e). Sea otters are brownish black with a grayish or yellowish head and neck. Sea otters have the densest fur of any mammal. This water-resistant fur provides an insulating layer to protect against the cold water environment they inhabit. Sea otters feed on marine invertebrates, including sea urchins, abalone, rock crabs, kelp crabs, and clams (USFWS 2001e). This species forages close to shore, diving in kelp forests, and along rocky reefs. To open a prey item, the otter places a rock on its belly and strikes the prey item against the rock, an ability that is unique among marine mammals. Following the attainment of sexual maturity at approximately 5 years of age, most female sea otters give birth to one pup each year (Zeiner 1990). After pups are born they stay with the mother for an average of six months. The life span of a sea otter is approximately 15 years (USFWS 2001e).

Up until the 1700s, sea otters were abundant along the North Pacific shores, from Japan to the Alaskan Peninsula and down the coast to Baja California. Historians estimate there were 150,00 to 300,000 animals throughout this range, with 16,000 to 20,000 in California alone (USFWS 2000e). In 1741, Russian explorers discovered sea otters and their fur pelts on islands off Alaska (USFWS 2000e). This discovery launched a slaughter that would last over 150 years. Fur hunting moved south to California and during the peak years, an estimated 500 to 600 sea otters were taken every week from San Francisco Bay alone (USFWS 2000e). By the time the International Fur Seal Treaty of 1911 finally established protection for the sea otters, there were only 1,000 to 2,000 left throughout their entire range (USFWS 2000e). Once thought to be extinct, biologists discovered the sole remaining group of California sea otters near Bixby Creek along the Big Sur Coast in 1915. Their presence remained a secret until the public became aware of the population on April 15, 1938 (Marine Mammals Management 2000). In the mid-1970s, the population began to decline due to otters drowning in gill nets set near the shores where otters forage, and oil spills, which mat their fur causing the otter to die of hypothermia. Today, the biggest threat to the species is oil pollution. Other factors thought to contribute to population declines include disease, contamination of the coastal environment, and drowning in fishing equipment. Additionally, sidecasting and sediment plumes may affect the species at a localized level (G. Sanders, pers. comm.).

In 1987, the USFWS translocated southern sea otters from the mainland to San Nicolas Island, located approximately 60 miles (~97 kilometers) off the shore of Ventura County. The primary goal of the translocation was to establish a colony of southern sea otters sufficiently far from the mainland that the potential of a human or natural catastrophe affecting the entire population would be reduced (USFWS 1999e). The primary concern was the risk of oil spills. Since the translocation, the Exxon Valdez spill has shown that the measures to contain the spill and rehabilitate sea otters are likely to be ineffective in protecting the population (USFWS 1999e). Additionally, information gained from the spill indicates that mortality of sea otters could continue to occur for an extended period of time after the spill (USFWS 1999). The recovery team concluded that the most appropriate measure to protect southern sea otters from a catastrophic event would be a larger number of individuals over a large area of suitable habitat (USFWS 1999e). Based on survey information including the results of the Exxon Valdez oil spill, USFWS is currently involved in the process of re-evaluating the translocation program.

Annual spring and fall surveys designed to estimate population numbers are conducted along the coast from Santa Barbara to Half Moon Bay by the USFWS (G. Sanders, pers. comm.). From 1996 to 1999, survey counts showed a steady decline in the number of animals to a low of 2,090 individuals; however, the 2000 survey suggested a marked increase in population numbers to approximately 2,300 individual animals. As a result of the differences in the observability of otters caused by weather, environmental conditions, and the large study area, caution must be taken when drawing conclusions from the survey results (G. Sanders, pers. comm.). In summary, the USFWS does not view the information from the spring 2000 count as sufficient evidence to permit a conclusion that the recent decline of the southern sea otter population has been reversed (USFWS 1999e). The spring 2001 surveys were being conducted during the writing of this document.

**Steller (Northern) Sea Lion**

The Steller sea lion (*Eumetopias jubatus*) was federally listed as Threatened on April 5, 1990, and is also protected under the Marine Mammal Protection Act. Based on biological information collected since the species was listed, the National Marine Fisheries Service (NMFS) has reclassified the species into two distinct populations (USFWS 1997b). In 1997, the Steller seal lion population west of 144° West longitude (near Cape Suckling, AK) was reclassified as endangered; while the threatened listing was maintained for the remainder of the U.S. population (USFWS 1997b). The current rule listing the Steller sea lion as a threatened species contains a series of management measures to reduce direct causes of mortality, to restrict opportunities for the intentional and unintentional harassment of Steller sea lions, and to minimize disturbance and interference with the species' behavior, including disruption of foraging behavior, especially at pupping and breeding sites (USFWS 1997b). In 1993, NMFS designated critical habitat for the species, which includes all U.S. rookeries, major haulouts in Alaska, horizontal and vertical buffer zones around these rookeries and haulouts, and three aquatic foraging areas in North Pacific waters (USFWS 1997b). In California, critical habitat includes rookeries and zones extending 3000 feet (~914 meters) landward, seaward, and skyward of rookeries (USFWS 1997b).

The Steller sea lion is the largest of the eared seals. Males of this species are 20-30 percent larger than females, both in length and weight. Males of the species may grow to 11 feet (~3.25 meters) in length and weigh up to almost 2,500 pounds (~1120 kilograms), while females are much smaller, growing up to 9 feet (~2.7 meters) in length and 770 pounds (~350 kilograms) in weight (Boitani 1982). Steller sea lions are light tan to reddish brown in color and have a bulky build with a very thick neck, which resembles a lion's mane. Steller sea lions are found throughout the North Pacific rim from Japan to central California (USFWS 1997b). This species tends to remain offshore or haul out in unpopulated areas. Breeding occurs along the North Pacific rim from Año Nuevo Island in central California to the Kuril Islands North of Japan, with the greatest concentration of rookeries in the Gulf of Alaska and Aleutian Islands (TMMC 2000). Pups are born on offshore islands from mid-May to mid-July, and weigh 35 to 50 pounds (~16 to 23 kilograms) (Boitani 1982). Mothers stay with pups for one to two weeks before hunting at sea, thereafter they spend roughly equal amounts of time hunting and nursing pups on land (TMMC 2000). Mating occurs soon after the pups are born; however, the fertilized egg does not become implanted in the uterus until the following October (Boitani 1982). Dominant mature males maintain territories for one to two months, breeding with many females (TMMC 2000).

The U.S. population of the Steller sea lions, which numbered close to 192,000 adults and juveniles (nonpups) 30 years ago, declined by 64 percent to less than 69,100 nonpups by 1989 (USFWS 1997). In California, reasons for this decline are not well known. Researchers believe that a decline in the prey base (primarily fish) is the foremost cause (TMMC 2000). The reduction in the availability of suitable terrestrial and aquatic habitat and disturbance are thought to be contributing factors in the population's decline.

The Monterey Bay National Marine Sanctuary (the Sanctuary) conducted pinniped surveys along the Big Sur coast in 1998. These surveys documented locations of haul-out sites for multiple pinniped species including the Steller sea lion. From the southern limits to the northern limits of the CHMP project corridor, 74 independent haul-outs, and

171 Steller sea lions were identified. The 1998 data represent the Sanctuary's most current haul-out information (E. Burton, pers. comm.).

## **Plants**

### **La Graciosa thistle**

La Graciosa thistle (*Cirsium loncholepis*) is a perennial herb of the sunflower family (Asteraceae). It inhabits mesic coastal dunes, brackish marshes, and riparian scrub (Skinner and Pavlik 1994, CDFG 2000). Micro-site characteristics include edges of dune lakes, riverbanks, and moist dune swales (USFWS 2000d, CDFG 2000). La Graciosa thistle is known from approximately 20 occurrences (Skinner and Pavlik 1994). Records currently exist for Monterey, San Luis Obispo, and Santa Barbara counties (CDFG 2000, Skinner and Pavlik 1994). The majority of the plants occur in southern San Luis Obispo County and northern Santa Barbara County; a single disjunct population has been documented along a coastal drainage in south Monterey County (USFWS 2000d).

The bloom period extends from June to August (Skinner and Pavlik 1994). Its elevational range extends from 4 to 220 meters (~13 to 722 feet) above mean sea level (CDFG 2000).

La Graciosa thistle was federally listed as Endangered on March 20, 2000 and state threatened in February of 1990. It is listed as a 1B plant by the CNPS. Recognized threats to the species include coastal development, groundwater pumping, oil field development, vehicles, competition with non-native plants, and livestock grazing (U.S. Fish and Wildlife Service 2000d, Skinner and Pavlik 1994).

There is currently one CNDDDB occurrence record within the study area corridor. Approximately 50 plants were reported about 0.25 – 0.5 mile (~0.4 to 0.8 kilometer) east of Highway 1 along Willow Creek Road, east of Cape San Martin. The site is located within the Los Padres National Forest.

### **Gowen cypress**

Gowen cypress (*Cupressus goveniana* ssp. *goveniana*) is an evergreen tree of the cypress family (Cupressaceae). It inhabits closed-cone pine/cypress forests on coastal terraces in Monterey County (Skinner and Pavlik 1994, CDFG 2000). A narrow endemic of Monterey County, Gowen cypress occurs on acidic podsol soils underlain by a clay hardpan (CDFG 2000, Patterson *et al.* 1995). Its elevational range extends from 30 to 300 meters (~98 to 984 feet) above mean sea level (CNPS 2000). Cultivated individuals may be found locally at various locations within the Peninsula (USFWS 1998a). Gowen cypress is a fire adapted species, possessing cones that remain attached to the tree, retaining their seeds, typically until heat from a fire breaks the cones' resinous seal, allowing the seeds to escape (USFWS 1998a).

Gowen cypress was federally listed as threatened on August 12, 1998. It currently has no state status and is listed as a 1B plant by the CNPS. Urban development, fire suppression activities, and invasion of non-native plants are considered to be the primary threats to this species (Skinner and Pavlik 1994, USFWS 1998a).

Only two natural stands of Gowen cypress are known to exist (Skinner and Pavlik 1994, USFWS 1998a). The largest stand is located near Huckleberry Hill on the western side

of the Monterey Peninsula (referred to as the Del Monte Forest) and the second stand, smaller in size, occurs 6 miles (~10 kilometers) south of Point Lobos State Reserve near Gibson Creek (USFWS 1998a). The Del Monte Forest stand is located on lands owned by the Pebble Beach Company and the Del Monte Forest Foundation (USFWS 1998a). The stand near Gibson Creek is located on lands administered by the California Department of Parks and Recreation (USFWS 1998a). Within the study area vicinity there are currently 3 CNDDDB occurrence records for this species. Two of the records are from the Del Monte Forest and the third is from the stand near Gibson Creek (CDFG 2000). The occurrence record near Gibson Creek is located about 0.1 to 0.7 mile (~0.2 to 1.1 kilometers) east of Highway 1 (CDFG 2000). Although suitable habitat for this species may be present within the corridor study area, it is unlikely that naturally occurring individuals of this species are present within the corridor study area (J. Norman, pers. comm.).

### **Yadon's rein orchid**

Yadon's rein orchid (*Piperia yadonii*) is a perennial herb of the orchid family (Orchidaceae). This species inhabits Monterey pine forests, and maritime chaparral in northern Monterey County (USFWS 1998a, Skinner and Pavlik 1994). The center of its distribution is the Monterey Peninsula within the larger undeveloped tracts of Monterey pine forest (USFWS 1998a). The southernmost record for this species is at a single location in maritime chaparral near Palo Colorado Canyon, approximately 15 miles (~24 kilometers) south of the Monterey Peninsula (J. Norman, pers. comm., USFWS 1998a). Intensive surveys to document the occurrence and abundance of Yadon's rein orchid within the Monterey Peninsula and beyond the Peninsula in western Monterey County were conducted in 1995 and 1996 (USFWS 1998a). Through the course of these surveys, all known sites within the range of Yadon's rein orchid since 1990 were visited and approximately 84,000 individual plants were counted (USFWS 1998a). The greatest concentrations of this species, approximately 67 percent of all known plants, were found dispersed throughout the remaining Monterey pine forest on the Monterey Peninsula, which is owned by the Pebble Beach Company and the Del Monte Forest Foundation (Allen 1996, USFWS 1998a).

The bloom period extends from May to August (Skinner and Pavlik 1994). Its elevational range extends from 10 to 415 meters (~33 to 1362 feet) above mean sea level (CNPS 2000).

Yadon's rein orchid was federally listed as Endangered on August 12, 1998. It currently has no state status; however, it is listed as a 1B plant by the CNPS. Recognized threats to this species include continued habitat fragmentation and destruction due to urban development and recreational development, non-native plants, road maintenance, and potentially an increase in deer grazing of flower stems (CNPS 2000, Skinner and Pavlik 1994, USFWS 1998a).

Within the study area vicinity, there are currently 13 CNDDDB occurrence records for this species. Eleven of these occurrence records are in the Monterey quadrangle and the remaining 2 are in the Soberanes Point quadrangle.

**Hickman's cinquefoil**

Hickman's cinquefoil (*Potentilla hickmanii*) is a perennial herb of the rose family (Rosaceae). It inhabits coastal bluff scrub, closed-cone coniferous forest, vernal mesic meadows, and freshwater marshes (Skinner and Pavlik 1994). Two records from Monterey County, and a third from San Mateo County, represent the only historical locations for Hickman's cinquefoil (USFWS 1998a, Skinner and Pavlik 1994).

Hickman's cinquefoil was federally listed as Endangered on August 12, 1998 and state listed as endangered in September of 1979. It is listed as a 1B plant by the CNPS. Recognized threats to the species include urbanization, recreational activities, non-native grasses, and grazing (CNPS 2000, Skinner and Pavlik 1994).

The bloom period extends from April to August (Skinner and Pavlik 1994). Its elevational range extends from 10 to 135 meters (~33 to 443 feet) above mean sea level (CNPS 2000).

Of the three historical occurrence locations of this species, one is presumed extirpated, while the remaining two are known to be extant (USFWS 1998a). The presumed extirpated population, located near the Pacific Grove reservoir, was first documented in 1902 and was documented again in 1932 (USFWS 1998a). A survey of this area conducted in 1992 yielded no observations of Hickman's cinquefoil or suitable habitat for it (Ferreira 1995, USFWS 1998a). The remaining extant population in Monterey County occurs on land owned by the Pebble Beach Company, in an opening within Monterey pine forest on the western edge of the Peninsula. This site was surveyed in 1992 and twice in 1995, during which no more than 24 individuals were observed (Ferreira 1995, Jones and Stokes 1996, USFWS 1998a). The occurrence within San Mateo County was first documented in 1905, and again in 1933, at Moss Beach near Half Moon Bay (USFWS 1998a). Although this population was believed to be extirpated, it was rediscovered in 1995 by a Caltrans biologist surveying for a highway project (R. Vonarb, pers. comm., USFWS 1998a). This population occurs on grassland slopes on private lands and was estimated to contain between 2,000 and 3,000 individuals in 1995 and 1996 (USFWS 1998a).

Although suitable habitat may be present within the corridor study area, presence of this species within the corridor study area is not expected due to the highly restricted nature of its current range.

**PRELIMINARY WETLAND ASSESSMENT****Potential Jurisdictional Waters**

A total of 368 potential jurisdictional features were identified and mapped during the field review. These features were divided into six primary categories by type. The totals for each category are as follows: small ephemeral drainage = 216, stream/creek = 100, river = 3, seep/spring = 44, pond = 2, and potential wetland = 3. Appendices B - F document the location, name (if known), presence or absence of hydric soils, and National Wetland Inventory (NWI) classification for each potential jurisdictional feature category identified within the corridor study area during the field review. The mapping contained within Appendix A provides the location of each potential jurisdictional feature identified during the field review.

Wetland delineations were not completed during the field review. Key site characteristics used to determine potential jurisdictional status included indicators for the presence of water, incision, and presence of hydrophytic vegetation. Soil surveys for Monterey County and San Luis Obispo County were reviewed to determine the presence of hydric soils within the corridor study area. Thirty-three of the potential jurisdictional features were documented as having hydric soils. Additionally, 34 of the potential jurisdictional features were found to occur within soil types in which the component is non-hydric; however, inclusions within the soil type may be hydric. These areas will require further work to determine if the feature(s) are on hydric or non-hydric soils. A list of the hydric and potentially hydric soils for Monterey and San Luis Obispo counties found within the project corridor is provided in Appendix G.

The NWI classification was recorded for all features with a classification on the NWI maps, as shown in Appendices B - D. A total of 47 features were found to have an NWI classification. NWI maps were not available for the Point Sur, Villa Creek, and Burro Mountain quadrangles; therefore, an NWI classification was not determined for features occurring on these quadrangles.

Federal Emergency Management Agency (FEMA) floodplain maps were used to identify floodplain boundaries within the corridor study area. According to the floodplain maps, areas around San Carpoforo Creek, Big Sur River, an intermittent drainage just north of Swiss Canyon Creek, Little Sur River, Bixby Creek, Palo Colorado Canyon Creek, Malpaso Creek, San Jose Creek, and the Carmel River are susceptible to 100-year flood events.

**REFERENCES**

- Abrams, L. 1923. An Illustrated Flora of the Pacific States: Washington, Oregon, and California, Vol. I. Stanford University Press, Stanford, CA.
- Abrams, L. 1944. An Illustrated Flora of the Pacific States: Washington, Oregon, and California, Vol. II. Stanford University Press, Stanford, CA.
- Abrams, L. 1951. An Illustrated Flora of the Pacific States: Washington, Oregon, and California, Vol. III. Stanford University Press, Stanford, CA.
- Abrams, L. and R. S. Ferris. 1960. An Illustrated Flora of the Pacific States: Washington, Oregon, and California, Vol. IV. Stanford University Press, Stanford, CA.
- Allen, D. 1996. Results of Two Consecutive Years of Surveys for Yadon's piperia (*Piperia yadonii*) 1995 and 1996. Prepared for: Pebble Beach Company. 11pp. + appendices.
- Arnold, R. A. 1991. Status Surveys and Habitat Assessment for the Endangered Smith's Blue Butterfly at the Garland Ranch Regional Park in Carmel Valley, California. Entomological Consulting Services, Ltd., Pleasant Hill, CA.
- Biosystems (Biosystems Analysis, Inc.). 1994. Life on the Edge: a Guide to California's Endangered Natural Resources, Wildlife. Heyday Books, Berkeley, CA. 550 pp.
- Boitani, L. 1982. Simon and Schuster's Field Guide to Mammals. Simon & Schuster Inc. New York, NY.
- Burgner, R. L., J. T. Light, L. Margolis, T. Okazaki, A. Tautz, and S. Ito. 1992. Distribution and origins of steelhead trout (*Oncorhynchus mykiss*) in offshore waters of the North Pacific Ocean. Int. North Pac. Fish. Comm. Bull.
- Burt, W. H., and R. P. Grossenheider. 1976. A Field Guide to the Mammals of North America north of Mexico. Houghton Mifflin Company, New York, NY.
- California Department of Fish and Game (CDFG). 1992. Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants. Calif. Dept. of Fish and Game, Sacramento, CA. 203 pp.
- California Department of Fish and Game (CDFG). 1999. California Wildlife Habitat Relationships System, Electronic Version 7.0. California Department of Fish and Game in cooperation with California Interagency Wildlife Task Group, Sacramento, CA.
- California Department of Fish and Game (CDFG). 2000. Natural Diversity Data Base. California Department of Fish and Game, Natural Heritage Division. July 2000.
- California Department of Transportation (Caltrans). 1997. Guidance for Consultants – Procedures for Completing the Natural Environmental Study and Related Biological Reports. Caltrans, Environmental Program, Biological Studies Branch.

California Exotic Plant Pest Council (CalEPPC). 1999. Exotic Pest Plants of Greatest Ecological Concern in California. CalEPPC, San Juan Capistrano, CA.

California Native Plant Society. 2000. Inventory of Rare and Endangered Vascular Plants of California: Electronic Version 1.5.2, 1994-2000.

California Resources Agency. 1999. California Coastal Act. Available: [http://ceres.ca.gov/topic/env\\_law/cca/summary.html](http://ceres.ca.gov/topic/env_law/cca/summary.html). Last Revised: June 21, 1999. Accessed: September 5, 2001.

Center for Assessment and Monitoring of Forest and Environmental Resources (CAMFER). 2001. Monitoring Sudden Oak Death in California. Available: <http://camfer.cnr.berkeley.edu/oaks/SODdistribution.html>. Accessed: October 1, 2001.

Dunn, J. and K. Garrett. 1997. A Field Guide to the Warblers of North America. Houghton Mifflin Company, New York, NY.

Federal Highway Administration (FHWA). 1995. National Scenic Byways Program. Federal Register, Vol. 60, No. 96. May 18, 1995.

Ferguson, A., S. S. Gustafson, T. Ribe, and J. Smiley. 1988. Landels-Hill Big Creek Reserve (brochure and supplemental flyer). University of California, Santa Cruz, CA.

Ferreira, J. 1995. The Status of Four Rare Plants of Pebble Beach, Monterey County, California. Unpublished report for the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, CA.

Finch, D. M. and S. H. Stoleson (eds.). 2000. Status, Ecology, and Conservation of the Southwestern Willow Flycatcher. Gen. Tech. Rep. RMRS-GTR-60. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 131 pp.

Grenfell, Jr., W. E. 1988a. Montane Riparian. Pages 84-85 in Mayer, K. E. and W. F. Laudenslayer, Jr., eds. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, CA.

Grenfell, Jr., W. E. 1988b. Valley Foothill Riparian. Pages 86-87 in Mayer, K. E. and W. F. Laudenslayer, Jr., eds. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, CA.

Grenfell, Jr., W. E. 1988c. Riverine. Pages 130-131 in Mayer, K. E. and W. F. Laudenslayer, Jr., eds. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, CA.

Grinnell J. and A. J. Miller. 1944. The Distribution of the Birds of California. Pacific Coast Avifauna No. 27.

Hayes, M. P. and M. R. Jennings. 1988. Habitat Correlates of Distribution of the California Red-legged Frog (*Rana aurora draytonii*) and the Foothill Yellow-legged Frog (*Rana boylei*): Implications for Management. Paper presented at symposium, Management of Amphibians, Reptiles, and Small Mammals in North America. Flagstaff, AZ, July 19-21, 1988.

- Hickman, J. C., editor. 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley, CA.
- Holland, R. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. California Department of Fish and Game, Sacramento, CA.
- Ingles, L. G. 1965. Mammals of the Pacific States: California, Oregon, and Washington. Stanford University Press, Stanford, CA.
- Irwin, J.F. and D.L. Soltz. 1984. The Natural History of the Tidewater Goby, *Eucyclogobius newberryi*, in the San Antonio and Schuman Creek System, Santa Barbara County, California. U.S. Fish and Wildlife Service, Sacramento Endangered Species Office Contract No. 11310-0215-2.
- Jameson, E. W. and H. J. Peeters. 1988. California Mammals. University of California Press, Berkeley, CA.
- Jennings, M. R., and M. P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. California Department of Fish and Game, Rancho Cordova, CA.
- Jennings, M. R. 1996. Status of Amphibians. Pages. 921-944. In Sierra Nevada ecosystem project: Final report to Congress, Vol. II: Assessments and Scientific Basis for Management Options. Wildland Resources Center Report No. 37 ISBN I-887673-01-6.
- Jensen, D. B. 1988. Closed-Cone Pine-Cypress. Pages 68-69 in Mayer, K. E. and W. F. Laudenslayer, Jr., eds. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, CA.
- Jones & Stokes Associates, Inc. 1996. Final Recovery Strategies for Six Coastal Plant Species on the Monterey Peninsula. May. (JSA 95-079.) Sacramento, CA. Prepared for California Department of Fish and Game, Monterey, CA.
- Keil, D. J. and M. G. McLeod. 1986. Rare Plants in the Arroyo de la Cruz Endemic Area, San Luis Obispo County, California. Pages 141-154 in Elias, T. S. ed. 1986. Conservation and Management of Rare and Endangered Plants. California Native Plant Society, Sacramento, CA.
- Kellner, C. 1989. Survey for Smith's Blue Butterflies Along the Big Sur Coast, Monterey County, California. LSA Associates Inc., Point Richmond, CA.
- L.A. deWit. 1998. Corridor Inventory of Intertidal Resources and Sensitive Habitats. Prepared for Caltrans.
- Marine Mammal Center (TMMC). 2000. Steller Sea Lion (SSL) or Northern Sea Lion (NSL). Last revised: June, 2000. Available: <<http://www.tmmc.org/stellarsl.htm>>. Accessed: April 26, 2001.
- Marine Mammals Management. 2000. The Sea Otter. Last revised February 2000. Available: <<http://www.biology.ucsc.edu/people/williams/jeanine/history.html>>. Accessed: April 20, 2001.

- Matthews, M. A. 1997. An Illustrated Field Key to the Flowering Plants of Monterey County and Ferns, Fern Allies, and Conifers. California Native Plant Society, Sacramento, CA.
- Mayer, K. E. and W. F. Laudenslayer Jr. (eds.). 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, CA.
- Mayer, K. E. 1988. Redwood. Pages 60-61 in Mayer, K. E. and W. F. Laudenslayer, Jr., eds. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, CA.
- McBride, J. R., and C. Reid. 1988. Urban. Pages 142-143 in Mayer, K. E. and W. F. Laudenslayer, Jr., eds. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, CA.
- McGinnis, S. M. 1984. Freshwater Fishes of California. University of California Press, Berkeley, CA.
- Monterey County Planning Department. 1985. Carmel Area Land Use Plan, Local Coastal Program, Monterey County, CA. Amended and Certified by the Coastal Commission January 22, 1985.
- Monterey County Planning Department. 1986 (as amended in 1996). Big Sur Land Use Plan, Local Coastal Program, Monterey County, CA. Certification acknowledged by the California Coastal Commission on April 10, 1986.
- Munz, P. 1959. A California Flora. University of California Press, Berkeley, CA.
- National Marine Fisheries Service. 2000. Designated critical habitat: Critical habitat for 19 evolutionarily significant units of salmon and steelhead in Washington, Oregon, and California. Federal Register, Vol. 65, No. 32. February 16, 2000.
- National Oceanic and Atmospheric Administration (NOAA). 1998. Monterey Bay National Marine Sanctuary: Law, Regulations, Permitting and Review. Last revised: February 18, 1998. Site visited: September 25, 2001. Available: [http://www.mbnms.nos.noaa.gov/Resourcepro/resource\\_pro.html](http://www.mbnms.nos.noaa.gov/Resourcepro/resource_pro.html).
- Page, G. W., F. C. Bidstrup, R. J. Ramer, and L. W. Stenzel. 1986. Distribution of Wintering Snowy Plovers in California and Adjacent States. West. Birds 17: 145-170.
- Palmer, R. S., ed. 1962. Handbook of North American Birds. Vol. 3. Yale University Press, New Haven, CT. 560pp.
- Patterson, R., A. E. Hiss, and A. E. David. 1995. The Rare Plant Species of Point Lobos State Reserve. Report Prepared for California Department of Parks and Recreation, Monterey, CA.
- Pearson, D. C. 1988. Eucalyptus. Pages 82-83 in Mayer, K. E. and W. F. Laudenslayer, Jr., eds. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, CA.

- Peterson, R. T. 1990. A Field Guide to Western Birds. Houghton Mifflin Company, Boston, MA.
- Rising, J. D. 1996. A Guide to the Identification and Natural History of the Sparrows of the United States and Canada. Academic Press, San Diego, CA.
- Roberson, D. 1985. Monterey Birds. Monterey Peninsula Audubon Society, Carmel, CA.
- Roberson, D. and C. Tenney (eds.). 1993. Atlas of the Breeding Birds of Monterey County California. Monterey Peninsula Audubon Society, Monterey, CA.
- Roberson, D. 2000. Carmel River Mouth Area Bird List. <http://montereybay.com/creagus/crmlist.html>.
- Sawyer, J. O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society, Sacramento, CA.
- Skinner, M. W. and B. M. Pavlik (eds.). 1994. Inventory of Rare and Endangered Vascular Plants of California, Fifth Edition. California Native Plant Society, Sacramento, CA.
- State of California, Department of Food and Agriculture. 2000. Pest Rating of Noxious Weed Species and Noxious Weed Seed. State of CA, Department of Food and Agriculture, Division of Plant Health and Pest Prevention Services. <http://pi.cdfa.ca.gov/weedinfo>.
- Stebbins, R. C. 1985. A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Company, New York, NY.
- Storer, T. I. 1925. A Synopsis of the Amphibia of California. University of California Publications in Zoology 27:1-342.
- Swift, C. C., J. L. Nelson, C. Maslow, and T. Stein. 1989. Biology and Distribution of the Tidewater Goby, *Eucyclogobius newberryi* (Pisces, Gobiidae) of California. Natural History Museum of Los Angeles County, No. 404.
- Thelander, C. G. 1973. Bald Eagle Reproduction in California, 1972-1973. California Department of Fish and Game, Sacramento. Wildlife Management Branch Admin. Rep. 73-5.
- Unitt, P. 1987. *Empidonax traillii extimus*: An Endangered Subspecies. Western Birds 18(3): 137-162.
- U.S. Department of Agriculture, Forest Service (USFS). 1998. Big Sur Management Area Invasive Weed Index. USDA Forest Service, Los Padres National Forest, Monterey Ranger District.
- U.S. Department of Agriculture, Soil Conservation Service. 1972. Soil Survey of Monterey County, California.

U.S. Department of Agriculture, Soil Conservation Service. 1977. Soil Survey of San Luis Obispo County California: Coastal Part.

U.S. Fish and Wildlife Service. 1984. California Condor Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR.

U.S. Fish and Wildlife Service. 1992. Six Plants and Myrtle's Silverspot Butterfly from Coastal Dunes in Northern and Central California Determined to be Endangered. Federal Register. June 22, 1992.

U.S. Fish and Wildlife Service. 1994a. Determination of Endangered Status for the Tidewater Goby, Final Rule. Federal Register. February 4, 1994.

U.S. Fish and Wildlife Service. 1994b. Endangered Status for Three Plants and Threatened Status for One Plant from Sandy and Sedimentary Soils of Central Coastal California. Federal Register. February 4, 1994.

U.S. Fish and Wildlife Service. 1994c. Endangered or Threatened Status for Five Plants and the Morro Shoulderband Snail from Western San Luis Obispo County, California. Federal Register. December 15, 1994.

U.S. Fish and Wildlife Service. 1994d. Determination of Endangered Status for the Conservancy Fairy Shrimp, Longhorn Fairy Shrimp, and Vernal Pool Tadpole Shrimp; and Threatened Status for the Vernal Pool Fairy Shrimp. Federal Register. September 17, 1994.

U.S. Fish and Wildlife Service. 1995a. Brown Pelican (*Pelecanus occidentalis*): Endangered Species Success Story. Biologue Series. U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 1995b. Bald Eagle (*Haliaeetus leucocephalus*): Endangered Species Success Story. Biologue Series. U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 1997a. Guidance on Site Assessment and Field Surveys for California Red-legged Frogs.

U.S. Fish and Wildlife Service. 1997b. Threatened Fish and Wildlife: Change in Listing Status of Steller Sea Lions Under the Endangered Species Act. Federal Register, Vol. 62, No. 86. May 5, 1997.

U.S. Fish and Wildlife Service. 1998a. Final rule listing five plants from Monterey County, CA, as endangered or threatened. Federal Register, Vol. 63, No. 155. August 12, 1998.

U.S. Fish and Wildlife Service. 1998b. Recovery Plan for Marsh Sandwort (*Arenaria paludicola*) and Gambel's Watercress (*Rorippa gambelii*). U.S. Fish and Wildlife Service, Portland, OR. 50pp. + appendices.

U.S. Fish and Wildlife Service. 1998c. Recovery Plan for Upland Species of the San Joaquin Valley, California. Region 1, Portland, OR. 319pp.

U.S. Fish and Wildlife Service. 1998d. California Condor (*Gymnogyps californianus*). <http://www.fws.gov>. August 1998.

U.S. Fish and Wildlife Service. 1999a. Arroyo Southwestern Toad (*Bufo microscaphus californicus*) Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR. Vi + 119pp.

U.S. Fish and Wildlife Service. 1999b. Proposed Designation of Critical Habitat for the Tidewater Goby. Federal Register, Vol. 64, No. 148. August 3, 1999.

U.S. Fish and Wildlife Service. 1999c. Designation of Critical Habitat for the Pacific Coast Population of the Western Snowy Plover. Federal Register, Vol. 64, No. 234. December 7, 1999.

U.S. Fish and Wildlife Service. 1999d. Proposed Threatened Status for the Mountain Plover. Federal Register, Vol. 64, No. 30. February 16, 1999.

U.S. Fish and Wildlife Service. 1999e. Reinitiation of Formal Consultation on the Containment Program for the Southern Sea Otter (1-8-99-FW-81).

U.S. Fish and Wildlife Service. 1999f. Proposed Rule to Remove the Northern Populations of the Tidewater Goby From the List of Endangered and Threatened Wildlife. Federal Register, Vol. 64, No. 121. June 24, 1999.

U.S. Fish and Wildlife Service. 1999g. Proposed Rule to Remove the Bald Eagle in the Lower 48 States From the List of Endangered and Threatened Wildlife. Federal Register. Vol. 64, No. 128. July 6, 1999.

U.S. Fish and Wildlife Service. 2000a. Draft Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, OR. 258pp.

U.S. Fish and Wildlife Service. 2000b. Proposed Designation of Critical Habitat for the California Red-legged Frog (*Rana aurora draytonii*); Proposed Rule. Federal Register, Vol. 65, No. 176. September 11, 2000.

U.S. Fish and Wildlife Service. 2000c. Draft Economic Analysis of Critical Habitat Designation for the Tidewater Goby. Division of Economics, U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 2000d. Final Rule for Endangered Status for Four Plants from South Central Coastal California. Federal Register, Vol. 65, No. 54. March 20, 2000.

U.S. Fish and Wildlife Service. 2000e. Marine Mammals Management – Sea Otter. Last revised February 15, 2000. Available: <http://www.r7.fws.gov/mmm/seaotter.html>. Accessed: April 26, 2001.

U.S. Fish and Wildlife Service. 2000f. Designation of Critical Habitat for the Tidewater Goby: Final Rule. Federal Register, Vol. 65, No. 224. November 20, 2000.

U.S. Fish and Wildlife Service. 2001a. Reopening of Comment Period on the Proposed Rule to Remove the Northern Populations of the Tidewater Goby from the List of Endangered and Threatened Wildlife. Federal Register, Vol. 66, No. 2. January 3, 2001.

U.S. Fish and Wildlife Service. 2001b. Proposed Designation of Critical Habitat for *Chorizanthe pungens* var. *pungens* (Monterey Spineflower). Federal Register, Vol. 66, No. 32. February 15, 2001.

U.S. Fish and Wildlife Service. 2001c. Proposed Designation of Critical Habitat for *Chorizanthe robusta* var. *robusta* (Robust Spineflower). Federal Register, Vol. 66, No. 32. February 15, 2001.

U.S. Fish and Wildlife Service. 2001d. Final Determinations of Critical Habitat for the California Red-legged Frog; Final Rule. Federal Register, Vol. 66, No. 49. March 13, 2001.

U.S. Fish and Wildlife Service. 2001e. Species accounts – Southern sea otter (*Enhydra lutris nereis*). Last revised: April 13, 2001. Available: <[http://ventura.fws.gov/SpeciesAccount/mammals/sea\\_otter.htm](http://ventura.fws.gov/SpeciesAccount/mammals/sea_otter.htm)>. Accessed: April 26, 2001.

U.S. Fish and Wildlife Service. 2001f. Tidewater Goby (*Eucyclogobius newberryi*) Species Account. Prepared by the Ventura Fish and Wildlife Office. Available: [http://ventura.fws.gov/SpeciesAccount/fish/tw\\_goby.htm](http://ventura.fws.gov/SpeciesAccount/fish/tw_goby.htm). Last Revised and Date of Publication: unknown. Accessed February 19, 2001.

U.S. Fish and Wildlife Service. 2001g. Western Snowy Plover (*Charadrius alexandrinus nivosus*) Pacific Coast Population Draft Recovery Plan. Portland, OR.

University of California Cooperative Extensions (UCCE) in Marin County. 2001. Marin County UCCE Sudden Oak Death. Available: <http://cemarin.ucdavis.edu/index2.html>. Accessed: October 1, 2001.

Ventana Wilderness Society. 2000a. Bald Eagle Release. Available: <http://www.ventanaws.org/EagleRelease.htm>. Last Revised: September 24, 2000. Accessed: March 23, 2001.

Ventana Wilderness Society. 2000b. Bald Eagle Restoration: Bald Eagles Return to the Central Coast. Available: <http://www.ventanaws.org/eagles/htm>. Last Revised: September 24, 2000. Accessed: March 23, 2001.

Whitson, T. D. (ed.), L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, and R. Parker. 1999. Weeds of the West, 5<sup>th</sup> Edition. The Western Society of Weed Science in cooperation with the Western United States Land Grant Universities Cooperative Extension Services. Newark, CA.

Williams, D. F. 1986. Mammalian Species of Special Concern in California. California Department of Fish and Game, Sacramento, CA.

Zeiner, D. C. 1988. Cropland. Pages 138-139-87 in Mayer, K. E. and W. F. Laudenslayer, Jr., eds. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection, Sacramento, CA.

Zeiner, D. C., W. F. Laudenslayer Jr., and K. E. Mayer, (eds.). 1988. California's Wildlife, Volume 1, Amphibians and Reptiles. California Statewide Wildlife Habitat Relationship System, California Department of Fish and Game, Sacramento, CA.

Zeiner, D. C., W. F. Laudenslayer Jr., K. E. Mayer, and M. White, (eds.). 1990a. California's Wildlife, Volume 2, Birds. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, CA.

Zeiner, D. C., W. F. Laudenslayer Jr., K.E. Mayer, and M. White, (eds.). 1990b. California's Wildlife, Volume 3, Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, CA.

Zweifel, R.G. 1955. Ecology, distribution, and systematics of frogs of the *Rana boylei* group. University of California Publications in Zoology.

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**BIG SUR COAST HIGHWAY MANAGEMENT PLAN  
MONTEREY AND SAN LUIS OBISPO COUNTIES**

**APPENDICES A – R**

- APPENDIX A: Mapping
- APPENDIX B: Potential Jurisdictional Features Identified Within the Corridor Study Area: Rivers
- APPENDIX C: Potential Jurisdictional Features Identified Within the Corridor Study Area: Creeks
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- APPENDIX K: Incidental Observations of Wildlife Species During the Field Review
- APPENDIX L: Exotic Plants Documented During the Field Review
- APPENDIX M: California Natural Diversity Database Report, List of Elements and Status by Common Name: Alder Peak, Big Sur, Burro Mountain, Cape San Martin, Cone Peak, Lopez Point, Monterey, Mount Carmel, Partington Ridge, Pfeiffer Point, Point Sur, Soberanes Point, Tassajara Hot Springs, Ventana Cones, and Villa Creek Quads
- APPENDIX N: California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California Report, Selected CNPS Plants by Scientific Name: Alder Peak, Big Sur, Burro Mountain, Cape San Martin, Cone Peak, Lopez Point, Monterey, Mount Carmel, Partington Ridge, Pfeiffer Point, Point Sur, Soberanes Point, Tassajara Hot Springs, Ventana Cones, and Villa Creek Quads

- APPENDIX O: U.S. Fish and Wildlife Service Letter, Species List for the Coast Highway Management Plan, Dated July 14, 2000
- APPENDIX P: U.S.D.A. Forest Service, Sensitive Species List for the Los Padres National Forest, Dated August 2000
- APPENDIX Q: Summary of Special-Status Species Occurrence Information Provided in Resource Elements for Specific State Parks Transected by the Corridor Study Area
- APPENDIX R: Marine Resources and Habitats Along the Big Sur Coast, San Carpoforo Creek to the Carmel River

**APPENDIX A**  
**VEGETATION MAPPING**

## APPENDIX B

POTENTIAL JURISDICTIONAL FEATURES IDENTIFIED WITHIN THE CORRIDOR  
STUDY AREA: RIVERS

## Potential Jurisdictional Features: Rivers

Post Mile	County	Name	Hydric Soils?	Soil Type	NWI Classification
46.6	MON	Big Sur River	Yes	Ps & Fa	R3OWZ
56.1	MON	Little Sur River	Yes	Ps	PFOW
72.4	MON	Carmel River	Yes	Pa	R4SBY

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Hydric Soils: information from USDA, SCS soil surveys for Monterey County and the coastal part of San Luis Obispo County

Yes = Hydric soil

Soil Type: information from USDA, SCS soil surveys for Monterey County and the coastal part of San Luis Obispo County, see Appendix G for hydric soils list

NWI Classification Definitions:

PFOW: Palustrine, forested, intermittently flooded/temporary

R3OWZ: Riverine, upper perennial, open water/unknown bottom, intermittently exposed/permanent

R4SBY: Riverine, intermittent, streambed, saturated/semipermanent/seasonal

## APPENDIX C

POTENTIAL JURISDICTIONAL FEATURES IDENTIFIED WITHIN THE CORRIDOR  
STUDY AREA: CREEKS

## Potential Jurisdictional Features: Creeks

Post Mile	County	Name	Hydric Soils?	Soil Type	NWI Classification
71.5	SLO	San Carpoforo Creek	Y	194 & 176	Not Available
71.9	SLO		N		
73.0	SLO		N		
73.4	SLO		N		
73.5	SLO		N		
74.1	SLO		N		
0.9	MON		N		
1.2	MON		N		
2.2	MON	Salmon Creek	N		Not Available
3.8	MON		N		Not Available
3.8	MON	Soda Springs Creek	N		Not Available
4.8	MON	Redwood Gulch	N		Not Available
7.1	MON	Villa Creek	N		Not Available
8.0	MON	Alder Creek	N		Not Available
8.4	MON		N		
8.5	MON		N		
9.1	MON	Mud Creek	N		Not Available
9.6	MON	Spruce Creek	N		Not Available
11.8	MON	Willow Creek	N		PFOW
12.1	MON		N		
12.2	MON		N		
12.7	MON		N		
13.0	MON		Y	Fa	
13.9	MON	Plaskett Creek	N		PFOW
15.1	MON	Prewitt Creek	N		PFOW
16.2	MON		Y	Fa	
17.4	MON	Wild Cattle Creek	N		PFOW
18.0	MON		N		
18.5	MON	Mill Creek	Y	Cm	PFOW

## Potential Jurisdictional Features: Creeks

Post Mile	County	Name	Hydric Soils?	Soil Type	NWI Classification
18.9	MON	Kirk Creek	N		PFOW
19.5	MON		N		
19.9	MON		N		
20.3	MON		N		
20.4	MON		N		
20.5	MON		N		
21.0	MON	Limekiln Creek	N		R3OWZ
22.8	MON		N		
22.9	MON		N		
23.3	MON		N		
23.5	MON		N		PFOW
25.9	MON	Vicente Creek	N		PFOW
26.9	MON		N		
27.3	MON		N		
27.4	MON		N		
28.1	MON	Big Creek	N		R3OWZ
30.1	MON	Rat Creek	N		None
31.2	MON	Dolan Creek	N		None
31.6	MON		N		
32.2	MON	Lime Creek	N		PFOW
32.8	MON	Hot Springs Creek	N		PFOW
33.6	MON	Buck Creek	N		None
34.2	MON	Burns Creek	N		None
35.3	MON	Anderson Canyon	N		PFOW
35.7	MON	McWay Canyon	N		PFOW
36.4	MON		N		
36.5	MON		N		
36.9	MON		N		
37.1	MON		N		
37.8	MON	Partington Creek	N		PFOW
38.4	MON		N		
38.8	MON		N		
39.2	MON	Sycamore Draw	N		
39.7	MON	Torre Canyon	N		None
40.8	MON	Lafler Canyon	N		None

## Potential Jurisdictional Features: Creeks

Post Mile	County	Name	Hydric Soils?	Soil Type	NWI Classification
41.8	MON	Grimes Canyon	N		PFOW
42.4	MON		N		
43.1	MON	Castro Canyon	N		PFOW
43.5	MON	Graves Canyon	N		PFOW
44.0	MON	Mule Canyon Creek	N		PFOW
45.5	MON	Pfeiffer GI	N		PFOW
45.9	MON		N		
46.6	MON	Pfeiffer-Redwood Creek*	Y	Fa & Ps	R3OWZ
47.2	MON		Y	Fa & Ps	
48.0	MON	Juan Higuera Creek	Y	Fa	PFOW
48.6	MON	Pheneger Creek	Y	Fa	PFOW
48.9	MON		Y	Fa	
49.4	MON		Y	Ps	
50.0	MON		Pot.	TbB	PFOW
50.5	MON		Pot.	Xa	PFOW
50.8	MON		Pot.	Xa	PFOW
56.6	MON		N		
56.8	MON		N		
57.0	MON		N		
58.4	MON		N		
59.4	MON	Bixby Creek	N		Not Available
60.1	MON	Rocky Creek	N		R3UBY
61.5	MON	Palo Colorado Canyon	N		PFOW
63.0	MON	Garrapata Creek	Y	Fa	PFOW
63.3	MON	Doud Creek	N		PFOW
63.6	MON		N		
64.1	MON		N		
64.4	MON	Granite Creek	N		R3UBY
65.9	MON	Soberanes Creek	N		R3UBY
66.2	MON		N		
66.7	MON		N		
67.9	MON	Malpaso Creek	N		PFOW

\* Pfeiffer Redwood Creek is culverted near or outside of the corridor study area boundary.

**Potential Jurisdictional Features: Creeks**

<b>Post Mile</b>	<b>County</b>	<b>Name</b>	<b>Hydric Soils?</b>	<b>Soil Type</b>	<b>NWI Classification</b>
68.3	MON	MacLean Creek	N		
69.0	MON	Wildcat Creek	N		R3UBY
69.5	MON		N		
69.8	MON	Gibson Creek	N		PFOW
71.2	MON	San Jose Creek	Pot.	SoD	PSSY

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Hydric soils: information from USDA, SCS soil surveys for Monterey County and the coastal part of San Luis Obispo County

Yes = Hydric soil

No = Non-hydric soil

Pot. = Potentially hydric soils, soil component is non-hydric; however, inclusions may be hydric

Soil Type: information from USDA, SCS soil surveys for Monterey County and the coastal part of San Luis Obispo County, soil type only provided for hydric or potentially hydric soils, see Appendix G for soil definitions.

NWI Classifications:

PFOW: Palustrine, forested, intermittently flooded/temporary

PSSY: Palustrine, scrub/shrub, saturated/semipermanent/seasonal

PSSW: Palustrine, scrub/shrub, intermittently flooded/temporary

R3OWZ: Riverine, upper perennial, open water/unknown bottom, intermittently exposed/permanent

R3UBY: Riverine, upper perennial, unconsolidated bottom, saturated/semipermanent/seasonal

R4SBY: Riverine, intermittent, streambed, saturated/semipermanent/seasonal

None: No associated National Wetland Inventory classification

Not Available: Base maps were unavailable from the National Wetlands Inventory at the time of compilation

**APPENDIX D**

**POTENTIAL JURISDICTIONAL FEATURES IDENTIFIED WITHIN THE CORRIDOR  
STUDY AREA: EPHEMERAL DRAINAGES**

**Potential Jurisdictional Features: Ephemeral Drainages**

<b>Post Mile</b>	<b>County</b>	<b>Name</b>	<b>Hydric Soils?</b>	<b>Soil Type</b>	<b>NWI Classification</b>	<b>Notes</b>
71.6	SLO		N			
71.6	SLO		N			
71.7	SLO		N			
72.2	SLO		N			
72.3	SLO		N			
72.6	SLO		N			
72.7	SLO		N			
72.8	SLO		N			
73.0	SLO		N			
73.2	SLO		N			
73.2	SLO		N			Midway 73.2-73.3
73.5	SLO		N			Midway 73.5-73.6
73.6	SLO		N			
73.7	SLO		N			Midway 73.7-73.8
73.8	SLO		N			
73.9	SLO		N			Midway 73.9-74.0
0.0/74.3	SLO / MON		N			
0.4	MON		N			
0.6	MON		N			
0.8	MON		N			
1.1	MON		N			
1.4	MON		N			
1.8	MON		N			
1.9	MON		N			
1.9	MON		N			
2.0	MON		N			

**Potential Jurisdictional Features: Ephemeral Drainages**

<b>Post Mile</b>	<b>County</b>	<b>Name</b>	<b>Hydric Soils?</b>	<b>Soil Type</b>	<b>NWI Classification</b>	<b>Notes</b>
2.3	MON		N			
3.0	MON		N			
3.3	MON		N			
3.6	MON		N			
3.9	MON		N			
4.1	MON		N			
4.4	MON		N			
5.0	MON		N			
5.2	MON		N			
5.3	MON		N			
5.6	MON		N			
5.9	MON		N			
5.9	MON		N			Midway 5.9-6.0
6.4	MON		N			
6.4	MON		N			Midway 6.4-6.5
6.5	MON		N			
7.7	MON		N			
8.8	MON		N			
9.0	MON		N			
9.3	MON		N			
9.5	MON		N			
9.8	MON		N			
10.1	MON		N			
10.7	MON		N			
12.8	MON		Y	Fa		
13.1	MON		Y	Fa		
13.2	MON		Pot.	ChE		
13.2	MON		Pot.	ChE		
14.3	MON		Pot.	LeC		
14.3	MON		Pot.	LeC		Possible wetland nearby
14.4	MON		Pot.	LeC		
14.6	MON		Pot.	LeC		
14.6	MON		Pot.	LeC		
15.5	MON		Y	Fa		
16.0	MON		Y	Fa		

**Potential Jurisdictional Features: Ephemeral Drainages**

<b>Post Mile</b>	<b>County</b>	<b>Name</b>	<b>Hydric Soils?</b>	<b>Soil Type</b>	<b>NWI Classification</b>	<b>Notes</b>
16.0	MON		Y	Fa		
16.4	MON		Y	Fa		
16.6	MON		N			
16.7	MON		Y	Fa		
16.8	MON		Y	Fa		
17.0	MON		Y	Fa		
17.2	MON		N			
17.8	MON		N			
17.9	MON		N			
18.0	MON		N			
18.2	MON		N			
19.7	MON		N			
21.6	MON		N			Appears to contain runoff from nearby seeps
22.2	MON		N			
22.6	MON		N			
23.0	MON		N			
23.3	MON		N			
23.5	MON		N			
24.0	MON		N			
24.4	MON		N			Culvert outside of right-of-way
24.5	MON		N			
24.7	MON		N			
24.8	MON		N			
25.1	MON		N			
25.3	MON		N			
25.4	MON		N			
26.5	MON		N			
26.8	MON		N			
27.5	MON		N			
27.6	MON		N			
28.7	MON		N			
28.7	MON		N			

**Potential Jurisdictional Features: Ephemeral Drainages**

<b>Post Mile</b>	<b>County</b>	<b>Name</b>	<b>Hydric Soils?</b>	<b>Soil Type</b>	<b>NWI Classification</b>	<b>Notes</b>
28.8	MON		N			
28.8	MON		N			
28.9	MON		N			
29.2	MON		N			
29.5	MON		N			
29.6	MON		N			
29.9	MON		N			
30.3	MON		N			
30.6	MON		N			
30.8	MON		N			
31.9	MON		N			
32.0	MON		N			
32.3	MON		N			
32.5	MON		N			
33.1	MON		N			
33.2	MON		N			
33.3	MON		N			
33.4	MON		N			
33.5	MON		N			
33.8	MON		N			
33.9	MON		N			
34.0	MON		N			
34.5	MON		N			
34.6	MON		N			
34.6	MON		N			
34.7	MON		N			
34.7	MON		N			
34.9	MON		N			
35.1	MON		N			Midway 35.0-35.1
35.2	MON		N			
36.2	MON	Julia Viaduct	N			
36.5	MON		N			
37.2	MON		N			
39.1	MON		N			
40.3	MON		N			

**Potential Jurisdictional Features: Ephemeral Drainages**

<b>Post Mile</b>	<b>County</b>	<b>Name</b>	<b>Hydric Soils?</b>	<b>Soil Type</b>	<b>NWI Classification</b>	<b>Notes</b>
40.4	MON		N			
41.8	MON		N			Flows into Grimes Canyon
42.3	MON		N			
42.6	MON		N			
42.8	MON		N			
44.2	MON		N			
45.3	MON		N			
46.4	MON		N			
46.8	MON		Y	Ps		
47.3	MON		Y	Ps		
48.8	MON		Y	Fa		
49.0	MON		Y	Ps		
49.5	MON		Pot.	TbB	PFOW	
50.2	MON		N			Midway 50.1-50.2
50.3	MON		N			
50.3	MON		N			
50.4	MON		N			
50.6	MON		Pot.	Xa	PFOW	
50.7	MON		Pot.	Xa	R3OWZ & PFOW	
51.2	MON		Pot.	Xa	R3OWZ	
51.3	MON		Pot.	Xa		
51.4	MON		Y	Fa		
51.5	MON		Y	Fa		
51.6	MON		N			
51.9	MON		Pot.	ShC		
51.9	MON		Pot.	ShC		
52.1	MON		Pot.	ShC		
52.5	MON	Swiss Canyon	Pot.	LeC	R4SBY & PSSW	
52.7	MON		Pot.	LeC		
52.9	MON		Pot.	LeC	R4SBY	
53.3	MON		Pot.	ShC		
53.6	MON		Pot.	LeC		

**Potential Jurisdictional Features: Ephemeral Drainages**

<b>Post Mile</b>	<b>County</b>	<b>Name</b>	<b>Hydric Soils?</b>	<b>Soil Type</b>	<b>NWI Classification</b>	<b>Notes</b>
53.9	MON		Pot.	LeC		
54.1	MON		Pot.	LeC		
54.2	MON		Pot.	LeC		
54.4	MON		Pot.	LeC		
54.6	MON		Pot.	LeC		
54.7	MON		N			
54.7	MON		N			Midway 54.7-54.8
54.8	MON		N			
54.9	MON		N			
54.9	MON		N			
55.1	MON		N			
55.2	MON		N			
56.3	MON		N			Midway 56.2-56.3
56.4	MON		N			
56.4	MON		N			
56.8	MON		N			
56.9	MON		N			Midway 56.0-57.0
57.1	MON		N			
57.8	MON		N			
58.5	MON		N			
60.2	MON		N			
60.3	MON		N			
60.4	MON		N			
61.1	MON		N			
62.1	MON		N			
62.2	MON		N			
62.6	MON		N			
63.3	MON		N			
63.9	MON		N			
64.6	MON		N		R4SBY	
64.6	MON		N		R3UBY	
64.8	MON		N			
65.0	MON		N			

**Potential Jurisdictional Features: Ephemeral Drainages**

Post Mile	County	Name	Hydric Soils?	Soil Type	NWI Classification	Notes
65.0	MON		N			
65.1	MON		N			
65.2	MON		N			
65.3	MON		N			
66.1	MON		N			
66.3	MON		N			
66.4	MON		N			
66.7	MON		N			
66.8	MON		N			
66.9	MON		N			
67.0	MON		N			
67.1	MON		N			
67.2	MON		N			
67.6	MON		N			
68.4	MON		Y	Fa		
68.7	MON		N			
68.8	MON		N			
68.9	MON		N			
71.0	MON		Pot.	GkB		
71.3	MON		Pot.	SoD		
71.4	MON		Y	NcC		
71.9	MON		N			Beyond 200'

Hydric soils: information from USDA, SCS soil surveys for Monterey County and the coastal part of San Luis Obispo County

Yes = Hydric soil

No = Non-hydric soil

Pot. = Potentially hydric soils, soil component is non-hydric; however, inclusions may be hydric

Soil Type: information from USDA, SCS soil surveys for Monterey County and the coastal part of San Luis

Obispo County, soil type only provided for hydric or potentially hydric soils, see Appendix G for hydric soils list

NWI Classifications:

PFOW: Palustrine, forested, intermittently flooded/temporary

R3OWZ: Riverine, upper perennial, open water/unknown bottom, intermittently exposed/permanent

R3UBY: Riverine, upper perennial, unconsolidated bottom, saturated/semipermanent/seasonal

R4SBY: Riverine, intermittent, streambed, saturated/semipermanent/seasonal

**APPENDIX E**

**POTENTIAL JURISDICTIONAL FEATURES IDENTIFIED WITHIN THE CORRIDOR  
STUDY AREA: SEEPS/SPRINGS**

**Potential Jurisdictional Features: Seeps/Springs**

<b>Post Mile</b>	<b>County</b>	<b>Hydric Soils?</b>	<b>Soil Type</b>	<b>Notes</b>
72.1	SLO	N		
73.2	SLO	N		
73.5	SLO	N		
73.9	SLO	N		
1.3	MON	N		
2.4	MON	N		
5.5	MON	N		
5.5	MON	N		
7.6	MON	N		
7.7	MON	N		2 seeps
8.5	MON	N		
8.6	MON	N		2 seeps
8.6	MON	N		
9.0	MON	N		
9.2	MON	N		
9.4	MON	N		
9.9	MON	N		
11.5	MON	N		
12.2	MON	N		
12.2	MON	N		
12.8	MON	Y	Fa	
14.7	MON	Pot.	LeC	
14.8	MON	Pot.	LeC	
18.3	MON	Y	Cm	
19.4	MON	N		
20.4	MON	N		
21.3	MON	N		
21.8	MON	N		Multiple seeps
21.9	MON	N		2 seeps

**Potential Jurisdictional Features: Seeps/Springs**

<b>Post Mile</b>	<b>County</b>	<b>Hydric Soils?</b>	<b>Soil Type</b>	<b>Notes</b>
22.6	MON	N		Questionable, possibly high water table. Midway 22.5-22.6
22.7	MON	N		
26.2	MON	N		Midway 26.1-26.2
29.4	MON	N		
29.7	MON	N		
30.7	MON	N		
31.4	MON	N		
41.9	MON	N		Midway 41.8-41.9
59.8	MON	N		
60.0	MON	N		
62.2	MON	N		

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Hydric soils: information from USDA, SCS soil surveys for Monterey County and the coastal part of San Luis Obispo County

Yes = Hydric soil

No = Non-hydric soil

Pot. = Potentially hydric soils, soil component is non-hydric; however, inclusions may be hydric

Soil Type: information from USDA, SCS soil surveys for Monterey County and the coastal part of San Luis Obispo County, soil type only provided for hydric or potentially hydric soils, see Appendix G for hydric soils list

**APPENDIX F**

**POTENTIAL JURISDICTIONAL FEATURES IDENTIFIED WITHIN THE CORRIDOR  
STUDY AREA: OTHER**

**Potential Jurisdictional Features: Other**

<b>Post Mile</b>	<b>County</b>	<b>Notes</b>	<b>Hydric Soils?</b>	<b>Soil Type</b>
43.2	MON	Pond/wetland	N	
57.3	MON	Potential wetland	N	
59.1	MON	Potential wetland	N	
66.5	MON	Potential wetland	N	
71.9	MON	Pond	Pot.	Pf

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Hydric soils: information from USDA, SCS soil surveys for Monterey County and the coastal part of San Luis Obispo County

No = Non-hydric soil

Soil Type: information from USDA, SCS soil surveys for Monterey County and the coastal part of San Luis Obispo County, soil type only provided for hydric or potentially hydric soils

**APPENDIX G**

**HYDRIC SOILS LIST**

**Monterey County**

Ba Badland (C)-N, (I)-Y

ChE Climara clay (C)-N, (I)-Y

Cm Coastal beaches

Df Dune land (C)-N, (I)-Y

Fa Fluvents, stony

GkB Gorgonio sandy loam (C)-N, (I)-Y

LeC Lockwood shaly loam (C)-N, (I)-Y

Mf Metz fine sandy loam (C)-N, (I)-Y

NcC Narlon loamy fine sand

Pa Pacheco clay loam

Pf Pico fine sandy loam (C)-N, (I)-Y

Ps Psamments and Fluvents, frequently flooded

SbA Salinas clay loam (C)-N, (I)-Y

ShC Santa Ynez fine sandy loam (C)-N, (I)-Y

SoD Sheridan coarse sandy loam (C)-N, (I)-Y

TbB Tujunga fine sand (C)-N, (I)-Y

Xa Xerets-Xerolls complex (C)-N, (I)-Y

**San Luis Obispo County, Coastal Part**

176 Mocho Variant fine sandy loam (C)-N, (I)-Y

192 Psamments and Fluvents, occasionally flooded (C)-N, (I)-Y

194 Riverwash

221 Xererts-Xerolls-Urban land complex (C)-N, (I)-Y

Note: If "(C)-N, (I)-Y" follows a soil name, the component of the soil type is not hydric; however, the soil type may contain inclusions that are hydric.

## APPENDIX H

## POTENTIAL WILDLIFE CORRIDORS IDENTIFIED WITHIN THE CORRIDOR STUDY AREA

Potential Wildlife Corridors Identified Within the Corridor Study Area

Post Mile	County	Vegetation Community	Notes
71.5	SLO	CCRS	Riparian adjacent to San Carpoforo Creek
71.9	SLO	CCRS	Riparian adjacent to an unnamed stream
72.3	SLO	CCRS & W	Riparian and windrow adjacent to an ephemeral drainage
72.6	SLO	W	Ephemeral drainage within a Monterey cypress windrow
72.7	SLO	W	Ephemeral drainage within a windrow
73.0	SLO	CCCSR	Riparian adjacent to a creek, outside of right-of-way
73.0	SLO	CCRS	Riparian bordering an ephemeral drainage
73.4	SLO	CCRS	Riparian bordering a creek
73.5	SLO	CCCSR	Riparian bordering a creek
74.1	SLO	CBF	Bay forest borders a creek
0.4	MON	CBF	Bay forest borders an ephemeral drainage
0.9	MON	CBF	Bay forest borders a creek
1.2	MON	CCRS	Riparian, very steep within right-of-way
2.2	MON	CCCSR	Riparian along Salmon Creek
2.3	MON	CCRS	Riparian bordering an ephemeral drainage
2.8	MON	CCS	Possible game trail, no corresponding trail observed across highway, it is not adjacent to a pull-out
3.8	MON	CCCSR	Riparian bordering Soda Spring Creek
3.9	MON	CCCSR	Riparian bordering an ephemeral drainage
4.1	MON	CCRS	Riparian bordering an ephemeral drainage
4.8	MON	URF	Redwood forest within Redwood Gulch
5.0	MON	CCRS	Riparian bordering an ephemeral drainage
5.2	MON	CSCS	Ephemeral drainage bordered by tall <i>Ceanothus</i>
5.3	MON	CCRS	Riparian along an ephemeral drainage

## Vegetation Communities

CBF = California bay forest

CSCS = Coastal sage-chaparral scrub

CCRS = Central coast riparian scrub

CCS = Central coastal scrub

CLOF = Coast live oak forest

CCCSR = Central coast cottonwood-sycamore riparian forest

MCF = Monterey cypress forest

MPF = Monterey pine forest

RD = Ruderal/disturbed

URF = Upland redwood forest

W = Windrow

**Potential Wildlife Corridors Identified Within the Corridor Study Area**

<b>Post Mile</b>	<b>County</b>	<b>Vegetation Community</b>	<b>Notes</b>
5.6	MON	URF	Ephemeral drainage bordered by redwood forest, best developed outside of right-of-way
6.4	MON	CCRS	Riparian lined drainage
7.1	MON	CCRS	Riparian along Villa Creek
8.0	MON	CCRS	Riparian along Alder Creek
9.3	MON	CCRS	Riparian along an ephemeral drainage
9.5	MON	CCRS	Riparian along an ephemeral drainage
9.6	MON	CCRS	Riparian along a Spruce Creek
11.8	MON	CCRS	Riparian along Willow Creek
12.1	MON	CCRS	Riparian along small creek, primarily outside of right-of-way
12.7	MON	CCRS	Riparian bordering small creek
12.8	MON	CCRS	Riparian along an ephemeral drainage
13.0	MON	CCCSR & CCRS	Riparian bordering a small creek
13.9	MON	W & CCRS	<i>Eucalyptus</i> windrow and riparian along Plaskett Creek
14.3	MON	CCRS	Riparian along an ephemeral drainage
14.4	MON	CCRS	Riparian along an ephemeral drainage
15.1	MON	URF	Redwood forest bordering Prewitt Creek
16.2	MON	CCRS	Riparian along a small creek
16.4	MON	CCRS	Riparian bordering an ephemeral drainage
16.6	MON	CCRS	Riparian bordering an ephemeral drainage
17.4	MON	URF & CCS	Redwood forest and central coastal scrub bordering Wild Cattle Creek, best developed outside of right-of-way
17.4	MON	CSCS	Possible game trail, no corresponding trail observed across the highway
17.9	MON	CSCS	<i>Ceanothus</i> lined ephemeral drainage
18.2	MON	CCRS	Riparian bordering an ephemeral drainage
18.5	MON	CCRS	Riparian bordering Mill Creek
18.9	MON	URF	Redwood forest bordering Kirk Creek
21.0	MON	URF	Redwood forest bordering Limekiln Creek
22.2	MON	CCCSR & CCRS	Riparian along an ephemeral drainage

**Vegetation Communities**

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MCF = Monterey cypress forest  
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## Potential Wildlife Corridors Identified Within the Corridor Study Area

Post Mile	County	Vegetation Community	Notes
22.3/22.4	MON	CCRS	Riparian community running parallel to the highway
22.4	MON	URF	Redwood forest with a potential ephemeral drainage in the understory
22.6	MON	URF	Redwood forest bordering a creek
22.8	MON	CCRS	Riparian bordering a creek
22.9	MON	CCRS	Riparian bordering a creek
23.0	MON	CCRS	Riparian bordering potential ephemeral drainage
23.3	MON	URF	Redwood forest along a small creek
23.3	MON	CCRS	Willow thicket, drainage not observed
23.5	MON	URF	Redwood forest along a small creek, outside of right-of-way
23.5	MON	CCRS	Riparian bordering an ephemeral drainage, appears better developed outside of right-of-way
24.0	MON	URF	Redwood forest bordering an ephemeral drainage, outside of the right-of-way
24.4	MON	CCRS	Riparian along an ephemeral drainage
24.7	MON	URF	Redwood forest bordering an ephemeral drainage
24.8	MON	CCRS	Riparian along an ephemeral drainage, outside of right-of-way, visible portion is cement lined
25.1	MON	CCCSR	Riparian along an ephemeral drainage
25.3	MON	CSCS	<i>Ceanothus</i> and willows line an ephemeral drainage, willows dominate further up drainage
25.4	MON	CCS	Possible game trail, no obvious corresponding trail observed across the highway
25.7	MON	CSCS	Possible game trail, no obvious corresponding trail observed across the highway
25.9	MON	CCRS	Riparian bordering Vicente Creek
26.3	MON	CCS	Possible game trail, no obvious corresponding trail observed across the highway
26.5	MON	CCS	Outside of the right-of-way, willows line an ephemeral drainage
26.9	MON	URF	Narrow stand of redwoods along a creek
27.0	MON	CCS	Possible game trail, very narrow

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## Potential Wildlife Corridors Identified Within the Corridor Study Area

Post Mile	County	Vegetation Community	Notes
27.3	MON	CCRS	Riparian bordering a creek
28.1	MON	URF	Extension of redwood forest, plus riparian species along Big Creek
28.5	MON	CCS	Possible game trail, no obvious corresponding trail observed across the highway, well worn trail
28.8	MON	CSCS	Ephemeral drainage lined by <i>Ceanothus</i> and willows
28.9	MON	CCRS	Riparian bordering an ephemeral drainage
29.2	MON	CCRS	Riparian bordering an ephemeral drainage
29.5	MON	CSCS	<i>Ceanothus</i> lined ephemeral drainage
29.6	MON	CSCS	<i>Ceanothus</i> and willow lined ephemeral drainage
29.9	MON	CSCS	<i>Ceanothus</i> lined ephemeral drainage
30.1	MON	CCRS	Riparian along Rat Creek
30.6	MON	CCRS & CCS	Small ephemeral drainage lined scrub species on the east side and a relatively small riparian scrub community, corridor not well developed
30.6	MON	CCS	Possible game trail(s), two poorly developed trails near a pull-out, may be man-made, no obvious corresponding trail across highway, possibly utilize drainage
31.2	MON	URF	Redwood forest bordering Dolan Creek
31.6	MON	URF	Redwood forest bordering a creek
31.9	MON	CCRS	Riparian along an ephemeral drainage
32.2	MON	URF	Redwood forest bordering Lime Creek
32.8	MON	URF & W	Redwood forest and <i>Eucalyptus</i> /Monterey cypress windrow bordering Hot Springs Creek
33.6	MON	URF & CSCS	Redwood forest and coastal sage-chaparral scrub bordering Buck Creek
33.8	MON	CSCS	<i>Ceanothus</i> lined ephemeral drainage
34.2	MON	URF	Redwood forest along Burns Creek, outside of right-of-way
34.6	MON	CCRS	Riparian bordering an ephemeral drainage
34.7	MON	CSCS	<i>Ceanothus</i> lined ephemeral drainage, not well developed within the right-of-way

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MCF = Monterey cypress forest

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## Potential Wildlife Corridors Identified Within the Corridor Study Area

Post Mile	County	Vegetation Community	Notes
34.9	MON	CSCS	<i>Ceanothus</i> lined ephemeral drainage, not well developed within the right-of-way
35.1	MON	CSCS	<i>Ceanothus</i> lined ephemeral drainage, not well developed within the right-of-way
35.2	MON	CSCS	<i>Ceanothus</i> lined ephemeral drainage, not well developed within the right-of-way
35.3	MON	URF	Redwood forest within Anderson Canyon
35.7	MON	CCRS	Riparian bordering McWay Canyon
36.4	MON	CCS	<i>Ceanothus</i> lined creek
36.5	MON	CCS	<i>Ceanothus</i> lined creek
37.1	MON	CCCSR	Riparian bordering a creek
37.2	MON	CCS	Ephemeral drainage lined by large <i>Ceanothus</i>
37.8	MON	URF	Redwood forest bordering Partington Creek
38.8	MON	CCRS	Riparian bordering a creek, poorly developed, possibly linked with windrow above, not able to see
39.1	MON	CCCSR	Patchy riparian bordering an ephemeral drainage
39.2	MON	CCRS	Highly disturbed riparian bordering Sycamore Draw, portion of drainage is cement lined
39.7	MON	URF	Redwood forest bordering Torre Canyon, understory primarily low growing vegetation
40.3	MON	CCRS & RD	Riparian bordering an ephemeral drainage, outside of the right-of-way; within the right-of-way the drainage is lined by giant reed ( <i>Arundo donax</i> )
40.8	MON	W	Monterey pine/Monterey cypress/ <i>Eucalyptus</i> windrow bordering Lafler Creek, unable to see the body of the drainage
41.8	MON	URF	Redwood forest bordering Grimes Canyon
41.8	MON	CBF	Bay forest bordering an ephemeral drainage, very steep and rocky
42.4	MON	CCRS	Riparian bordering a small creek
42.7	MON	URF	Redwood forest bordering a possible ephemeral drainage
43.1	MON	URF	Redwood forest bordering Castro Canyon Creek, low growing vegetation along margins of drainage

## Vegetation Communities

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MCF = Monterey cypress forest

MPF = Monterey pine forest

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**Potential Wildlife Corridors Identified Within the Corridor Study Area**

<b>Post Mile</b>	<b>County</b>	<b>Vegetation Community</b>	<b>Notes</b>
44.0	MON	URF	Redwood forest lining Mule Canyon Creek
44.9	MON	URF	Possible game trail, no obvious corresponding trail observed across the highway, maybe man-made
45.3/45.5	MON	CCS	Possible game trails, 2 small trails, most likely man-made due to the amount of refuse
45.5	MON	URF	Redwood forest bordering Pfeiffer GI Creek
45.5	MON	URF	Possible game trail, north end of bridge, extending over Pfeiffer GI Creek
46.6/50.6	MON	URF & CCCSR	Redwood forest and riparian along the Big Sur River, both within and outside of right-of-way
47.3	MON	CLOF	Poorly developed within the right-of-way, vegetation not very dense
48.0	MON	URF	Redwood forest bordering Juan Higuera Creek
48.6	MON	CCCSR	Riparian bordering Pheneger Creek
48.8	MON	CLOF	Live oak forest bordering an ephemeral drainage
48.9	MON	CCCSR	Riparian along a small creek, not well developed due to creek being very steep within right-of-way
49.0	MON	CCS	Narrow band of alder and sycamore along a small ephemeral drainage
49.5	MON	CLOF	Small ephemeral drainage within live oak forest
49.9	MON	CCCSR	Dense riparian vegetation
50.0	MON	URF	Redwood forest bordering a small creek
50.2	MON	CCCSR	Riparian along an ephemeral drainage
50.3	MON	CCCSR	Riparian vegetation, outside of right-of-way
50.4	MON	CLOF	Possible movement along drainage
50.5	MON	URF & CLOF	Redwood forest and live oak forest bordering a small creek
50.6	MON	CLOF	Live oak forest bordering an ephemeral drainage
50.7	MON	CLOF	Live oak forest provides dense cover along a small ephemeral drainage
50.8	MON	CCCSR & URF	Riparian and redwood forest bordering a small creek
50.9	MON	CCRS	Willow dominated community, a highway undercrossing exists at this point

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**Potential Wildlife Corridors Identified Within the Corridor Study Area**

<b>Post Mile</b>	<b>County</b>	<b>Vegetation Community</b>	<b>Notes</b>
51.0	MON	CLOF	Dense canopy and cover along a dry ravine
51.2	MON	CCCSR	Riparian bordering an intermittent tributary to the Big Sur River
51.3	MON	CLOF	Live oak forest bordering a potential ephemeral drainage
51.4	MON	CCRS	Riparian community bordering a potential ephemeral drainage, on the west side it is outside of the right-of-way, on the east side the potential corridor is fairly short
51.5	MON	CLOF	Live oak forest bordering an ephemeral drainage
51.9	MON	CCRS	Riparian bordering two adjacent ephemeral drainages
51.9	MON	CCRS	Possible game trail
52.5	MON	CCRS	Riparian bordering Swiss Canyon, outside of the right-of-way
52.9	MON	CCS	Poorly developed, fairly deep ephemeral drainage; however, the vegetation is not very dense
53.3	MON	CCRS	Riparian bordering an ephemeral drainage
53.4	MON	MCF	Cypress forest bordering an ephemeral drainage, outside of the right-of-way
54.7	MON	CCRS	Riparian bordering an ephemeral drainage
56.1	MON	CCRS	Riparian bordering the Little Sur River
56.3	MON	CCRS	Best developed outside of 200', riparian bordering an ephemeral drainage
56.6	MON	CCRS	Riparian bordering a creek
56.8	MON	CCRS	Riparian bordering a small creek
56.9	MON	CCRS	Riparian bordering an ephemeral drainage
57.0	MON	URF	Very small stand of redwoods, outside of right-of-way, bordering a creek
59.4	MON	CCCSR	Riparian adjacent to Bixby Creek
60.0	MON	CCS	Possible game trail, corresponding trail on both sides of the highway
60.1	MON	CCCSR	Riparian adjacent to Rocky Creek
60.4	MON	CCRS	Riparian bordering an ephemeral drainage

**Vegetation Communities**

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## Potential Wildlife Corridors Identified Within the Corridor Study Area

Post Mile	County	Vegetation Community	Notes
61.1	MON	CCRS	Riparian bordering an ephemeral drainage
61.3	MON	CCRS	Dense willow thicket, not associated with a definite drainage within the right-of-way
61.5	MON	CCRS & W	Riparian and a <i>Eucalyptus</i> windrow within Palo Colorado Canyon
62.1	MON	CCRS	Riparian lined ephemeral drainage
62.6	MON	CCRS	Riparian bordering an ephemeral drainage
63.0	MON	CCCSR	Riparian adjacent to Garrapata Creek
63.3	MON	CCRS	Riparian bordering Doud Creek
63.6	MON	CCRS	Riparian bordering a creek
64.6	MON	CCRS	Riparian bordering an ephemeral drainage
64.8	MON	CCRS	Riparian bordering an ephemeral drainage
65.9	MON	CCRS	Riparian bordering Soberanes Creek
66.2	MON	CCRS	Riparian bordering a creek
66.7	MON	CCRS	Two riparian lined drainages come together
66.8	MON	CCRS	Riparian lined ephemeral drainage
66.9	MON	CCS	Poorly developed, scrub species bordering an ephemeral drainage
67.0	MON	CCS	Poorly developed, scrub species bordering an ephemeral drainage
67.1	MON	CCS	Poorly developed, scrub species bordering an ephemeral drainage
67.2	MON	CCS	Poorly developed, scrub species bordering an ephemeral drainage
67.6	MON	CCRS	Riparian bordering an ephemeral drainage
67.9	MON	CCCSR & CCRS	Riparian adjacent to Malpas Creek
68.3	MON	MPF	Ephemeral drainage within Monterey pine forest
68.4	MON	MPF	Ephemeral drainage within Monterey pine forest
68.7	MON	MPF	Poorly developed, an ephemeral drainage within Monterey pine forest with very little vegetative cover
68.8	MON	CCRS	Riparian bordering a possible ephemeral drainage
68.9	MON	MPF	Ephemeral drainage within Monterey pine forest

## Vegetation Communities

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**Potential Wildlife Corridors Identified Within the Corridor Study Area**

<b>Post Mile</b>	<b>County</b>	<b>Vegetation Community</b>	<b>Notes</b>
69.0	MON	MPF	Monterey pine forest adjacent to Wildcat Creek
69.5	MON	MPF	Creek within Monterey pine forest
69.8	MON	MPF	Monterey pine forest and riparian scrub along Gibson Creek
71.0	MON	CCRS	Riparian bordering an ephemeral drainage
71.2	MON	CCRS	Riparian adjacent to San Jose Creek
71.3	MON	CCRS	Riparian bordering an ephemeral drainage
72.4	MON	CCCSR	Riparian bordering the Carmel River

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## APPENDIX I

INFORMAL ROADKILL SURVEY, PRELIMINARY DATA COLLECTED OCTOBER  
2000 THROUGH OCTOBER 2001

## Preliminary Roadkill Data Collected Oct. 2000 through Oct. 2001

Description of Location	Species Identified	Season or Date
0.2 mile south of PM 1.0 MON PM 0.8	rabbit	8/18/2001
MON PM 1.0	rabbit	8/18/2001
Forest Boundary Viaduct MON PM 1.5	rat/rodent	8/28/2001
Salmon Creek MON PM 2.2	2 rabbits	7/20/2001
0.25 mile south of Soda Springs MON PM 3.7 or 3.8	bobcat	2/1/2001
MON PM 4.0	quail	8/28/2001
0.2 mile north of PM 5.0 MON PM 5.2	opossum	8/11/2001
0.3 mile north of Villa Creek Approx. MON PM 7.4	female coyote	12/16/2000
1.0 mile south of Gorda Approx. MON PM 9.1	rabbit	5/20/2001
0.8 mile south of Gorda Approx. MON PM 9.3	rabbit	5/30/2001
0.1 mile south of Gorda Mtn. Approx. MON PM 10.0	squirrel	5/28/2001
Gorda MON PM 10.1	cat	5/20/2001
Caltrans Willow Springs Maintenance Facility MON PM 10.4	2 rabbits	6/9/2001
Willow Creek Road MON PM 11.2	rabbit	5/20/2001
Willow Creek MON PM 11.8	rabbit	5/19/2001
Pacific Valley School MON PM 13.9	snake	9/26/2001
Sand Dollar Beach Approx. MON PM 14.3	rabbit	7/29/2001
Pacific Valley Station Approx. MON PM 14.9	ground squirrel	9/29/2001
Prewitt Creek MON PM 15.1	snake	5/28/2001

## Preliminary Roadkill Data Collected Oct. 2000 through Oct. 2001

Description of Location	Species Identified	Season or Date
Pacific Valley Approx. MON PM 15.7	rabbit	8/17/2001
Pacific Valley Store Site MON PM 15.7	2 rabbits	6/14/2001
Pacific Valley Store Site MON PM 15.7	bird	9/26/2001
North end of Pacific Valley Approx. MON PM 16.0	rabbit or squirrel	7/29/2001
MON PM 16.0	opossum	4/26/2001
MON PM 16.0	squirrel	5/20/2001
0.5 mile north of Pacific Valley Approx. MON PM 16.2	snake	5/13/2001
1.0 mile north of Pacific Valley Approx. MON PM 16.7	mouse/rat	5/20/2001
0.25 mile north of Kirk Creek Approx. MON PM 19.2	opossum	9/29/2001
Just south of Limekiln Creek Approx. MON PM 21.0	black-tailed deer, fawn	5/30/2001
Limekiln Creek MON PM 21.0	snake	5/22/2001
North of Lucia Approx. MON PM 23.0	rabbit	6/14/2001
0.3 mile north of Lucia Approx. MON PM 23.3	unknown (possible bird or rodent)	9/8/2001
Lopez Point MON PM 24.0	small brown bird	5/10/2001
Lopez Point MON PM 24.0	rabbit	6/16/2001
Lopez Point MON PM 24.0	mole	6/16/2001
0.2 mile south of Vicente Creek MON PM 25.7	snake	9/22/2001
South of Vicente Creek Approx. MON PM 25.9	2 rabbits	5/31/2001
Vicente Creek MON PM 25.9	rabbit	5/22/2001
Gamboa Point MON PM 26.3	rabbit	7/30/2001
MON PM 28 to 32	black-tailed deer and 2 bobcats	fall-winter
Just north of Cow Cliffs Approx. MON PM 28.3	black-tailed deer	5/22/2001

**Preliminary Roadkill Data Collected Oct. 2000 through Oct. 2001**

<b>Description of Location</b>	<b>Species Identified</b>	<b>Season or Date</b>
0.4 mile north of Big Creek MON PM 28.5	coyote	10/2/2001
75 meters north of corral MON PM 28.7	gray fox	9/28/2001
Dolan Point MON PM 29.7	black-tailed deer	9/7/2001
Dolan Point MON PM 29.7	rabbit	10/2/2001
Rat Creek to Hunt-Badiner MON PM 30.1 to 32	3-4 deer observed this year	late summer/early fall
Santa Lucia Ranch Approx. MON PM 31.2	fox	4/15/2001
0.5 mile north of Dolan Creek Approx. MON PM 31.7	black-tailed deer	12/20/2000
MON PM 30.8 and just south of South Coast Center	black-tailed deer	fall and spring
Esalen expressway MON PM 32 to 34	many black-tailed deer, fox, sparrows, snakes (gopher, garter, and rattler)	--
0.125 mile south of Lime Creek Approx. MON PM 32.1	black-tailed deer	9/21/2001
Lime Creek MON PM 32.2	fox	8/11/2001
Just north of the Esalen gate Approx. MON PM 32.6	bobcat or baby mountain lion	3/21/2001
North entrance to Esalen Approx. MON PM 32.6	raccoon	8/17/2001
Esalen to Burns Creek Approx. MON PM 32.6 to 34.2	wildlife and monarch butterflies	
0.4 mile north of Hot Springs Creek MON PM 33.2	rabbit	5/21/2001
Buck Creek MON PM 33.6	American crow?	8/21/2001
0.1 mile south of Anderson Cyn. MON PM 35.2	fox	8/28/2001
0.1 mile north of Anderson Cyn. MON PM 35.4	squirrel	8/28/2001
Pfeiffer Burns Slide MON PM 36.3	rabbit	5/22/2001
South of MON PM 37	opossum	6/15/2001

**Preliminary Roadkill Data Collected Oct. 2000 through Oct. 2001**

<b>Description of Location</b>	<b>Species Identified</b>	<b>Season or Date</b>
0.2 mile north of vista point at PM 37.0 MON PM 37.2	opossum	9/16/2001
0.1 mile south of Partington Ridge Road Approx. MON PM 38.6	rabbit	4/6/2001
Partington Ridge Road Approx. MON PM 38.7	Steller's jay	6/15/2001
0.5 mile north of Coast Gallery Approx. MON PM 41.4	rabbit	5/19/2001
MON PM 41.0	rabbit or squirrel?	9/22/2001
Between Grimes Point and Grimes Cyn. MON PM 41.5 to 42.0	tree squirrel	9/11/2001
Coastlands MON PM 44.4	tree squirrel	12/21/2000
Between Post Ranch, Coastlands, Ventana, and Loma Vista MON PM 44.46 to MON PM 45.0	wild turkey	winter and spring
Post Grade Approx. MON PM 44.5 to 46.5	tree squirrel	9/15/2001
0.4 mile south of PM 45.0 MON PM 44.6	black-tailed deer	8/8/2001
Loma Vista MON PM 45.0	gray squirrel	9/5/2001
MON PM 45.0	squirrel	8/19/2001
MON PM 45.0	squirrel	8/22/2001
Pfeiffer Ridge Road to the Post Office MON PM 45.3 to 47.24	many black-tailed deer	fall/winter
Pfeiffer Canyon MON PM 45.5	opossum	8/21/2001
0.5 mile south of Pfeiffer Big Sur State Park Approx. MON PM 45.0	gray squirrel	8/17/2001
Pfeiffer Big Sur State Park to Andrew Molera State Park Approx. MON PM 45.5 to 51.2	black-tailed deer and raccoon	year round
Across from Big Sur Station MON PM 46.3	black-tailed deer, fawn	December
Big Sur Station MON PM 46.3	tree squirrel	3/9/2001
Big Sur Station MON PM 46.3	rabbit	3/20/2001

**Preliminary Roadkill Data Collected Oct. 2000 through Oct. 2001**

<b>Description of Location</b>	<b>Species Identified</b>	<b>Season or Date</b>
Near Big Sur Station Approx. MON PM 46.3	gray squirrel	9/8/2001
0.1 mile south of the Big Sur River MON PM 46.5	squirrel	6/5/2001
Big Sur River MON PM 46.6	tree squirrel	1/17/2001
Big Sur River MON PM 46.6	tree squirrel	3/27/2001
Big Sur River MON PM 46.6	tree squirrel	4/3/2001
Big Sur River bridge MON PM 46.6	probable raccoon	2/17/2001
North of Big Sur River Approx. MON PM 46.6	rabbit	5/18/2001
Fernwood MON PM 47.5	squirrel	9/20/2001
Ripplewood MON PM 48.1	black-tailed deer	9/7/2001
Just north of River Inn Approx. MON PM 48.7	turkey	5/18/2001
0.25 mile north of River Inn Approx. MON PM 49.0	fox	9/8/2001
Captain Cooper School MON PM 49.5	juvenile common king snake	3/19/2001
0.5 mile south of entrance to Andrew Molera State Park Approx. MON PM 50.7	black-tailed deer	late spring/summer
0.5 mile south of Andrew Molera State Park Approx. MON PM 50.7	Steller's jay	5/30/2001
0.4 mile south of Andrew Molera State Park Approx. MON PM 50.8	2 raccoons	9/13/2001
0.3 mile south of Andrew Molera State Park Approx. MON PM 50.9	snake	6/11/2001
Andrew Molera State Park Approx. MON PM 51.0	raccoon	5/1/2001
Andrew Molera State Park Approx. MON PM 51.0	snake	5/4/2001
Entrance to Andrew Molera State Park MON PM 51.2	many black-tailed deer	fall/winter

**Preliminary Roadkill Data Collected Oct. 2000 through Oct. 2001**

<b>Description of Location</b>	<b>Species Identified</b>	<b>Season or Date</b>
Andrew Molera State Park MON PM 51.2	snake	5/3/2001
Andrew Molera State Park MON PM 51.2	snake	5/20/2001
0.1 mile north of Andrew Molera State Park MON PM 51.3	snake	6/10/2001
0.2 mile north of Andrew Molera State Park Approx. MON PM 51.4	rabbit	3/19/2001
0.5 mile north of Andrew Molera State Park Approx. MON PM 51.7	wild boar	9/25/2001
“Hurricane Flats” MON PM 51.2 to 54.2	wild pig	late summer/fall
2 miles south of Point Sur Approx. MON PM 52.0	wild pig	winter and spring
Point Sur Flats Approx. MON PM 52.0 to 54.5	black-tailed deer	9/14/2001
0.5 mile south of Point Sur Lighthouse entrance Approx. MON PM 53.0	ground squirrel	8/13/2001
El Sur Ranch MON PM 53.3	snake	5/24/2001
El Sur Ranch MON PM 53.3	rabbit	5/24/2001
El Sur Ranch MON PM 53.3	black-tailed deer	8/8/2001
El Sur Ranch MON PM 53.3	skunk	8/19/2001
El Sur Ranch MON PM 53.3	snake	8/22/2001
Point Sur Approx. MON PM 54.0	fox, black-tailed deer, and ground squirrel	Summer
Point Sur Approx. MON PM 54.0	rabbit	9/14/2001
Near light house (Point Sur) is a “hot spot” Approx. MON PM 54.0	--	--
Between Pt. Sur and Little Sur MON PM 54.8	Male black-tailed deer	1/5/2001
MON PM 55	striped skunk	12/8/2000

**Preliminary Roadkill Data Collected Oct. 2000 through Oct. 2001**

<b>Description of Location</b>	<b>Species Identified</b>	<b>Season or Date</b>
MON PM 55	tree squirrel	12/21/2000
0.1 mile north of the Little Sur River Approx. MON PM 56.2	raccoon	3/20/2001
0.2 mile north of the Little Sur River Approx. MON PM 56.3	raccoon	4/4/2001
Hurricane Point Approx. MON PM 58.3	striped skunk	3/2/2001
Hurricane Point Approx. MON PM 58.3	raccoon	4/3/2001
Hurricane Point Approx. MON PM 58.3	opossum	7/22/2001
Hurricane Point Approx. MON PM 58.3	rabbit	7/23/2001
Hurricane Point Approx. MON PM 58.3	opossum	8/11/2001
Hurricane Point Approx. MON PM 58.3	ground squirrel	9/15/2001
Hurricane Point Approx. MON PM 58.3	black-tailed deer	9/28/2001
North of Hurricane Point to south of Bixby (front entrance) Approx. MON PM 58.3 to 59.4	black-tailed deer, has seen 4 hits, and narrowly missed others	July to December, from sunset to 4:00am
Between Rocky Creek and Bixby Creek MON PM 59.4 to 60.1	black-tailed deer, fawn	7/23/2001
Between Rocky Creek and Bixby Creek MON PM 59.4 to 60.1	raccoon	9/3/2001
0.3 mile south of Bixby Creek bridge Approx. MON PM 59.1	mole	3/10/2001
0.25 mile south of Bixby Creek bridge Approx. MON PM 59.0	skunk	8/13/2001
0.25 mile north of Bixby Creek bridge Approx. MON PM 59.6	raccoon	9/9/2001
0.3 mile north of Bixby Creek bridge Approx. MON PM 59.7	striped skunk	1/20/2001
0.2 mile south of Palo Colorado Cyn. MON PM 61.3	opossum	8/18/2001
Near Palo Colorado Cyn. entrance Approx. MON PM 61.5	rabbit	8/17/2001
0.25 mile north of Palo Colorado Road Approx. MON PM 61.8	raccoon	7/18/2001

## Preliminary Roadkill Data Collected Oct. 2000 through Oct. 2001

Description of Location	Species Identified	Season or Date
Rocky Point Approx. MON PM 61.9	black-tailed deer	10/3/2001
Near Garrapata State Park Approx. MON PM 63.0	female raccoon with young	October
Near Garrapata Creek MON PM 63.3	black-tailed deer	8/6/2001
Granite Creek MON PM 64.4	rabbit	9/14/2001
0.1 mile south of Victorine Ranch Approx. MON PM 67.0	black-tailed deer	6/5/2001
Just north of Malpaso Creek Approx. MON PM 67.9	black-tailed deer, doe	7/23/2001
Otter Cove Approx. MON PM 68.0	black-tailed deer	7/25/2001
1.25 miles north of entrance to Point Lobos State Reserve Approx. MON PM 71.7	black-tailed deer, doe	7/19/2001
MON PM 72.0	raccoon	7/23/2001
Carmel River bridge MON PM 72.4	raccoon	8/11/2001
Carmel Valley Road MON PM 72.9	black-tailed deer	8/22/2001
Near bridges and areas that provide access to water	black-tailed deer represent about 90 percent of the roadkills observed	summer, but do occur year round
<b>Incidental Roadkill Information Collected During the Field Review</b>		
MON PM 19.3	juvenile unidentified garter snake ( <i>Thamnophis</i> sp.)	9/19/2000
MON PM 25.1	unidentified bat species	9/17/2000
MON PM 34.9	black-tailed deer	9/15/2000
MON PM 35.0	unidentified garter snake ( <i>Thamnophis</i> sp.)	9/15/2000
MON PM 40.7	unidentified garter snake ( <i>Thamnophis</i> sp.)	9/13/2000
MON PM 53.4	coyote	9/7/2000

Survey conducted by Dr. John Smiley, Manager of Landels-Hill Big Creek Reserve. Survey Dates: October 2000 to present. A copy of the survey form is provided on the following page. Incidental roadkill information collected during the field review has also been included.

**BIG SUR COAST HIGHWAY ROAD KILL SURVEY**

Each year thousands of wild and domestic animals are killed by traffic along the coast highway in Big Sur. I hope we can reduce this problem in the future by providing input to the highway management plan which Caltrans and other community members are creating. I would like to know your experiences and impressions about road kill in Big Sur. One goal is to produce a list of "hot spots" where road kill is most frequent, and to determine which type of animal is likely to be killed in each hot spot. It would also be useful to know the season of the year in which kills are most likely to occur.

Location (be as precise as you can, use postmile reference, if known):

---

Species (type of animal):

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Time of year: \_\_\_\_\_

For initial response (of past incidents), please mail by **January 30, 2001** to:

John Smiley, Big Creek Reserve, Big Sur CA 93920

Ongoing reports (for new incidents) will also be accepted until October 31, 2001

You may also phone me at 667-2543 if that is easier (evenings 'til 8 pm are fine), or email

jsmiley@cats.ucsc.edu

## APPENDIX J

## LOCATIONS OF SEA CLIFF BUCKWHEAT STANDS WITH A RELATIVE DENSITY OF MEDIUM OR HIGH

Locations of Seacliff Buckwheat Stands With a Relative Density of Medium or High

Post Mile	County	Relative Density	Vegetation Community	Polygon Number	Notes
71.8	SLO	Med.	CCS	13	Along roadcut
71.9/72.0	SLO	Med.	CCS	18	
71.9/72.0	SLO	Med.	CCS	17	
73.5/73.4	SLO	Med.	CCS	73	Primarily small plants
0.6	MON	Med.	CCS	89	
1.7	MON	Med.	CCS	102	
2.7/2.6	MON	Med.	CCS	115	Many of the plants beyond right-of-way, a few of the plants (<25) directly across highway in polygon # 112
2.6	MON	Med.	CCS	112	Several large plants
5.1	MON	Med.	RD	136	Different species (possibly <i>E. fasciculatum</i> )
7.2	MON	Med.	CCS	172	
7.2	MON	Med.	RD	174	
7.5	MON	Med.	RD	174	
8.0/8.1	MON	Med.	CCS	197	Located outside right-of-way, many small plants
9.6	MON	Med.	CCS	213	Along roadcut
9.9	MON	Med.	CCS	192	Along roadcut
10.2/10.3	MON	Med.	RD	196	
11.4	MON	Med.	CCS	225 & 206	
11.7	MON	Med.	CCS	206	Located outside of right-of-way on a cliff
11.8	MON	Med.	CCS	225 & 206	
12.2	MON	Med.	CCS	241 & 239	Along edge of polygons
12.6	MON	Med.	CCS	241 & 218	

## Vegetation Communities:

CCS = central coastal scrub

CSCS = coastal sage-chaparral scrub

RD = ruderal/disturbed

## Relative Density:

Med. = Stands containing 25 to several hundred plants per acre

High = Stands containing several hundred or more plants per acre, with a mix of age classes

**Locations of Seacliff Buckwheat Stands With a Relative Density of Medium or High**

<b>Post Mile</b>	<b>County</b>	<b>Relative Density</b>	<b>Vegetation Community</b>	<b>Polygon Number</b>	<b>Notes</b>
13.0	MON	Med.	CCS	251 & 230	
13.6	MON	Med.	CCS	255	Along roadcut
15.7	MON	Med.	CCS	285	Along base of roadcut
16.4	MON	High	CCS		Beyond 200 feet, on hillside, adjacent to polygon # 295
16.4/16.6	MON	High	CCS	295, 258, & 299	
16.7	MON	Med.	CCS	258	Some plants also present across highway in polygon # 299
17.0	MON	Med.	CCS	299	Just north of drainage on roadcut
17.2	MON	Med.	CCS	299	Along roadcut
17.3	MON	Med.	CCS	299	
17.5	MON	Med.	CSCS	303	Primarily small plants along roadcut
17.8	MON	Med.	CSCS	303	
17.8/17.9	MON	Med.	CCS	272	Along roadcut
18.3	MON	Med.	CCS & RD	276 & 274	Exposed area along cliff; several of plants also along guard rail
18.7	MON	Med.	CCS	315	Along roadcut
19.9	MON	Med.	CCS	321	~25-30 plants
20.5	MON	Med.	CCS & RD	329 & 327	
20.9	MON	Med.	CCS	333	
25.3	MON	Med.	CSCS	433	
25.6	MON	Med.	CCS & CSCS	437 & 386	
26.6	MON	Med.	CCS	443	Primarily small plants
28.4	MON	Med.	CCS	467 & 469	
28.4	MON	Med.	CCS	422	
28.9	MON	Med.	CCS	422	
29.0	MON	Med.	CSCS	479	Primarily small plants

Vegetation Communities:

- CCS = central coastal scrub
- CSCS = coastal sage-chaparral scrub
- RD = ruderal/disturbed

Relative Density:

- Med. = Stands containing 25 to several hundred plants per acre
- High = Stands containing several hundred or more plants per acre, with a mix of age classes

## Locations of Seacliff Buckwheat Stands With a Relative Density of Medium or High

Post Mile	County	Relative Density	Vegetation Community	Polygon Number	Notes
29.8	MON	Med.	CCS & CSCS	430 & 491	
29.9/30.0	MON	Med.	CSCS	491	
30.1	MON	Med.	CSCS	491	Majority of plants beyond right-of-way
30.2	MON	Med.	CCS	430 & 495	>100 plants present
30.4	MON	Med.	CCS	495	Primarily small plants
30.6	MON	Med.	CCS	495 & 434	
31.4	MON	Med.	CSCS	505	Majority of plants along top of roadcut
31.8	MON	Med.	CCS	513	Along roadcut
32.4	MON	Med.	CCS	525	Along roadcut
33.5	MON	Med.	CCS	533	Along roadcut
33.8	MON	Med.	CSCS	539	
33.9	MON	Med.	CSCS	539	Along roadcut and into scrub
34.5	MON	Med.	CCS	551	Along roadcut
34.7	MON	Med.	CCS	555	Along roadcut
34.7	MON	Med.	CSCS	557	
34.8	MON	Med.	CSCS	557 & 512	Along roadcut
35.0	MON	Med.	CSCS	557 & 512	>100 plants, various age classes, along roadcut
35.5	MON	Med.	CCS	561	Many plants outside of right-of-way
35.6	MON	Med.	CSCS & CCS	565 & 518	
36.2	MON	Med.	RD	530	Stand appears to have been planted
37.0	MON	Med.	CCS	540	Possibly <i>E. latifolium</i>
37.3	MON	Med.	CCS	599	Several of the plants outside of the right-of-way
37.6	MON	Med.	CCS	540 & 599	Majority of plants within polygon # 599
37.8	MON	Med.	CCS	605	
37.9	MON	Med.	CCS	544 & 605	Primarily small plants

## Vegetation Communities:

CCS = central coastal scrub

CSCS = coastal sage-chaparral scrub

RD = ruderal/disturbed

## Relative Density:

Med. = Stands containing 25 to several hundred plants per acre

High = Stands containing several hundred or more plants per acre, with a mix of age classes

## Locations of Seacliff Buckwheat Stands With a Relative Density of Medium or High

Post Mile	County	Relative Density	Vegetation Community	Polygon Number	Notes
38.0/38.1	MON	Med.	CCS	605	
38.4	MON	Med.	CCS	550 & 605	
38.8	MON	Med.	CCS	550	Possibly <i>E. latifolium</i>
40.2	MON	Med.	CCS	627	Several of the plants outside of the right-of-way
41.1	MON	Med.	CCS	653	Several of the plants outside of the right-of-way; however, plants fairly common along right-of-way
41.3	MON	Med.	CCS	655	
41.4	MON	Med.	CCS	598 & 657	
41.5	MON	Med.	CCS	598 & 657	Several plants outside of the right-of-way in both polygons
42.5	MON	Med.	CCS	673	
42.7	MON	Med.	CCS	673	Along roadcut, some plants outside of the right-of-way
55.2/55.3	MON	Med.	RD	836	
56.2	MON	Med.	CCS	933	
56.4	MON	Med.	CCS	850	Along roadcut and back side of the roadcut
56.7	MON	Med.	CCS	941 & 862	
58.4	MON	Med.	CCS	965	Along roadcut
59.3	MON	Med.	CCS	896	
59.4	MON	Med.	CCS	985	Majority of stand located outside of right-of-way
59.7	MON	Med.	CCS	993	
59.8	MON	Med.	CCS	902 & 993	
60.0	MON	Med.	CCS	902, 993 & 999	
60.7	MON	Med.	CCS	922	Several of the plants outside of the right-of-way
60.8	MON	Med.	CCS	1015	Along roadcut

## Vegetation Communities:

CCS = central coastal scrub

CSCS = coastal sage-chaparral scrub

RD = ruderal/disturbed

## Relative Density:

Med. = Stands containing 25 to several hundred plants per acre

High = Stands containing several hundred or more plants per acre, with a mix of age classes

## Locations of Seacliff Buckwheat Stands With a Relative Density of Medium or High

Post Mile	County	Relative Density	Vegetation Community	Polygon Number	Notes
61.1	MON	Med.	CCS	934 & 1023	
61.9	MON	Med.	CCS	950	Primarily small plants
62.1	MON	Med.	CCS	1049	
62.4	MON	Med.	CCS	1051 & 1156	
62.6	MON	Med.	CCS	966	
62.6	MON	Med.	CCS	1051	Along roadcut
63.0	MON	Med.	CSCS	982 & 1059	South end of Garrapata bridge
63.5	MON	Med.	CCS	1071	Along roadcut
63.6	MON	Med.	CCS	986	Along roadcut
63.6	MON	Med./High	CCS	Adj. to 1077	
63.7	MON	Med.	CCS	986	Along roadcut, stand appears to have been planted
64.3	MON	Med.	CCS	1077	South side of Granite Canyon, stand located outside of right-of-way
65.0	MON	Med.	CCS	1077	Stand located outside of right-of-way
65.5	MON	Med./High	CCS	Adj. to 1077	
65.6	MON	High	CCS	Adj. to 1077	On hillside south of Monterey cypress windrow
65.6	MON	Med.	CCS	1004 & 1077	
65.7	MON	Med.	CCS	1004	Stand located outside of right-of-way
65.9	MON	Med.	CCS	1004	Stand located outside of right-of-way
65.9	MON	Med.	CCS	1010	Several of the plants outside of the right-of-way
66.2	MON	Med.	RD	1012	
66.6	MON	Med.	CCS	1020	Along top edge of roadcut
67.2	MON	Med.	CCS	1026	Stand located outside of the right-of-way

## Vegetation Communities:

CCS = central coastal scrub

CSCS = coastal sage-chaparral scrub

RD = ruderal/disturbed

## Relative Density Classifications

Absent = no plants observed within the polygon during the field survey;

Low = plants sparsely distributed, stands containing fewer than 25 plants/acre;

Medium = stands containing 25 to several hundred plants/acre; and

High = stands containing several hundred or more plants/acre, with a mix of age classes.

## APPENDIX K

## INCIDENTAL OBSERVATIONS OF WILDLIFE SPECIES DURING THE FIELD REVIEW

## Incidental Observations of Wildlife Species During the Field Review

Species	Vegetation Community <sup>1</sup>	Polygon Number	Date	Notes
<i>Odocoileus hemionus</i> Black-tailed deer	CCS	225	9/20/00	Observed at midway between 11.1 and 11.2
<i>Gymnogyps californianus</i> California condor			9/20/00	Five individuals, seen in the vicinity of Andrew Molera State Park, observation made from Big Sur River Inn
<i>Thamnophis</i> sp. Garter snake sp.	CCS	296	9/19/00	Roadkill, juvenile, PM = 19.3
Bat sp.	CCCSR	431	9/17/00	Roadkill, PM = 25.1
<i>Odocoileus hemionus</i> Black-tailed deer	CCRS	485	9/16/00	Two individuals flushed as observers approached
<i>Pandion haliaetus</i> Osprey	CCS	422	9/16/00	In flight
<i>Columba fasciata</i> Band-tailed pigeon	CCS	533	9/15/00	Two individuals, perched on powerline
<i>Pandion haliaetus</i> Osprey	CSCS	539	9/15/00	In flight
<i>Odocoileus hemionus</i> Black-tailed deer	CSCS	557	9/15/00	Roadkill, PM = 34.9
<i>Wilsonia pusilla</i> Wilson's warbler	CCRS	571	9/15/00	Foraging in willow
<i>Thamnophis</i> sp. Garter snake sp.	CSCS	512	9/15/00	Roadkill, adult, PM = 35.0
<i>Thamnophis</i> sp. Garter snake sp.	W	588	9/13/00	Roadkill, adult, PM = 40.7
<i>Falco peregrinus anatum</i> American peregrine falcon	CCS	594	9/13/00	In flight

<sup>1</sup> Vegetation Communities:

CCS= central coastal scrub

CCCSR = central coast cottonwood-sycamore riparian forest

CCRS = central coast riparian scrub

CSCS = coastal sage-chaparral scrub

MCF = Monterey cypress forest

MPF = Monterey pine forest

NNG = non-native grassland

RD = ruderal/disturbed

URF = upland redwood forest

W = windrow

## Incidental Observations of Wildlife Species During the Field Review

Species	Vegetation Community <sup>1</sup>	Polygon Number	Date	Notes
<i>Fulica americana</i> American Coot	Pond	624	9/13/00	Foraging in man-made pond
<i>Odocoileus hemionus</i> Black-tailed deer	URF	678	9/12/00	Two juveniles
<i>Pituophis melanonleucus catenifer</i> Pacific gopher snake	CCCSR	696	9/12/00	Observed crossing the Highway
<i>Dendroica townsendi</i> Townsend's warbler	CCRS	738	9/11/00	Two individuals
<i>Elanus leucurus</i> White-tailed kite	NNG	794	9/7/00	Foraging
<i>Lanius ludovicianus</i> Loggerhead shrike	NNG	881	9/7/00	Perched on powerline, PM = 52.4
<i>Canis latrans</i> Coyote	MCF	800	9/7/00	Roadkill, PM = 53.4
<i>Falco mexicanus</i> Prairie falcon	NNG	899	9/7/00	In flight
<i>Aquila chrysaetos</i> Golden eagle	CCS	961	9/6/00	Adult in flight
<i>Pelecanus occidentalis californicus</i> California brown pelican	Flight over ocean		8/31/00	In flight
<i>Thamnophis elegans terrestris</i> Coast garter snake	CCS	1004	8/31/00	Juvenile
<i>Buteo lineatus</i> Red-shouldered hawk	MPF	1058	8/30/00	Heard calling
<i>Buteo lineatus</i> Red-shouldered hawk	MPF	1171	8/29/00	Heard calling
<i>Elanus leucurus</i> White-tailed kite	RD	1142	8/29/00	Observed foraging

<sup>1</sup> Vegetation Communities:

CCS= central coastal scrub

CCCSR = central coast cottonwood-sycamore riparian forest

CCRS = central coast riparian scrub

CSCS = coastal sage-chaparral scrub

MCF = Monterey cypress forest

MPF = Monterey pine forest

NNG = non-native grassland

RD = ruderal/disturbed

URF = upland redwood forest

W = windrow

## APPENDIX L

## EXOTIC PLANTS DOCUMENTED DURING FIELD REVIEW

Species	USFS	Dept. Food & Ag.	CalEPPC
Acacia ( <i>Acacia</i> sp.)			Info
Eupatory ( <i>Ageratina adenophora</i> )	x		B
Giant reed ( <i>Arundo donax</i> )	x		A-1
Italian thistle ( <i>Carduus pycnocephalus</i> )	x	C	B
Ice plant ( <i>Carpobrotus edulis</i> )			A-1
Yellow star-thistle ( <i>Centaurea solstitialis</i> )	x	C	A-1
Bull thistle ( <i>Cirsium vulgare</i> )			B
Poison hemlock ( <i>Conium maculatum</i> )			B
Horseweed ( <i>Conyza canadensis</i> ) *			
Pampas grass ( <i>Cortaderia jubata</i> )	x		A-1
Cape ivy ( <i>Delairea odorata</i> , formerly <i>Senecio mikanioides</i> )	x		A-1
Teasel ( <i>Dipsacus</i> sp.)			Not listed
Blue gum Eucalyptus ( <i>Eucalyptus globulus</i> )			A-1
Fennel ( <i>Foeniculum vulgare</i> )			A-1
French broom ( <i>Genista monspessulana</i> )	x	C	A-1
English ivy ( <i>Hedera helix</i> )			B
Mustard ( <i>Hirschfeldia incana</i> )			Info
Prickly lettuce ( <i>Lactuca serriola</i> )			
Kikuyu grass ( <i>Pennisetum clandestinum</i> )		C	Info
Fountain grass ( <i>Pennisetum setaceum</i> )			A-1
Wild radish ( <i>Raphanus raphanistrum</i> )			
Castor bean ( <i>Ricinus communis</i> )			B
Milk thistle ( <i>Silybum marianum</i> )			Not listed
Spanish broom ( <i>Spartium junceum</i> )			B
Garden nasturtium ( <i>Tropaeolum majus</i> )			
Greater periwinkle ( <i>Vinca major</i> )			B

\* Horseweed is a CA native; however, it was included due to its association with disturbed sites.

USFS: x denotes exotic plants mapped in the *Big Sur Management Area Weed Index* (USFS, 1998).

Dept. of Food and Ag.: ratings from *Pest Ratings of Noxious Weed Species and Noxious Weed Seed*. A "C" rating is defined as "An organism subject to no state enforced action outside of nurseries except to retard spread. At the discretion of the commissioner. Or, an organism subject to no state enforced action except to provide for pest cleanliness in nurseries." State of California, Department of Food and Agriculture.

CalEPPC: ratings from Exotic Pest Plants of Greatest Ecological Concern in California. (CalEPPC, 1999)

List A = "most invasive wildland pest plants; documented as aggressive invaders that displace natives and disrupt natural habitats. Subset A-1: widespread pests that are invasive in more than 3 Jepson regions."

List B = "wildland pest plants of lesser invasiveness; invasive pest plants that spread less rapidly and cause a lesser degree of habitat disruption; may be widespread or regional."

Info = Need More Information = "plants for which current information does not adequately describe nature of threats to wildlands, distribution or invasiveness."

Not listed = Considered but Not Listed = "plants that, after review of status, do not appear to pose a significant threat to wildlands."



California Department of Fish and Game  
Natural Diversity Data Base

List of Elements and Status by Common Name  
Alder Peak

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
CALIFORNIA TIGER SALAMANDER <i>AMBYSTOMA CALIFORNIENSE</i>	Endangered/ None	G2G3/ S2S3		SC
CONE PEAK BEDSTRAW <i>GALIUM CALIFORNICUM SSP LUCIENSE</i>	None/ None	G5T2/ S2.3	1B/ 3-1-3	
DWARF CALYCADENIA <i>CALYCADENIA VILLOSA</i>	None/ None	G2/ S2.1	1B/ 2-3-3	
HARDHAM'S BEDSTRAW <i>GALIUM HARDHAMIAE</i>	None/ None	G2/ S2.3	1B/ 2-1-3	
HICKMAN'S CHECKERBLOOM <i>SIDALCEA HICKMANII SSP HICKMANII</i>	None/ None	G3T2/ S2.3	1B/ 2-1-3	
HOKED POPCORN-FLOWER <i>PLAGIOBOTHRYUS UNCINATUS</i>	None/ None	G2/ S2.2	1B/ 2-2-3	
LATE-FLOWERED MARIPOSA LILY <i>CALOCHORTUS WEEDII VAR VESTUS</i>	None/ None	G3T2/ S2.2	1B/ 2-2-3	
MOST BEAUTIFUL JEWEL-FLOWER <i>STREPTANTHUS ALBIDUS SSP PERAMOENUS</i>	None/ None	G2T2/ S2.2	1B/ 2-2-3	
SANTA LUCIA MINT <i>POGOGYNE CLAREANA</i>	None/ Endangered	G1/ S1.2	1B/ 3-2-3	
SYCAMORE ALLUVIAL WOODLAND	None/ None	G1/ S1.1		
VALLEY OAK WOODLAND	None/ None	G3/ S2.1		

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Big Sur

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
ADOBE SANICLE SANICULA MARITIMA	None/ Rare	G2/ S2.2	1B/ 3-3-3	
ARROYO SECO BUSH MALLOW MALACOTHAMNUS PALMERI VAR LUCIANUS	None/ None	G4T1Q/ S1.2	1B/ 3-2-3	
BLACK SWIFT CYPSELOIDES NIGER	None/ None	G4/ S2		SC
DOLLOFF CAVE SPIDER META DOLLOFF	None/ None	G1/ S1		
DUDLEY'S LOUSEWORT PEDICULARIS DUDLEYI	None/ Rare	G2/ S2.2	1B/ 3-2-3	
FRAGRANT FRITILLARY FRITILLARIA LILIACEA	None/ None	G2/ S2.2	1B/ 2-2-3	
HUTCHINSON'S LARKSPUR DELPHINIUM HUTCHINSONIAE	None/ None	G2/ S2.1	1B/ 3-2-3	
LITTLE SUR MANZANITA ARCTOSTAPHYLOS EDMUNDSII	None/ None	G2/ S2.2	1B/ 3-2-3	
MAPLE-LEAVED CHECKERBLOOM SIDALCEA MALACHROIDES	None/ None	G2?/ S2.2	1B/ 2-2-2	
MONARCH BUTTERFLY DANAUS PLEXIPPUS	None/ None	G5/ S3		
NORTH CENTRAL COAST FALL-RUN STEELHEAD STREAM	None/ None	G?/ S?		
PRAIRIE FALCON FALCO MEXICANUS	None/ None	G5/ S3		SC
SMITH'S BLUE BUTTERFLY EUPHILOTES ENOPTES SMITHI	Endangered/ None	G5T2/ S2		

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List of Elements and Status by Common Name  
Big Sur

<u>Common/Scientific Name</u>	<u>Federal/ State Status</u>	<u>Global/ State Rank</u>	<u>CNPS/ R-E-D</u>	<u>CDFG Status</u>
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU ONCORHYNCHUS MYKISS IRIDEUS	Threatened/ None	G5T2/ S2		

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List of Elements and Status by Common Name  
Burro Mountain

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
BLACK SWIFT <i>CYPSELOIDES NIGER</i>	None/ None	G4/ S2		SC
CONE PEAK BEDSTRAW <i>GALIUM CALIFORNICUM SSP LUCIENSE</i>	None/ None	G5T2/ S2.3	1B/ 3-1-3	
DWARF CALYCADENIA <i>CALYCADENIA VILLOSA</i>	None/ None	G2/ S2.1	1B/ 2-3-3	
FOOTHILL YELLOW-LEGGED FROG <i>RANA BOYLI</i>	None/ None	G3/ S2S3		SC
HARDHAM'S BEDSTRAW <i>GALIUM HARDHAMIAE</i>	None/ None	G2/ S2.3	1B/ 2-1-3	
HICKMAN'S CHECKERBLOOM <i>SIDALCEA HICKMANII SSP HICKMANII</i>	None/ None	G3T2/ S2.3	1B/ 2-1-3	
HOOKED POPCORN-FLOWER <i>PLAGIOBOTHRYUS UNCINATUS</i>	None/ None	G2/ S2.2	1B/ 2-2-3	
LATE-FLOWERED MARIPOSA LILY <i>CALOCHORTUS WEEDII VAR VESTUS</i>	None/ None	G3T2/ S2.2	1B/ 2-2-3	
MONARCH BUTTERFLY <i>DANAUS PLEXIPPUS</i>	None/ None	G5/ S3		
MOST BEAUTIFUL JEWEL-FLOWER <i>STREPTANTHUS ALBIDUS SSP PERAMOENUS</i>	None/ None	G2T2/ S2.2	1B/ 2-2-3	
SAN LUIS OBISPO SEDGE <i>CAREX OBISPOENSIS</i>	None/ None	G2/ S2.2	1B/ 2-2-3	
SAN SIMEON BACCHARIS <i>BACCHARIS PLUMMERAE SSP GLABRATA</i>	None/ None	G3T1/ S1.2	1B/ 3-2-3	
SANTA LUCIA MINT <i>POGOGYNE CLAREANA</i>	None/ Endangered	G1/ S1.2	1B/ 3-2-3	

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Burro Mountain

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
SMITH'S BLUE BUTTERFLY <i>EUPHILOTES ENOPTES SMITHI</i>	Endangered/ None	G5T2/ S2		
SOUTHWESTERN POND TURTLE <i>CLEMMYS MARMORATA PALLIDA</i>	None/ None	G4T2T3 / S2		SC
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU <i>ONCORHYNCHUS MYKISS IRIDEUS</i>	Threatened/ None	G5T2/ S2		

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List of Elements and Status by Common Name  
Cape San Martin

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
ADOBE SANICLE SANICULA MARITIMA	None/ Rare	G2/ S2.2	1B/ 3-3-3	
ARROYO DE LA CRUZ MANZANITA ARCTOSTAPHYLOS CRUZENSIS	None/ None	G2/ S2.2	1B/ 2-2-3	
CONE PEAK BEDSTRAW GALIUM CALIFORNICUM SSP LUCIENSE	None/ None	G5T2/ S2.3	1B/ 3-1-3	
HARDHAM'S BEDSTRAW GALIUM HARDHAMIAE	None/ None	G2/ S2.3	1B/ 2-1-3	
LA GRACIOSA THISTLE CIRSIIUM LONCHOLEPIS	Endangered/ Threatened	G2/ S2.2	1B/ 3-3-3	
LATE-FLOWERED MARIPOSA LILY CALOCHORTUS WEEDII VAR VESTUS	None/ None	G3T2/ S2.2	1B/ 2-2-3	
MONARCH BUTTERFLY DANAUS PLEXIPPUS	None/ None	G5/ S3		
SMITH'S BLUE BUTTERFLY EUPHILOTES ENOPTES SMITHI	Endangered/ None	G5T2/ S2		

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List of Elements and Status by Common Name  
Cone Peak

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
BUTTERWORTH'S BUCKWHEAT <i>ERIOGONUM BUTTERWORTHIANUM</i>	None/ Rare	G1/ S1.3	1B/ 3-1-3	
CONE PEAK BEDSTRAW <i>GALIUM CALIFORNICUM SSP LUCIENSE</i>	None/ None	G5T2/ S2.3	1B/ 3-1-3	
SAN BENITO FRITILLARY <i>FRITILLARIA VIRIDEA</i>	None/ None	G3Q/ S3.2	1B/ 2-2-3	
SLENDER PENTACHAETA <i>PENTACHAETA EXILIS SSP AEOLICA</i>	None/ None	G5T1/ S1.2	1B/ 3-2-3	
SMITH'S BLUE BUTTERFLY <i>EUPHILOTES ENOPTES SMITHI</i>	Endangered/ None	G5T2/ S2		
SOUTHWESTERN POND TURTLE <i>CLEMMYS MARMORATA PALLIDA</i>	None/ None	G4T2T3 / S2		SC
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU <i>ONCORHYNCHUS MYKISS IRIDEUS</i>	Threatened/ None	G5T2/ S2		
VALLEY OAK WOODLAND	None/ None	G3/ S2.1		

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List of Elements and Status by Common Name  
 Lopez Point

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
BLACK SWIFT <i>CYPSELOIDES NIGER</i>	None/ None	G4/ S2		SC
CONE PEAK BEDSTRAW <i>GALIUM CALIFORNICUM SSP LUCIENSE</i>	None/ None	G5T2/ S2.3	1B/ 3-1-3	
HUTCHINSON'S LARKSPUR <i>DELPHINIUM HUTCHINSONIAE</i>	None/ None	G2/ S2.1	1B/ 3-2-3	
MONARCH BUTTERFLY <i>DANAUS PLEXIPPUS</i>	None/ None	G5/ S3		
SMITH'S BLUE BUTTERFLY <i>EUPHILOTES ENOPTES SMITHI</i>	Endangered/ None	G5T2/ S2		
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU <i>ONCORHYNCHUS MYKISS IRIDEUS</i>	Threatened/ None	G5T2/ S2		

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List of Elements and Status by Common Name  
Monterey

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
BEACH LAYIA LAYIA CARNOSA	Endangered/ Endangered	G1/ S1.1	1B/ 3-3-3	
BLACK LEGLESS LIZARD ANNIELLA PULCHRA NIGRA	None/ None	G4QT2/ S2		SC
BLACK SWIFT CYPSELOIDES NIGER	None/ None	G4/ S2		SC
CALIFORNIA BROWN PELICAN PELECANUS OCCIDENTALIS CALIFORNICUS	Endangered/ Endangered	G4T3/ S1S2		
CALIFORNIA RED-LEGGED FROG RANA AURORA DRAYTONII	Threatened/ None	G4T2T3 / S2S3		SC
CARMEL VALLEY BUSH MALLOW MALACOTHAMNUS PALMERI VAR INVOLUCRATUS	None/ None	G4T2Q/ S2.2	1B/ 2-2-3	
CENTRAL DUNE SCRUB	None/ None	G2/ S2.2		
CENTRAL MARITIME CHAPARRAL	None/ None	G2/ S2.2		
COASTAL DUNES MILK-VETCH ASTRAGALUS TENER VAR TITI	Endangered/ Endangered	G1T1/ S1.1	1B/ 3-3-3	
EASTWOOD'S GOLDENBUSH ERICAMERIA FASCICULATA	None/ None	G2/ S2.1	1B/ 3-3-3	
FRAGRANT FRITILLARY FRITILLARIA LILIACEA	None/ None	G2/ S2.2	1B/ 2-2-3	
GOWEN CYPRESS CUPRESSUS GOVENIANA SSP GOVENIANA	Threatened/ None	G2T1/ S1.2	1B/ 3-2-3	
HICKMAN'S CINQUEFOIL POTENTILLA HICKMANII	Endangered/ Endangered	G1/ S1.1	1B/ 3-3-3	

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List of Elements and Status by Common Name  
 Monterey

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-B-D	CDFG Status
HICKMAN'S ONION <i>ALLIUM HICKMANII</i>	None/ None	G2/ S2.2	1B/ 2-2-3	
HOOKER'S MANZANITA <i>ARCTOSTAPHYLOS HOOKERI SSP HOOKERI</i>	None/ None	G3T2/ S2?	1B/ 2-2-3	
HUTCHINSON'S LARKSPUR <i>DELPHINIUM HUTCHINSONIAE</i>	None/ None	G2/ S2.1	1B/ 3-2-3	
JONES'S LAYIA <i>LAYIA JONESII</i>	None/ None	G1/ S1.1	1B/ 3-2-3	
KELLOGG'S HORKELIA <i>HORKELIA CUNEATA SSP SERICEA</i>	None/ None	G4T1/ S1.1	1B/ 3-3-3	
MAPLE-LEAVED CHECKERBLOOM <i>SIDALCEA MALACHROIDES</i>	None/ None	G2?/ S2.2	1B/ 2-2-2	
MENZIES'S WALLFLOWER <i>ERYSIMUM MENZIESII SSP MENZIESII</i>	Endangered/ Endangered	G2T2/ S2.1	1B/ 3-3-3	
MONARCH BUTTERFLY <i>DANAUS PLEXIPPUS</i>	None/ None	G5/ S3		
MONTEREY CLOVER <i>TRIFOLIUM TRICHOCALYX</i>	Endangered/ Endangered	G1/ S1.1	1B/ 3-3-3	
MONTEREY CYPRESS <i>CUPRESSUS MACROCARPA</i>	None/ None	G1/ S1.2	1B/ 3-2-3	
MONTEREY CYPRESS FOREST	None/ None	G1/ S1.2		
MONTEREY PINE <i>PINUS RADIATA</i>	None/ None	G1/ S1.1	1B/ 3-3-2	
MONTEREY PINE FOREST	None/ None	G1/ S1.1		

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List of Elements and Status by Common Name  
Monterey

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
MONTEREY PYGMY CYPRESS FOREST	None/ None	G1/ S1.1		
MONTEREY SPINEFLOWER CHORIZANTHE PUNGENS VAR PUNGENS	Threatened/ None	G2T2/ S2.2	1B/ 2-2-3	
NORTHERN BISHOP PINE FOREST	None/ None	G2/ S2.2		
PACIFIC GROVE CLOVER TRIFOLIUM POLYODON	None/ Rare	G1Q/ S1.1	1B/ 3-3-3	
ROBUST SPINEFLOWER CHORIZANTHE ROBUSTA VAR ROBUSTA	Endangered/ None	G2T1/ S1.1	1B/ 3-3-3	
SAND GILIA GILIA TENUIFLORA SSP ARENARIA	Endangered/ Threatened	G3T2/ S2.2	1B/ 3-2-3	
SANDMAT MANZANITA ARCTOSTAPHYLOS PUMILA	None/ None	G2/ S2.2	1B/ 3-2-3	
SMITH'S BLUE BUTTERFLY EUPHIOTES ENOPTES SMITHI	Endangered/ None	G5T2/ S2		
SOUTHWESTERN POND TURTLE CLEMmys MARMORATA PALLIDA	None/ None	G4T2T3 / S2		SC
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU ONCORHYNCHUS MYKISS IRIDEUS	Threatened/ None	G5T2/ S2		
TIDESTROM'S LUPINE LUPINUS TIDESTROMII	Endangered/ Endangered	G2/ S2.1	1B/ 3-3-3	
WESTERN SNOWY PLOVER CHARADRIUS ALEXANDRINUS NIVOSUS	Threatened/ None	G4T2/ S2		SC
YADON'S REIN ORCHID PIPERIA YADONII	Endangered/ None	G1/ S1.1	1B/ 3-3-3	

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List of Elements and Status by Common Name  
Mt. Carmel

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
CALIFORNIA RED-LEGGED FROG RANA AURORA DRAYTONII	Threatened/ None	G4T2T3 / S2S3		SC
CALIFORNIA TIGER SALAMANDER AMBYSTOMA CALIFORNIENSE	Endangered/ None	G2G3/ S2S3		SC
CARMEL VALLEY BUSH MALLOW MALACOTHAMNUS PALMERI VAR INVOLUCRATUS	None/ None	G4T2Q/ S2.2	1B/ 2-2-3	
CARMEL VALLEY MALACOTHRIX MALACOTHRIX SAXATILIS VAR ARACHNOIDEA	None/ None	G5T2/ S2.2	1B/ 3-2-3	
EASTWOOD'S GOLDENBUSH ERICAMERIA FASCICULATA	None/ None	G2/ S2.1	1B/ 3-3-3	
MAPLE-LEAVED CHECKERBLOOM SIDALCEA MALACHROIDES	None/ None	G2?/ S2.2	1B/ 2-2-2	
SMITH'S BLUE BUTTERFLY EUPHILOTES ENOPTES SMITHI	Endangered/ None	G5T2/ S2		
SOUTHWESTERN POND TURTLE CLEMMYS MARMORATA PALLIDA	None/ None	G4T2T3 / S2		SC
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU ONCORHYNCHUS MYKISS IRIDEUS	Threatened/ None	G5T2/ S2		

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List of Elements and Status by Common Name  
 Partington Ridge

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
CALIFORNIA RED-LEGGED FROG RANA AURORA DRAYTONII	Threatened/ None	G4T2T3 / S2S3		SC
CONE PEAK BEDSTRAW GALIUM CALIFORNICUM SSP LUCIENSE	None/ None	G5T2/ S2.3	1B/ 3-1-3	
DOUBLE-CRESTED CORMORANT PHALACROCORAX AURITUS	None/ None	G5/ S3		SC
HUTCHINSON'S LARKSPUR DELPHINIUM HUTCHINSONIAE	None/ None	G2/ S2.1	1B/ 3-2-3	
MONARCH BUTTERFLY DANAUS PLEXIPPUS	None/ None	G5/ S3		
SMITH'S BLUE BUTTERFLY EUPHILOTES ENOPTES SMITHI	Endangered/ None	G5T2/ S2		
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU ONCORHYNCHUS MYKISS IRIDEUS	Threatened/ None	G5T2/ S2		

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List of Elements and Status by Common Name  
Pfeiffer Point

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
BLACK SWIFT <i>CYPSELOIDES NIGER</i>	None/ None	G4/ S2		SC
CALIFORNIA RED-LEGGED FROG <i>RANA AURORA DRAYTONII</i>	Threatened/ None	G4T2T3 / S2S3		SC
FRAGRANT FRITILLARY <i>FRITILLARIA LILIACEA</i>	None/ None	G2/ S2.2	1B/ 2-2-3	
GLOBOSE DUNE BEETLE <i>COELUS GLOBOSUS</i>	None/ None	G1/ S1		
HUTCHINSON'S LARKSPUR <i>DELPHINIUM HUTCHINSONIAE</i>	None/ None	G2/ S2.1	1B/ 3-2-3	
LITTLE SUR MANZANITA <i>ARCTOSTAPHYLOS EDMUNDSII</i>	None/ None	G2/ S2.2	1B/ 3-2-3	
MONARCH BUTTERFLY <i>DANAUS PLEXIPPUS</i>	None/ None	G5/ S3		
NORTH CENTRAL COAST FALL-RUN STEELHEAD STREAM	None/ None	G?/ S?		
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU <i>ONCORHYNCHUS MYKISS IRIDEUS</i>	Threatened/ None	G5T2/ S2		

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List of Elements and Status by Common Name  
Point Sur

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
BLACK SWIFT CYPSELOIDES NIGER	None/ None	G4/ S2		SC
COMPACT COBWEBBY THISTLE CIRSIIUM OCCIDENTALE VAR COMPACTUM	None/ None	G3G4T2 / S2.1	1B/ 2-2-3	
HUTCHINSON'S LARKSPUR DELPHINIUM HUTCHINSONIAE	None/ None	G2/ S2.1	1B/ 3-2-3	
LITTLE SUR MANZANITA ARCTOSTAPHYLOS EDMUNDSII	None/ None	G2/ S2.2	1B/ 3-2-3	
MAPLE-LEAVED CHECKERBLOOM SIDALCEA MALACHROIDES	None/ None	G2?/ S2.2	1B/ 2-2-2	
MONARCH BUTTERFLY DANAUS PLEXIPPUS	None/ None	G5/ S3		
SMITH'S BLUE BUTTERFLY EUPHILOTES ENOPTES SMITHI	Endangered/ None	G5T2/ S2		
TUFTED PUFFIN FRATERCULA CIRRHATA	None/ None	G5/ S2		SC
WESTERN SNOWY PLOVER CHARADRIUS ALEXANDRINUS NIVOSUS	Threatened/ None	G4T2/ S2		SC

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List of Elements and Status by Common Name  
Soberanes Point

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
CENTRAL MARITIME CHAPARRAL	None/ None	G2/ S2.2		
HOOKER'S MANZANITA ARCTOSTAPHYLOS HOOKERI SSP HOOKERI	None/ None	G3T2/ S2?	1B/ 2-2-3	
HUTCHINSON'S LARKSPUR DELPHINIUM HUTCHINSONIAE	None/ None	G2/ S2.1	1B/ 3-2-3	
LITTLE SUR MANZANITA ARCTOSTAPHYLOS EDMUNDSII	None/ None	G2/ S2.2	1B/ 3-2-3	
MAPLE-LEAVED CHECKERBLOOM SIDALCEA MALACHROIDES	None/ None	G2?/ S2.2	1B/ 2-2-2	
MONARCH BUTTERFLY DANAUS PLEXIPPUS	None/ None	G5/ S3		
MONTEREY PINE PINUS RADIATA	None/ None	G1/ S1.1	1B/ 3-3-2	
MONTEREY PINE FOREST	None/ None	G1/ S1.1		
PINNACLES BUCKWHEAT ERIOGONUM NORTONII	None/ None	G2/ S2.3	1B/ 2-1-3	
SMITH'S BLUE BUTTERFLY EUPHILOTES ENOPTES SMITHI	Endangered/ None	G5T2/ S2		
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU ONCORHYNCHUS MYKISS IRIDEUS	Threatened/ None	G5T2/ S2		
YADON'S REIN ORCHID PIPERIA YADONII	Endangered/ None	G1/ S1.1	1B/ 3-3-3	

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List of Elements and Status by Common Name  
 Tassajara Hot Springs

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
HICKMAN'S CHECKERBLOOM <i>SIDALCEA HICKMANII</i> SSP <i>HICKMANII</i>	None/ None	G3T2/ S2.3	1B/ 2-1-3	
HOOKED POPCORN-FLOWER <i>PLAGIOBOTHRYIS UNCINATUS</i>	None/ None	G2/ S2.2	1B/ 2-2-3	
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU <i>ONCORHYNCHUS MYKISS IRIDEUS</i>	Threatened/ None	G5T2/ S2		

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List of Elements and Status by Common Name  
Ventana Cones

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
CALIFORNIA RED-LEGGED FROG RANA AURORA DRAYTONII	Threatened/ None	G4T2T3 / S2S3		SC
COAST RANGE NEWT TARICHA TOROSA TOROSA	None/ None	G3G4T3 / S3		SC
CONE PEAK BEDSTRAW GALIUM CALIFORNICUM SSP LUCIENSE	None/ None	G5T2/ S2.3	1B/ 3-1-3	
MUIR'S TARPLANT CARLQUISTIA MUIRII	None/ None	G2/ S2.3	1B/ 2-1-3	
PRAIRIE FALCON FALCO MEXICANUS	None/ None	G5/ S3		SC
SOUTHWESTERN POND TURTLE CLEMMYS MARMORATA PALLIDA	None/ None	G4T2T3 / S2		SC
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU ONCORHYNCHUS MYKISS IRIDEUS	Threatened/ None	G5T2/ S2		
TALUS FRITILLARY FRITILLARIA PASCATA	None/ None	G2/ S2.2	1B/ 3-2-3	

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List of Elements and Status by Common Name  
 Villa Creek

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
HARDHAM'S BEDSTRAW GALIUM HARDHAMIAE	None/ None	G2/ S2.3	1B/ 2-1-3	
LATE-FLOWERED MARIPOSA LILY CALOCHORTUS WEEDII VAR VESTUS	None/ None	G3T2/ S2.2	1B/ 2-2-3	
SMITH'S BLUE BUTTERFLY EUPHILOTES ENOPTES SMITHI	Endangered/ None	G5T2/ S2		
STEELHEAD - SOUTH / CENTRAL CALIFORNIA COAST ESU ONCORHYNCHUS MYKISS IRIDEUS	Threatened/ None	G5T2/ S2		

**APPENDIX N**

**CALIFORNIA NATIVE PLANT SOCIETY'S INVENTORY OF RARE AND  
ENDANGERED VASCULAR PLANTS OF CALIFORNIA REPORT**

**SELECTED CNPS PLANTS BY SCIENTIFIC NAME**

Alder Peak, Big Sur, Burro Mountain, Cape San Martin, Cone Peak, Lopez Point,  
Monterey, Mount Carmel, Partington Ridge, Pfeiffer Point, Point Sur, Soberanes Point,  
Tassajara Hot Springs, Ventana Cones, and Villa Creek Quads

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Alder Peak

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ABIES BRACTEATA</i> "bristlecone fir"	1B	3-1-3	None	None
<i>ARCTOSTAPHYLOS PILOSULA</i> "Santa Margarita manzanita"	1B	3-2-3	None	SOC
<i>CALOCHORTUS WEEDII</i> VAR. <i>VESTUS</i> "late-flowered mariposa lily"	1B	2-2-3	None	SOC
<i>CALYCADENIA VILLOSA</i> "dwarf calycadenia"	1B	2-3-3	None	None
<i>ERIASTRUM LUTEUM</i> "yellow-flowered eriastrum"	1B	2-2-3	None	None
<i>GALIUM CALIFORNICUM</i> SSP. <i>LUCIENSE</i> "Cone Peak bedstraw"	1B	3-1-3	None	SOC
<i>GALIUM HARDHAMIAE</i> "Hardham's bedstraw"	1B	2-1-3	None	None
<i>MONARDELLA ANTONINA</i> SSP. <i>ANTONINA</i> "San Antonio Hills monardella"	3	?-?-3	None	None
<i>MONARDELLA PALMERI</i> "Palmer's monardella"	1B	2-2-3	None	None
<i>PLAGIOBOTHRYIS UNCINATUS</i> "hooked popcorn-flower"	1B	2-2-3	None	SOC
<i>POGOGYNE CLAREANA</i> "Santa Lucia mint"	1B	3-2-3	CE	SOC
<i>SIDALCEA HICKMANII</i> SSP. <i>HICKMANII</i> "Hickman's checkerbloom"	1B	2-1-3	None	None
<i>STREPTANTHUS ALBIDUS</i> SSP. <i>PERAMOENUS</i> "most beautiful jewel-flower"	1B	2-2-3	None	SOC

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Big Sur

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ABIES BRACTEATA</i> "bristlecone fir"	1B	3-1-3	None	None
<i>ARCTOSTAPHYLOS EDMUNDSII</i> "Little Sur manzanita"	1B	3-2-3	None	SOC
<i>CLARKIA JOLONENSIS</i> "Jolon clarkia"	1B	3-2-3	None	None
<i>CORETHROGYNE LEUCOPHYLLA</i> "branching beach aster"	3	1-2-3	None	None
<i>DELPHINIUM HUTCHINSONIAE</i> "Hutchinson's larkspur"	1B	3-2-3	None	SOC
<i>MALACOTHAMNUS PALMERI</i> VAR. <i>LUCIANUS</i> "Arroyo Seco bush mallow"	1B	3-2-3	None	SOC
<i>PEDICULARIS DUDLEYI</i> "Dudley's lousewort"	1B	3-2-3	CR	SOC
<i>SANICULA MARITIMA</i> "adobe sanicle"	1B	3-3-3	CR	SOC
<i>SIDALCEA MALACHROIDES</i> "maple-leaved checkerbloom"	1B	2-2-2	None	None

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Burro Mountain

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ABIES BRACTEATA</i> "bristlecone fir"	1B	3-1-3	None	None
<i>BACCHARIS PLUMMERAE</i> SSP. <i>GLABRATA</i> "San Simeon baccharis"	1B	3-2-3	None	None
<i>CALOCHORTUS WEEDII</i> VAR. <i>VESTUS</i> "late-flowered mariposa lily"	1B	2-2-3	None	SOC
<i>CALYCADENIA VILLOSA</i> "dwarf calycadenia"	1B	2-3-3	None	None
<i>CASTILLEJA DENSIFLORA</i> SSP. <i>OBISPOENSIS</i> "Obispo Indian paintbrush"	1B	2-2-3	None	None
<i>CORETHROGYNE LEUCOPHYLLA</i> "branching beach aster"	3	1-2-3	None	None
<i>GALIUM CALIFORNICUM</i> SSP. <i>LUCIENSE</i> "Cone Peak bedstraw"	1B	3-1-3	None	SOC
<i>GALIUM HARDHAMIAE</i> "Hardham's bedstraw"	1B	2-1-3	None	None
<i>MICROSERIS PALUDOSA</i> "marsh microseris"	1B	2-2-3	None	None
<i>MONARDELLA PALMERI</i> "Palmer's monardella"	1B	2-2-3	None	None
<i>PEDICULARIS DUDLEYI</i> "Dudley's lousewort"	1B	3-2-3	CR	SOC
<i>POGOGYNE CLAREANA</i> "Santa Lucia mint"	1B	3-2-3	CE	SOC
<i>STREPTANTHUS ALBIDUS</i> SSP. <i>PERAMOENUS</i> "most beautiful jewel-flower"	1B	2-2-3	None	SOC
<i>TRITELEIA IXIOIDES</i> SSP. <i>COOKII</i> "Cook's triteleia"	1B	2-1-3	None	None

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Cape San Martin

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ABIES BRACTEATA</i> "bristlecone fir"	1B	3-1-3	None	None
<i>ALLIUM HICKMANII</i> "Hickman's onion"	1B	2-2-3	None	SOC
<i>ARCTOSTAPHYLOS CRUZENSIS</i> "Arroyo de la Cruz manzanita"	1B	2-2-3	None	SOC
<i>CALOCHORTUS WEEDII</i> VAR. <i>VESTUS</i> "late-flowered mariposa lily"	1B	2-2-3	None	SOC
<i>CAREX OBISPOENSIS</i> "San Luis Obispo sedge"	1B	2-2-3	None	None
<i>GALIUM CALIFORNICUM</i> SSP. <i>LUCIENSE</i> "Cone Peak bedstraw"	1B	3-1-3	None	SOC
<i>GALIUM HARDHAMIAE</i> "Hardham's bedstraw"	1B	2-1-3	None	None
<i>MONARDELLA PALMERI</i> "Palmer's monardella"	1B	2-2-3	None	None
<i>POGOGYNE CLAREANA</i> "Santa Lucia mint"	1B	3-2-3	CE	SOC
<i>SANICULA MARITIMA</i> "adobe sanicle"	1B	3-3-3	CR	SOC

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Cone Peak

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ABIES BRACTEATA</i> "bristlecone fir"	1B	3-1-3	None	None
<i>CLARKIA JOLONENSIS</i> "Jolon clarkia"	1B	3-2-3	None	None
<i>ERIOGONUM BUTTERWORTHIANUM</i> "Butterworth's buckwheat"	1B	3-1-3	CR	SOC
<i>GALIUM CALIFORNICUM</i> SSP. <i>LUCIENSE</i> "Cone Peak bedstraw"	1B	3-1-3	None	SOC
<i>GALIUM CLEMENTIS</i> "Santa Lucia bedstraw"	1B	2-1-3	None	None
<i>MONARDELLA ANTONINA</i> SSP. <i>ANTONINA</i> "San Antonio Hills monardella"	3	?-?-3	None	None
<i>PENTACHAETA EXILIS</i> SSP. <i>AEOLICA</i> "slender pentachaeta"	1B	3-2-3	None	SOC
<i>PLAGIOBOTHRYIS UNCINATUS</i> "hooked popcorn-flower"	1B	2-2-3	None	SOC

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Lopez Point

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ABIES BRACTEATA</i> "bristlecone fir"	1B	3-1-3	None	None
<i>CAREX OBISPOENSIS</i> "San Luis Obispo sedge"	1B	2-2-3	None	None
<i>DELPHINIUM HUTCHINSONIAE</i> "Hutchinson's larkspur"	1B	3-2-3	None	SOC
<i>GALIUM CALIFORNICUM</i> SSP. <i>LUCIENSE</i> "Cone Peak bedstraw"	1B	3-1-3	None	SOC

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Monterey

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ALLIUM HICKMANII</i> "Hickman's onion"	1B	2-2-3	None	SOC
<i>ARCTOSTAPHYLOS HOOKERI</i> SSP. <i>HOOKERI</i> "Hooker's manzanita"	1B	2-2-3	None	None
<i>ARCTOSTAPHYLOS PUMILA</i> "sandmat manzanita"	1B	3-2-3	None	SOC
<i>ASTRAGALUS TENER</i> VAR. <i>TITI</i> "coastal dunes milk-vetch"	1B	3-3-3	CE	FE
<i>CHORIZANTHE PUNGENS</i> VAR. <i>PUNGENS</i> "Monterey spineflower"	1B	2-2-3	None	FT
<i>CLARKIA JOLONENSIS</i> "Jolon clarkia"	1B	3-2-3	None	None
<i>COLLINSIA MULTICOLOR</i> "San Francisco collinsia"	1B	2-2-3	None	None
<i>CORDYLANTHUS RIGIDUS</i> SSP. <i>LITTORALIS</i> "seaside bird's-beak"	1B	2-3-3	CE	SOC
<i>CORETHROGYNE LEUCOPHYLLA</i> "branching beach aster"	3	1-2-3	None	None
<i>CUPRESSUS GOVENIANA</i> SSP. <i>GOVENIANA</i> "Gowen cypress"	1B	3-2-3	None	FT
<i>CUPRESSUS MACROCARPA</i> "Monterey cypress"	1B	3-2-3	None	SOC
<i>DELPHINIUM HUTCHINSONIAE</i> "Hutchinson's larkspur"	1B	3-2-3	None	SOC
<i>DELPHINIUM UMBRACULORUM</i> "umbrella larkspur"	1B	2-1-3	None	None
<i>ERICAMERIA FASCICULATA</i> "Eastwood's goldenbush"	1B	3-3-3	None	SOC
<i>ERYSIMUM MENZIESII</i> SSP. <i>MENZIESII</i> "Menzies's wallflower"	1B	3-3-3	CE	FE
<i>FRITILLARIA LILIACEA</i> "fragrant fritillary"	1B	2-2-3	None	SOC
<i>GILIA TENUIFLORA</i> SSP. <i>ARENARIA</i> "sand gilia"	1B	3-2-3	CT	FE
<i>GRINDELIA HIRSUTULA</i> VAR. <i>MARITIMA</i> "San Francisco gumplant"	1B	2-2-3	None	SOC

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Monterey

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>HORKELIA CUNEATA</i> SSP. <i>SERICEA</i> "Kellogg's horkelia"	1B	3-3-3	None	SOC
<i>LAYIA CARNOSA</i> "beach layia"	1B	3-3-3	CE	FE
<i>LAYIA JONESII</i> "Jones's layia"	1B	3-2-3	None	SOC
<i>LUPINUS TIDESTROMII</i> "Tidestrom's lupine"	1B	3-3-3	CE	FE
<i>MALACOTHAMNUS PALMERI</i> VAR. <i>INVOLUCRATUS</i> "Carmel Valley bush mallow"	1B	2-2-3	None	SOC
<i>MALACOTHAMNUS PALMERI</i> VAR. <i>PALMERI</i> "Santa Lucia bush mallow"	1B	2-2-3	None	None
<i>MICROSERIS PALUDOSA</i> "marsh microseris"	1B	2-2-3	None	None
<i>PINUS RADIATA</i> "Monterey pine"	1B	3-3-2	None	SOC
<i>PIPERIA YADONII</i> "Yadon's rein orchid"	1B	3-3-3	None	FE
<i>POTENTILLA HICKMANII</i> "Hickman's cinquefoil"	1B	3-3-3	CE	FE
<i>ROSA PINETORUM</i> "pine rose"	1B	3-2-3	None	None
<i>SIDALCEA MALACHROIDES</i> "maple-leaved checkerbloom"	1B	2-2-2	None	None
<i>TRIFOLIUM POLYODON</i> "Pacific Grove clover"	1B	3-3-3	CR	SOC
<i>TRIFOLIUM TRICHOCALYX</i> "Monterey clover"	1B	3-3-3	CE	FE

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Mt. Carmel

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>GALIUM CLEMENTIS</i> "Santa Lucia bedstraw"	1B	2-1-3	None	None
<i>MALACOTHRIX SAXATILIS</i> VAR. <i>ARACHNOIDEA</i> "Carmel Valley malacothrix"	1B	3-2-3	None	SOC
<i>SIDALCEA MALACHROIDES</i> "maple-leaved checkerbloom"	1B	2-2-2	None	None

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Partington Ridge

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ABIES BRACTEATA</i> "bristlecone fir"	1B	3-1-3	None	None
<i>CLARKIA JOLONENSIS</i> "Jolon clarkia"	1B	3-2-3	None	None
<i>CORETHROGYNE LEUCOPHYLLA</i> "branching beach aster"	3	1-2-3	None	None
<i>DELPHINIUM HUTCHINSONIAE</i> "Hutchinson's larkspur"	1B	3-2-3	None	SOC
<i>GALIUM CALIFORNICUM</i> SSP. <i>LUCIENSE</i> "Cone Peak bedstraw"	1B	3-1-3	None	SOC
<i>LUPINUS ALBIFRONS</i> VAR. <i>ABRAMSII</i> "Abrams's lupine"	3	3-2-3	None	None

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Pfeiffer Point

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ARCTOSTAPHYLOS EDMUNDSII</i> "Little Sur manzanita"	1B	3-2-3	None	SOC
<i>CLARKIA JOLONENSIS</i> "Jolon clarkia"	1B	3-2-3	None	None
<i>DELPHINIUM HUTCHINSONIAE</i> "Hutchinson's larkspur"	1B	3-2-3	None	SOC

California Native Plant Society's  
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Selected CNPS Plants by Scientific Name  
Point Sur

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ARCTOSTAPHYLOS EDMUNDSII</i> "Little Sur manzanita"	1B	3-2-3	None	SOC
<i>CIRSIUM OCCIDENTALE</i> VAR. <i>COMPACTUM</i> "compact cobwebby thistle"	1B	2-2-3	None	SOC
<i>CORETHROGYNE LEUCOPHYLLA</i> "branching beach aster"	3	1-2-3	None	None
<i>DELPHINIUM HUTCHINSONIAE</i> "Hutchinson's larkspur"	1B	3-2-3	None	SOC

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Soberanes Point

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ARCTOSTAPHYLOS EDMUNDSII</i> "Little Sur manzanita"	1B	3-2-3	None	SOC
<i>ARCTOSTAPHYLOS HOOKERI</i> SSP. <i>HOOKERI</i> "Hooker's manzanita"	1B	2-2-3	None	None
<i>CLARKIA JOLONENSIS</i> "Jolon clarkia"	1B	3-2-3	None	None
<i>CORETHROGYNE LEUCOPHYLLA</i> "branching beach aster"	3	1-2-3	None	None
<i>DELPHINIUM HUTCHINSONIAE</i> "Hutchinson's larkspur"	1B	3-2-3	None	SOC
<i>GRINDELIA HIRSUTULA</i> VAR. <i>MARITIMA</i> "San Francisco gumplant"	1B	2-2-3	None	SOC
<i>MONARDELLA ANTONINA</i> SSP. <i>ANTONINA</i> "San Antonio Hills monardella"	3	?-?-3	None	None
<i>PINUS RADIATA</i> "Monterey pine"	1B	3-3-2	None	SOC
<i>PIPERIA YADONII</i> "Yadon's rein orchid"	1B	3-3-3	None	FE
<i>SIDALCEA MALACHROIDES</i> "maple-leaved checkerbloom"	1B	2-2-2	None	None

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Tassajara Hot Springs

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>ABIES BRACTEATA</i> "bristlecone fir"	1B	3-1-3	None	None
<i>CLARKIA JOLONENSIS</i> "Jolon clarkia"	1B	3-2-3	None	None
<i>SIDALCEA HICKMANII</i> SSP. <i>HICKMANII</i> "Hickman's checkerbloom"	1B	2-1-3	None	None

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Ventana Cones

Scientific/Common Name	CNPS	R-E-D	State	Federal
<i>CARLQUISTIA MUIRII</i> "Muir's tarplant"	1B	2-1-3	None	None
<i>FRITILLARIA FALCATA</i> "talus fritillary"	1B	3-2-3	None	SOC
<i>GALIUM CALIFORNICUM</i> SSP. <i>LUCIENSE</i> "Cone Peak bedstraw"	1B	3-1-3	None	SOC
<i>GALIUM CLEMENTIS</i> "Santa Lucia bedstraw"	1B	2-1-3	None	None

California Native Plant Society's  
Inventory of Rare and Endangered Vascular Plants of California

Selected CNPS Plants by Scientific Name  
Villa Creek

<u>Scientific/Common Name</u>	<u>CNPS</u>	<u>R-E-D</u>	<u>State</u>	<u>Federal</u>
<i>CALOCHORTUS WEEDII</i> VAR. <i>VESTUS</i> "late-flowered mariposa lily"	1B	2-2-3	None	SOC
<i>GALIUM HARDHAMIAE</i> "Hardham's bedstraw"	1B	2-1-3	None	None
<i>MONARDELLA PALMERI</i> "Palmer's monardella"	1B	2-2-3	None	None





**United States Department of the Interior**

**FISH AND WILDLIFE SERVICE**

Ventura Fish and Wildlife Office  
2493 Portola Road, Suite B  
Ventura, California 93003



July 14, 2000

John R. Miller, Ph.D.  
Senior Botanist / Wetland Ecologist  
Parsons Corporation  
2333 Watt Avenue, Suite 330  
Sacramento, California 95825

**Subject:** Species List for CalTrans Coast Highway Management Plan Study of State Highway 1 in Monterey and San Luis Obispo Counties, California

Dear Dr. Miller:

This letter is in response to your request, dated June 23, 2000, and received in our office on the same day via facsimile, for information on endangered, threatened, proposed and candidate species which may be present in the area encompassed by the Coastal Highway Management Plan.

You will use the provided list in the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) disclosure process for the CalTrans Coast Highway Management Plan study of State Highway 1. We have provided you with a list of species that may occur in the area covered by the plan.

You may find the following information on the Endangered Species Act of 1973, as amended (Act), useful. The U.S. Fish and Wildlife Service (Service) is responsible for administering the Act, including sections 7, 9 and 10. Section 9 of the Act prohibits the taking of any federally listed endangered or threatened species. Section 3(18) of the Act defines take to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Service regulations (50 CFR 17.3) define harm to include significant habitat modification or degradation which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Harassment is defined by the Service as an intentional or negligent action that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. The Act provides for civil and criminal penalties for the unlawful taking of listed species.

John R. Miller, Ph.D.

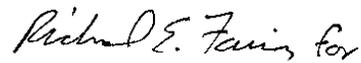
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Exemptions to the prohibitions against take may be obtained from the Service through either the section 7 consultation or the section 10(a)(1)(B) incidental take permitting processes. If a proposed project is to be authorized, funded, or carried out by a federal agency and may affect a listed species, the federal agency must consult with the Service, pursuant to section 7 of the Act. If a proposed project does not involve a federal agency but may result in the take of a listed animal species, the project proponent should apply for an incidental take permit, pursuant to section 10(a)(1)(B) of the Act. Once you have determined if the proposed project will have a lead federal agency, we can provide you with more detailed information regarding the section 7 consultation or the section 10(a)(1)(B) permitting process.

Only listed species receive protection under the Act. However, we recommend that project proponents consider species that are proposed and candidates for listing during their project planning because these species may become listed prior to project completion. The project proponent should work with us to minimize or avoid effects to these species. If you would like information on other sensitive species that may occur in the project area, we recommend that you review information in the California Department of Fish and Game's Natural Diversity Data Base.

If you have any questions or need further information on the requirements of the Act, please contact David Pereksta of my staff at (805) 644-1766.

Sincerely,



Diane K. Noda  
Field Supervisor

Enclosures

**LISTED, PROPOSED, AND CANDIDATE SPECIES  
WHICH MAY OCCUR IN THE VICINITY OF  
THE COAST HIGHWAY MANAGEMENT PLAN  
SAN LUIS OBISPO AND MONTEREY COUNTIES, CALIFORNIA**

Mammals

Southern sea otter	<i>Enhydra lutris nereis</i>	T
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Birds

Bald eagle	<i>Haliaeetus leucocephalus</i>	T
Brown pelican	<i>Pelecanus occidentalis</i>	E
Least Bell's vireo	<i>Vireo bellii pusillus</i>	E
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	T, CH
Marbled murrelet	<i>Brachyramphus marmoratus marmoratus</i>	T
California condor	<i>Gymnogyps californianus</i>	E
Mountain plover	<i>Charadrius montanus</i>	PT

Amphibians

California red-legged frog	<i>Rana aurora draytonii</i>	T
Arroyo toad	<i>Bufo microscaphus californicus</i>	E
California tiger salamander	<i>Ambystoma californiense</i>	C

Fish

Tidewater goby	<i>Eucyclogobius newberryi</i>	E
Steelhead trout	<i>Oncorhynchus mykiss</i>	*T, CH

Invertebrates

Smith's blue butterfly	<i>Euphilotes enoptes smithi</i>	E
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	E
Longhorn fairy shrimp	<i>Branchinecta longiantenna</i>	E
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	T

Plants

Monterey spineflower	<i>Chorizanthe pungens</i> var. <i>pungens</i>	T
Robust spineflower	<i>Chorizanthe robusta</i> var. <i>robusta</i>	E
Menzies' wallflower	<i>Erysimum menziesii</i> ssp. <i>menziesii</i>	E
Yadon's wallflower	<i>Erysimum menziesii</i> ssp. <i>yadonii</i>	E
Sand gilia	<i>Gilia tenuiflora</i> ssp. <i>arenaria</i>	E
Beach layia	<i>Layia carnosa</i>	E
Tidestrom's lupine	<i>Lupinus tidestromii</i>	E
Coastal dunes milk-vetch	<i>Astragalus tener</i> var. <i>titi</i>	E
Gowen cypress	<i>Cupressus goveniana</i> ssp. <i>goveniana</i>	T
Yadon's piperia	<i>Piperia yadonii</i>	E
Hickman's potentilla	<i>Potentilla hickmanii</i>	E
Monterey clover	<i>Trifolium trichocalyx</i>	E

Plants - Continued -

Morro manzanita	<i>Arctostaphylos morroensis</i>	T
Chorro Creek bog thistle	<i>Cirsium fontinale</i> var. <i>obispoense</i>	E
Salt marsh bird's-beak	<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>	E
Indian Knob mountainbalm	<i>Eriodictyon altissimum</i>	E
La Graciosa thistle	<i>Cirsium loncholepis</i>	E
California sea-blite	<i>Suaeda californica</i>	E
Gambel's watercress	<i>Rorippa gambellii</i>	E
Marsh sandwort	<i>Arenaria paludicola</i>	E
Nipomo Mesa lupine	<i>Lupinus nipomensis</i>	E
Pismo clarkia	<i>Clarkia speciosa</i> ssp. <i>immaculata</i>	E

**Key:**

E - Endangered      T - Threatened      CH - Critical habitat

PE - Taxa proposed for listing as endangered

PT - Taxa proposed for listing as threatened

PCH - Critical habitat which has been proposed

C - Candidate species for which the Fish and Wildlife Service has on file sufficient information on the biological vulnerability and threats to support proposals to list as endangered or threatened.

\*      The National Marine Fisheries Service is the responsible agency for the steelhead.

**APPENDIX P**

**U.S.D.A. FOREST SERVICE, SENSITIVE SPECIES LIST FOR THE LOS PADRES  
NATIONAL FOREST**

**DATED AUGUST 2000**

**THREATENED, ENDANGERED AND SENSITIVE SPECIES OF  
LOS PADRES NATIONAL FOREST  
August 2000**

Species	(Scientific Name)	Status**	Location*
<b>Birds</b>			
California Condor	( <i>Gymnogyps californianus</i> )	S&F Endangered	
Bald Eagle	( <i>Haliaeetus leucocephalus</i> )	St.End.;Fed.Threatened	{M,SB}
Brown Pelican	( <i>Pelecanus occidentalis</i> )	S&F Endangered	{M}
Calif. Least Tern	( <i>Sterna antillarum browni</i> )	S&F Endangered	{M}
Least Bell's Vireo	( <i>Vireo bellii pusillus</i> )	S&F Endangered	{SB,V,SLO}
Marbled Murrelet	( <i>Brachyramphus marmoratus</i> )	Federal Threatened	{M}
Western Snowy Plover	( <i>Charadrius alexandrinus nivosus</i> )	Fed. Threatened	{M}
Southwestern Willow Flycatcher	( <i>Empidonax traillii extimus</i> )	Fed.End.;St.End.	
Northern Goshawk	( <i>Accipiter gentilis</i> )	FS Sensitive, Fed.Sp.at Risk	
Calif. Spotted Owl	( <i>Strix o. occidentalis</i> )	FS Sensitive, Fed.Sp.at Risk	
Swainson's Hawk	( <i>Buteo swainsoni</i> )	FS Sensitive	
Willow Flycatcher	( <i>Empidonax traillii</i> )	FS Sensitive	{SLO,M}
Peregrine Falcon	( <i>Falco peregrinus anatum</i> )	FS Sensitive	
<b>Mammals</b>			
San Joaquin Kit Fox	( <i>Vulpes macrotis mutica</i> )	S.Th.,F.End.	{K,V,SB,SLO}
Southern Sea Otter	( <i>Enhydra lutris nereis</i> )	Fed.Threatened	{M}(Along Coast)
Giant Kangaroo Rat	( <i>Dipodomys ingens</i> )	S&F End.	{K,V,SB,SLO}
Steller's Sea Lion	( <i>Eumetopias jubatus</i> )	Fed. Threatened	{M Potential}
Mt. Pinos Lodgepole Chipmunk	( <i>Tamias speciosus callipeplus</i> )	FS Sen.	{K,V}
Townsend's Big-eared Bat	( <i>Plecotus townsendii townsendii</i> )	FS Sensitive	
Tehachapi White-eared Pocket Mouse	( <i>Perognathus alticola inexpectus</i> )	FS Sen.	{K}
Pallid Bat	( <i>Antrozous pallidus</i> )	FS Sensitive	
Western Red Bat	( <i>Lasiurus blossevillii</i> )	FS Sensitive	
<b>Reptiles</b>			
Blunt-nosed Leopard Lizard	( <i>Gambelia silus</i> )	S&F Endangered	{SB-Ventucopa}
Southwestern Pond Turtle	( <i>Clemmys marmorata pallida</i> )	FS Sensitive, Fed.Sp.atRisk	
San Diego Horned Lizard	( <i>Phrynosoma coronatum blainvillii</i> )	FS Sen.	{V,K}
California Legless Lizard	( <i>Anniella pulchra</i> )	FS Sensitive	
Southern Rubber Boa	( <i>Charina bottae umbratica</i> )	FS Sensitive	{K,V}
Two-striped Garter Snake	( <i>Thamnophis hammondi</i> )	FS Sensitive	{M,SB,V,SLO}

Continued on Page 2

\*{}Locations: K=Kern Co.,LA=Los Angeles Co.,M=Monterey Co.,SLO=San Luis Obispo Co., SB=Santa Barbara Co., V=Ventura Co. Assume possible occurrence on all areas if no specific indicator shown.

\*\*Status: As listed in 50 CFR 17.11 & 17.12; State of California, The Resources Agency, Department of Fish and Game-list, dated September 1994; Federal Register Updates as published; and USDA,FS-R5 updated Sensitive Species list: plus updates from FWS, Ventura Office every 90 days.

THREATENED, ENDANGERED AND SENSITIVE SPECIES OF LOS PADRES NATIONAL FOREST  
August 2000

Species	(Scientific Name)	Status**	Location*
<b>Amphibians</b>			
Arroyo Southwestern Toad	( <i>Bufo microscaphus californicus</i> )	Fed.End.	{LA,SB,V}
Calif. Red-legged Frog	( <i>Rana aurora draytoni</i> )	Federal Threatened	{All Counties}
Foothill Yellow-legged Frog	( <i>Rana boylei</i> )	FS Sensitive	{M, All Others Historical}
Yellow-blotched Ensatina	( <i>Ensatina eschscholtzii croceator</i> )	FS Sen.	{MPRD in K,V}
Tehachapi slender salamander	( <i>Batrachoseps stebbinsi</i> )	FS Sen.	{MPRD-Piru only?}
<b>Fish</b>			
Tidewater Goby	( <i>Eucyclogobius newberryi</i> )	Fed.Endangered	{Coastal stream mouths}
Southern Steelhead	( <i>Oncorhynchus mykiss</i> )	Fed. End.	S.Maria River south; Threatened north of S.Maria River(ocean run fish only){South/Central California Coast}
Santa Ana Sucker	( <i>Catostomus santaanae</i> )	Fed. Proposed	FS Sensitive{V-Sespe,Piru}
Santa Ana Speckled Dace	( <i>Rhinichthys osculus</i> ssp.)	FS Sen.	{SB-Cuyama,Sisquoc}
Arroyo Chub	( <i>Gila orcutti</i> )	FS Sensitive	{M,SB,V,LA}
<b>Invertebrates</b>			
Smith's Blue Butterfly	( <i>Euphilotes enoptes smithi</i> )	Fed. Endangered	{M}
Conservancy Fairy Shrimp	( <i>Branchinecta conservatio</i> )	Fed. Endangered	{?}
Longhorn Fairy Shrimp	( <i>Branchinecta longiantenna</i> )	Fed. Endangered	{?}
Vernal Pool Tadpole Shrimp	( <i>Lepidurus packardii</i> )	Fed. Endangered	{?}
Vernal Pool Fairy Shrimp	( <i>Branchinecta lynchi</i> )	Fed. Threatened	{?}
<b>Plants</b>			
Calif. Jewelflower	( <i>Caulanthus californicus</i> )	S&F Endangered	{MPRD-SB}
Kern Mallow	( <i>Eremalche parryi</i> ssp. kernensis)	Federal Endangered	{MPRD}
La Graciosa Thistle	( <i>Cirsium loncholepis</i> )	Federal Endangered	{Coastal MRPD?}
Hoover's Eriastrum	( <i>Eriastrum hooveri</i> )	Federal Threatened	{MPRD-SB}
Camatta Cyn. Amole	( <i>Chlorogalum purpureum</i> var. reductum)	Fed. Threatened	{SLRD}

\*{}Locations: K=Kern Co.,LA=Los Angeles Co.,M=Monterey Co.,SLO=San Luis Obispo Co., SB=Santa Barbara Co., V=Ventura Co. Assume possible occurrence on all areas if no specific indicator shown.

\*\*Status: As listed in 50 CFR 17.11 & 17.12; State of California, The Resources Agency, Department of Fish and Game-list, dated September 1994; Federal Register Updates as published; and USDA,FS-R5 updated Sensitive Species list: plus updates from FWS, Ventura Office every 90 days.

LOS PADRES NATIONAL FOREST "FOREST SPECIES OF SPECIAL EMPHASIS"  
[And Other Federal Species of Concern]

August 2000

(The Forest Plan directs that Forest Species of Special Emphasis be managed as though listed on the Regional Forester's Sensitive Species List per FSM 2670) [Other Federal Species of Concern listed should also be assessed, during the NEPA/ESA analysis process, for possible impacts upon viability]

MAMMALS

Nelson's (San Joaquin) Antelope Squirrel (*Ammospermophilus nelsoni*) 2 {SB,SLO,V}  
Greater Western (California) Mastiff Bat (*Eumops perotis californicus*) 2  
Short-nosed Kangaroo Rat (*Dipodomys nitratoides brevinasus*) 2 {SLO}  
American Badger (*Taxidea taxus*)  
[Monterey Dusky-footed Woodrat (*Neotoma fuscipes luciana*) 2] {M}  
[San Diego Black-tailed Jackrabbit (*Lepus californicus bennetti*) 2] {SB,V,LA}  
[San Diego Desert Woodrat (*Neotoma lepida intermedia*) 2] {LA,K,V,SB,SLO}  
[Spotted Bat (*Euderma maculatum*) 2] (Migrant:K,V,LA)  
[California Leaf-nosed Bat (*Macrotus californicus*) 2] {LA,SB,V}  
[Occult Little Brown Bat (*Myotis lucifugus occultus*) 2] {??}

BIRDS

Mt. Pinos Blue Grouse (*Dendragapus obscurus howardi*) {K,V}  
Prairie Falcon (*Falco mexicanus*)  
Lewis' Woodpecker (*Asyndesmus lewis*)  
Purple Martin (*Progne subis*)  
Western Bluebird (*Sialia mexicana*)  
Yellow Warbler (*Dendroica petechia*)  
Tricolored Blackbird (*Agelaius tricolor*) 2  
[Ferruginous Hawk (*Buteo regalis*) 2]  
[Elegant Tern (*Sterna elegans*) 2] {M}  
[S. Cal. Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*) 2]  
[Bell's Sage Sparrow (*Amphispiza belli belli*) 2]  
[Mountain Plover (*Charadrius montanus*) 1] {Sierra Madre Ridge?}

Continued Next Page

[ ] Denotes other Federal Species of Concern: also assess relative to possible viability concerns.

1-Federal Candidate species. Formerly Category 1 per (Fed. Register 11/15/94)  
2-Federal Species of Concern (formerly Category 2 species) per FWS letter 7/19/95  
3-State Threatened  
4-State Endangered

{-} Counties of possible occurrence. K= Kern, L=Los Angeles, M=Monterey, SLO= San Luis Obispo, SB= Santa Barbara, V= Ventura. Assume in all counties if no specific indicator shown.

LOS PADRES NATIONAL FOREST "FOREST SPECIES OF SPECIAL EMPHASIS"  
 [And Other Federal Species of Concern]  
 August 2000

## REPTILES

Hybrid Blunt-nosed Leopard Lizard (*Gambelia silus* x *wislizenii*) {SB,V}  
 [San Joaquin Whipsnake (*Masticophis flagellum ruddocki*) 2] {K,M,SL,SB}  
 [Coast Patch-nosed Snake (*Salvadora hexalepis virgulata*) 2] {SLO,SB,V,K,LA}  
 [California Horned Lizard (*Phrynosoma coronatum frontale*) 2]  
 [Coastal Western Whiptail (*Cnemidophorus tigris multiscutatus*) 2] {LA,V}

## AMPHIBIANS

[California Tiger Salamander (*Ambystoma californiense*) 1] {M,Carmel River area}  
 [Western Spadefoot Toad (*Scaphiopus hammondi*) 2] {K,M,SL,SB}

## FISH

[Pacific Lamprey (*Lampetra tridentata*) 2] {M,SL,SB,V}

## INVERTEBRATES

[Globose dune beetle (*Coelus globosus*) 2] {M-coastal dunes}  
 [Tehachapi Mountain Silverspot Butterfly (*Speyeria egleis tehachapina*) 2] {K}  
 [San Emigdio Blue Butterfly (*Plebulina emigdionis*) 2] {K}

[ ] Denotes other Federal Species of Concern: also assess relative to possible viability concerns.

- 1 Federal Candidate species. Formerly Category 1 per (Fed. Register 11/15/94)
- 2-Federal Species of Concern(formerly Category 2 species)per FWS letter 7/19/95
- 3-State Threatened
- 4-State Endangered

{-} Counties of possible occurrence. K= Kern, L=Los Angeles, M=Monterey, SLO= San Luis Obispo, SB= Santa Barbara, V= Ventura. Assume in all counties if no specific indicator shown.

Los Padres National Forest  
Sensitive Plant List  
August 2000

Scientific Name	Habitat Type	Soil Type
Arctostaphylos cruzensis	Chaparral	
Arctostaphylos edmundsii	Chaparral	
Arctostaphylos luciana	Chaparral	
Arctostaphylos pilosula	Chaparral	
Arctostaphylos refugioensis	Chaparral	
Calochortus obispoensis	Chaparral	Serpentine
Calochortus palmeri var. palmeri	Pine forest, chaparral	
Calochortus weedii var. vestus	Chaparral	
Calycadenia villosa	Grassland	
Carex obispoensis	Chaparral	Serpentine
Caulanthus amplexicaulis var. barbarae	Chaparral	Serpentine
Chorizanthe blakleyi	Grassland, chaparral	
Chorizanthe breweri	Chaparral	Serpentine
Chorizanthe rectispina	Chaparral	
Delphinium hutchinsoniae	Coast redwood forest	
Delphinium inopinum	Subalpine	
Eriogonum butterworthianum 1	Rocky outcrops	Sandstone
Eriogonum kennedeysi var. alpigenum	Subalpine	Granitic gravel
Eriophyllum lanatum var. hallii	Chaparral	
Fritillaria falcata	Chaparral	Serpentine
Fritillaria ojaiensis	Chaparral	
Fritillaria viridea	Sargent cypress forest	Serpentine
Galium californicum ssp. luciense	Pine forest	
Galium hardhamiae	Sargent cypress forest	Serpentine
Layia heterotricha	Grassland	
Lupinus ludovicianus	Grassland	
Malacothamnus palmeri var. lucianus	Chaparral	
Malacothrix saxatilis var. arachnoidea	Chaparral	
Monardella linoidea ssp. oblonga	Pine forest	
Navarretia peninsularis	Pine forest	
Orobanche valida ssp. valida	Chaparral	
Oxytheca parishii var. abramsii	Chaparral	Granitic sand
Pedicularis dudleyi 1	Coast redwood forest	
Pentachaeta exilis ssp. aeolica	Grassland	
Plagiobothrys uncinatus	Chaparral	
Quercus dumosa	Chaparral	Sand
Raillardiopsis muirii	Chaparral	Granitic gravel
Sanicula maritima	Coastal grassland	
Sidalcea hickmanii ssp. anomala 1	Chaparral	Serpentine
Sidalcea hickmanii ssp. hickmanii	Chaparral	
Sidalcea hickmanii ssp. parishii 1	Chaparral	
Streptanthus campestris	Big cone douglas fir	
Swertia neglecta [Fraseria neglecta]	Pine forest	
Thermopsis macrophylla 1	Chaparral	

1= Officially listed as Rare by the State of California.

Sources of Distributional Information for TES listings:

Birds = AOU Checklist, 1983; Lehman, P., Birds of Santa Barbara County, 1994; Garrett & Dunn, Birds of S. Calif. 1981; Remsen, J., Bird Species of Special Concern in Calif. 1978; Grinnell & Miller, The Distribution of the Birds of California 1944 (updated 1986); Zeiner, D. et al., California's Wildlife-Birds 1990; Holmgren, Mark, University of Calif. Santa Barbara (Personal Communication 1995); Roberson, D. and C. Tenney, Atlas of the breeding birds of Monterey County, California, 1993.

Mammals = Hall, E., The Mammals of N. America, 1981; Ingles, L., Mammals of the Pacific States 1965; Williams, D., Mammalian Species of Special Concern in California 1986; Zeiner, D. et al., California's Wildlife-Mammals 1990; Collins, Paul, Santa Barbara Museum of Natural History (Personal Communication 1996).

Amphibians and Reptiles = Jennings & Hayes, Amphibian and Reptile Species of Special Concern in Calif. 1994; Sweet, Dr. Sam Personnel Communications 1996; Zeiner, D. et al., California's Wildlife-Amphibians and Reptiles 1988; Holland, Dr. Dan (Personal Communication 1996).

Fish = Moyle, P., Inland Fishes of California 1976; CDFG, Fish Species of Special Concern of Calif. 1991; Swift, C. et al., The Status and Distribution of the Freshwater Fishes of S. Calif. 1993; Chubb, Sara, Los Padres National Forest (Personal Communication 1996).

Invertebrates = U.S. Fish & Wildlife Service, Smith's Blue Butterfly Recovery Plan 1984; Kellner, C., Survey for Smith's Blue Butterflies Along the Big Sur Coast, Monterey County, Calif. 1989; Arnold, Dr. R. (Personal Communication 1996); Hochberg, Dr. Eric and Calderwood, Dr. Andy, Santa Barbara Museum of Natural History (Personal Communication 1996).

Plants = California Native Plant Society bulletins; CDFG, Natural Diversity Data Base, Sacramento; Munz, P. A Flora of Southern California 1974; Fairfax, J., Threatened, Endangered and Sensitive Plants of Los Padres National Forest 1977; Hickman, J.C. (ed) The Jepson Manual: Higher Plants of California, 1993; Danielsen, K. Sensitive Plants of the Los Padres National Forest 1995.

General Species = CDFG, California's State Listed Threatened and Endangered Plants and Animals, March 1990; CDFG, Natural Diversity Data Base, Sacramento; Freel, M., Wildlife of the Los Padres National Forest 1982.

## APPENDIX Q

SUMMARY OF SPECIAL-STATUS SPECIES OCCURRENCE INFORMATION PROVIDED IN RESOURCE ELEMENTS FOR  
SPECIFIC STATE PARKS TRANSECTED BY THE CORRIDOR STUDY AREA

Species	Status <sup>1</sup>	State Parks						
		Andrew Molera	Garrapata	John Little	Julia Pfeiffer Burns	Pfeiffer Big Sur	Pt. Lobos	Point Sur
<b>Plants</b>								
<i>Abies bracteata</i> Santa Lucia fir	1B				X			
<i>Arctostaphylos edmundsii</i> Little Sur manzanita	FSC/1B	X	X					X
<i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i> Hooker's manzanita	1B						X	
<i>Arctostaphylos pumila</i> Sandmat manzanita	FSC/1B						X	
<i>Castilleja latifolia</i> Monterey Indian paintbrush	4	X	X					X
<i>Ceanothus cuneatus</i> var. <i>rigidus</i> Monterey ceanothus	4						X	
<i>Chorizanthe douglasii</i> Douglas's spineflower	4					X	X	
<i>Clarkia lewisii</i> Lewis' clarkia	4	X	X		X	X		possible
<i>Corethrogyne leucophylla</i> Branching beach aster	3	X			X			

\*Please refer to the key at the end of the table.

Species	Status <sup>1</sup>	State Parks						
		Andrew Molera	Garrapata	John Little	Julia Pfeiffer Burns	Pfeiffer Big Sur	Pt. Lobos	Point Sur
<i>Crypthantha rattanii</i> Rattan's cryptantha	4				X			
<i>Cupressus goveniana</i> ssp. <i>goveniana</i> Gowen cypress	FT/1B						X	
<i>Cupressus macrocarpa</i> Monterey cypress	FSC/1B						X	
<i>Delphinium hutchinsoniae</i> Hutchinson's larkspur	FSC/1B		X			X		
<i>Fritillaria liliacea</i> Fragrant fritillary	FSC/1B							possible
<i>Lomatium parvifolium</i> Small-leaved lomatium	4						X	
<i>Malacothamnus palmeri</i> var. <i>lucianus</i> Arroyo Seco bush mallow	FSC/1B					X		
<i>Pedicularis dudleyi</i> Dudley's lousewort	FSC/FSS/Rare /1B	X						
<i>Perideridia gairdneri</i> ssp. <i>gairdneri</i> Gairdner's yampah	4						X	
<i>Pinus radiata</i> Monterey pine	FSC/1B						X	
<i>Ribes sericeum</i> Santa Lucia gooseberry	4	X		possible	X	X		
<i>Sanicula maritima</i> Adobe sanicle	FSC/FSS/Rare /1B	X						
<i>Trifolium polyodon</i> Pacific Grove clover							possible	

\*Please refer to the key at the end of the table.

Species	Status <sup>1</sup>	State Parks						
		Andrew Molera	Garrapata	John Little	Julia Pfeiffer Burns	Pfeiffer Big Sur	Pt. Lobos	Point Sur
<b>Invertebrates</b>								
<i>Coelus globosus</i> Globose dune beetle	FSC							X
<i>Danaus plexippus</i> Monarch butterfly	O	X		X	X			X
<i>Euphilotes enoptes smithi</i> Smith's blue butterfly	FE	X	X	X	X	X		X
<i>Grapholita edwardsiana</i> San Francisco tree lupine moth	O	X						X
<i>Incisalia mossii doudorfii</i> Doudorff's elfin butterfly	O			X	X			X
<i>Speyeria adiastrae clemencei</i> Clemence's fritillary butterfly	O					X		
<b>Amphibians</b>								
<i>Dicamptodon ensatus</i> Pacific giant salamander	O	X						
<i>Rana aurora draytonii</i> California red-legged frog	FT/CSC	X				X		
<i>Rana boylei</i> Foothill yellow-legged frog	FSC/CSC	X				X		
<b>Reptiles</b>								
<i>Clemmys marmorata pallida</i> Southwestern pond turtle	FSC/FSS/CSC	X				X		
<i>Phrynosoma coronatum frontale</i> California horned lizard	FSC/CSC		X					

\*Please refer to the key at the end of the table.

Species	Status <sup>1</sup>	State Parks						
		Andrew Molera	Garrapata	John Little	Julia Pfeiffer Burns	Pfeiffer Big Sur	Pt. Lobos	Point Sur
<i>Anniella pulchra nigra</i> Black legless lizard	FSS/CSC							X
<b>Birds</b>								
<i>Gavia immer</i> Common loon	CSC	X	X		X			X
<i>Oceanodroma homochroa</i> Ashy storm-petrel	FSC/CSC							X
<i>Pelecanus occidentalis californicus</i> California brown pelican	FE/SE/CFP	X	X	X	X			X
<i>Phalacrocorax auritus</i> Double-crested cormorant	CSC				X			X
<i>Histrionicus histrionicus</i> Harlequin duck	FSC/CSC	X						X
<i>Elanus leucurus</i> White-tailed kite	CFP	X	X					X
<i>Circus cyaneus</i> Northern harrier	CSC	X	X					X
<i>Accipiter cooperi</i> Cooper's hawk	CSC	X	X	X	X	X		
<i>Accipiter striatus</i> Sharp-shinned hawk	CSC	X	X	X	X	X		
<i>Aquila chrysaetos</i> Golden eagle	CSC/CFP	X	X		X	X		
<i>Haliaeetus leucocephalus</i> Bald eagle	FT/FPD/SE/CFP	X			X			

\*Please refer to the key at the end of the table.

Species	Status <sup>1</sup>	State Parks						
		Andrew Molera	Garrapata	John Little	Julia Pfeiffer Burns	Pfeiffer Big Sur	Pt. Lobos	Point Sur
<i>Pandion haliaetus</i> Osprey	CSC							X
<i>Falco columbarius</i> Merlin	CSC	X	X	X	X			X
<i>Falco peregrinus anatum</i> American peregrine falcon	FD/SE/CFP	X	X	X	X	X		X
<i>Charadrius alexandrinus nivosus</i> Western snowy plover	FT/CSC							X
<i>Larus californicus</i> California gull	CSC	X	X	X	X			X
<i>Sterna elegans</i> Elegant tern	FSC/CSC	X	X		X			X
<i>Brachyramphus marmoratus</i> Marbled murrelet	FT/SE				X			X
<i>Cerorhinca monocerata</i> Rhinoceros auklet	CSC							X
<i>Fratercula cirrhata</i> Tufted puffin	CSC							X
<i>Asio otus</i> Long-eared owl	CSC					X		
<i>Strix occidentalis occidentalis</i> California spotted owl	FSC/FSS/CSC	X	X		X	X		
<i>Athene cunicularia hypugea</i> Burrowing owl	FSC/CSC		X					
<i>Cypseloides niger</i> Black swift	CSC				X	X		X

\*Please refer to the key at the end of the table.

Species	Status <sup>1</sup>	State Parks						
		Andrew Molera	Garrapata	John Little	Julia Pfeiffer Burns	Pfeiffer Big Sur	Pt. Lobos	Point Sur
<i>Empidonax trailii</i> Willow flycatcher	FSS/SE	X						
<i>Progne subis</i> Purple martin	CSC	X			X	X		
<i>Dendroica petechia bresteri</i> Yellow warbler	CSC	X			X	X		
<i>Icteria virens</i> Yellow-breasted chat	CSC	X				X		
<b>Mammals</b>								
<i>Bassariscus astutus</i> Ringtail	CFP	X	X		X	X		
<i>Euarctos americanus</i> Black bear	O	X	X		X	X		
<i>Enhydra lutris nereis</i> Southern sea otter	FT/CFP	X	X	X	X			X
<i>Taxidea taxus</i> American badger	CSC		X					
<i>Felis concolor</i> Mountain lion	O	X	X	X	X	X		X
<i>Eschrichtius robustus</i> Gray whale	FD	X	X	X	X			X
<i>Balaenoptera borealis</i> Sei whale	FE							X
<i>Balaenoptera physalus</i> Finback whale	FE							X

\*Please refer to the key at the end of the table.

Species	Status <sup>1</sup>	State Parks						
		Andrew Molera	Garrapata	John Little	Julia Pfeiffer Burns	Pfeiffer Big Sur	Pt. Lobos	Point Sur
<i>Balaenoptera musculus</i> Blue whale	FE							X
<i>Megaptera novaeangliae</i> Humpback whale	FE							X
<i>Balaena glacialis</i> Right whale	FE							X
<i>Physeter macrocephalus</i> Sperm whale	FE							X

Source: Resource Elements: Andrew Molera SP (6/90), Garrapata SP (8/90), John Little SP (7/90), Julia Pfeiffer Burns SP (9/90), Draft Pfeiffer Big Sur SP (9/92), Point Sur State Historic Park (10/90). Pt. Lobos: plant species occurrence information from Patterson *et al.* 1995.

Those species noted as occurring within a particular State Park have either been confirmed or are strongly suspected to occur within that particular Park.

<sup>1</sup> Status Codes

Federal Status

- FE Listed as endangered under the Federal Endangered Species Act (FESA)
- FT Listed as threatened under the FESA
- PD Proposed for delisting under the FESA
- FSC Species of concern as identified by the USFWS
- FD A species that has been Delisted pursuant to the FESA
- FSS Listed as a Los Padres National Forest sensitive species by the U.S.D.A. Forest Service

State Status

- SE Listed as endangered under the California Endangered Species Act (CESA)
- ST Listed as threatened under the CESA
- CFP Listed as Fully Protected by the California Fish and Game Code
- CSC Species of concern as identified by the CDFG
- Rare Species identified as rare by the CDFG
- O Other: Species of special management concern for the Department of Parks and Recreation in the Big Sur District

California Native Plant Society (CNPS) Listing Categories

- 1B Plant species that are considered rare, threatened, or endangered in California or elsewhere.
- 3 Plant species that lack the necessary information to assign them to a listing status.
- 4 Plant species that have a limited distribution or that are infrequent throughout a broader area in California.

## APPENDIX R

### MARINE RESOURCES AND HABITATS

#### BIG SUR COAST HIGHWAY

#### SAN CARPOFORO CREEK TO CARMEL RIVER

##### ***Introduction***

In 1998, a cursory characterization of marine resources and habitat values along the Big Sur Coast was conducted (Le Ray deWit) within the planning area.

With the expectation that further data collection and discussions with regulatory and resource agencies would occur, the work outlined below was performed as an initial task to consider relative sensitivities related to potential future landslide material disposal. The project limits were from San Carpoforo Creek (SLO PM 71.5) to the Carmel River (MON PM 72.4).

In conducting his review, Mr. deWit identified shoreline types and attempted a preliminary classification system that considered potential sensitivity to the effects of sediment disposal. Mr. deWit also noted regulatory and jurisdictional constraints affecting certain areas.

For consistency with other aspects of the inventory effort in support of the Big Sur Coast Highway Management Plan (i.e. characterizing baseline information only and not yet attempting an evaluation of impacts from any particular activities), a classification system is not presented here. The following represents the baseline information provided by deWit (1998) and updated by Caltrans District 5 biologist Tom Edell based on what is known to be current.

The discussion is organized by USGS quadrangle map sheet; the information has also been transferred for illustration on a set of attached maps.

##### ***General Discussions***

The following provides an overview of the information on the maps and describes the basis for sensitivity ratings assigned to specific sections of the coastline. A key to the habitat types and resources is shown for the general characterization of the nearshore habitats and biological resources depicted on the maps.

##### **Coastline Characteristics**

The majority of the coastline along the corridor (from the mouth of the San Carpoforo Creek to the mouth of the Carmel River) is rocky and is fronted by relatively high rock bluffs. Cobble and sand beaches are generally limited to areas south of promontories or near the mouths of streams. This deposition indicates that the prevailing nearshore currents are from north to south. The prevailing surface currents correspond to the predominant northwesterly wind direction. Information on areas subjected to previous landslides was not available, therefore none are depicted on the maps.

Kelp beds are relatively continuous throughout the portions of rocky coastline; kelp could be expected to occur in water depths of from 10 to 60 ft. Areas of heavy surf activity will likely increase the inshore depth where kelp is found to 25 to 30 ft.

Two Areas of Special Biological Significance and several preserves and reserves are present along the coastline. These areas have been outlined in red and constitute regions where human activities are limited or restricted (see Regulatory Restrictions section below). The entire coastline within the project area is within the California Sea Otter Refuge as well as the Monterey Bay National Marine Sanctuary.

The relative paucity of site-specific data for much of this coastline allows only preliminary assessment of the existing resources and the potential sensitivity thereto.

### **Specific Characteristics by Map Sheet**

#### Burro Mountain

The shoreline comprises approximately 80% rock; sedimentary beaches exist at the southern portion near the mouth of the San Carpoforo Creek. The southern boundary of the Salmon Creek ASBS is near post mile (PM) 0.0. Two steelhead streams and four seabird nesting sites occur here. Historical kelp beds exist in the northern portion of the area.

#### Villa Creek

A mixed shoreline, comprising approximately 50% cobble and 50% rock characterizes this area. Salmon Creek ASBS, one steelhead stream, and several seabird nesting sites are found here. Red abalone are present along much of the rocky subtidal areas and kelp is common throughout.

#### Cape San Martin

Several sand and cobble beach areas are present within this area. Numerous enbayments appear to be collection areas for sediment; a particularly extensive area of sand exists between PM 14.0 and PM 15.0. Four steelhead streams and three seabird nesting sites are also present. Kelp and abalone areas exist throughout the rocky shoreline portions.

#### Lopez Point

Cobble and sand beaches characterize the southern portion of this area, with several "pocket beaches" present between larger expanses of rocky shorelines north of Lopez Point. Three steelhead streams, the Landels-Hill Big Creek Reserve, a marine mammal rookery near Dolan Rock (within the Big Creek Reserve), and the John Little State Reserve are located here. Kelp and abalone habitat are common throughout the nearshore area and eight seabird nesting sites, including two on offshore rock pinnacles are found here. Cobble/sand beach areas exist north of Gamboa Point and south of Lopez Point; one seabird nesting site is within the latter.

### Partington Ridge

A predominantly rocky coastline characterizes this portion of the project area. Several small pocket beaches, comprising cobble and heavy grain sand can be found in some areas. One nesting site for the Peregrine falcon is known approximately 0.1 mile south of McWay Rocks (between PM 35.0 and PM 36.0), as well as black abalone areas near Grimes Point, and the Julia Pfeiffer Burns Underwater Park and ASBS. Black abalone are usually found in the intertidal and shallow subtidal areas. One steelhead stream occurs in this portion of the study area.

The Julia Pfeiffer Burns Underwater Park and ASBS extends from the "ordinary high water mark" to approximately 6,000 ft. offshore along a 2.6 mile-long portion of the coastline.

### Pfeiffer Point

The coastline comprises both cobble/sand beaches and rocky shorelines. The largest expanse of rock, kelp, and abalone areas is Pfeiffer Point. Most of this portion of the coast is one to several miles from the highway. Three seabird nesting sites occupy this portion of the study area.

### Big Sur

Only two major rocky shoreline areas, one west of PM 51.8 and the other southwest of PM 50.0 are within this section. With the exception of these two locations, the coastline comprises cobbles and sand. Isolated kelp beds occur in the limited rocky areas. The highway approaches the coastline only in the northern portion; otherwise it is almost one mile east of the shore. Two steelhead streams are found here.

### Point Sur

This portion of the study area contains two steelhead streams, including the Little Sur River, which not only supports steelhead, but also provides habitat for the endangered Tidewater Goby. The beach at this location also provides critical habitat for the Western Snowy Plover and haulout areas for elephant seals, sea lions, and harbor seals. With the exception of the rocky shoreline at Pt. Sur, the southern coastal portion of the area is generally cobble and sand beaches. Rocky shorelines dominate the northern portion of the area. Patchy kelp is present where rocky subtidal substrate exists.

### Soberanes Point

Except for approximately 0.6 miles of cobble and sand beach between PM 63 and PM 64, the coastline within this portion of the corridor is rocky; kelp is found throughout the area. Two steelhead streams, five seabird nesting sites, including one offshore rock, are found here.

### Monterey

The mixed rocky and sedimentary coastline contains ecological preserves and at least two steelhead streams.

***Regulatory Restrictions***

The following discusses the regulatory restrictions within specific designated areas. Most restrictions are related to the discharge of pollutants, alteration of habitats, or removal of organisms from designated ASBSs, coastal reserves, preserves, or refuges.

**Areas of Special Biological Significance (ASBS)**

Regulated by the State Water Resource Control Board and the Regional Water Quality Control Boards, ASBSs are defined as areas designated for protection of species or biological communities to the extent that alteration of natural water quality is undesirable. Discharge of 1) elevated temperature wastes, 2) point source sewage or industrial process wastes that will alter the natural water quality conditions, and 3) uncontrolled nonpoint sources such as storm water runoff, silt, or urban runoff are prohibited.

**Ecological Reserves (taken from the Landels-Hill Big Creek Reserve Description)**

Coordination with the Reserve Manager for manipulation of plants, animals, habitats, or archaeological artifacts is usually required. Specific permits from the Department of Fish & Game and U.S. Fish & Wildlife Service are required for capturing or tagging some animal species. Some human activities (i.e. hunting, fishing, pets, and recreational camping and picnicking) is prohibited.

**Monterey Bay National Marine Sanctuary**

Exploration and/or development of oil, gas, or mineral resources and designation of new dredge-material disposal are prohibited. Activities including 1) discharging or depositing of any materials, 2) altering the seabed or constructing any structures on the seabed, 3) moving, injuring, or possessing historical resources, or 4) injuring or harassing marine mammals, turtles, or seabirds are regulated by the Sanctuary.

**Other Restrictions**

The U.S. Army Corps takes jurisdiction over areas below the mean high tide; permits under the Clean Water Act and Rivers & Harbors Act (Section 404 and Section 10) may be required for certain activities. In association with a Section 404 permit, a Section 401 certification or waiver is required from the RWQCB. Other restrictions or permits could be expected from agencies such as the Department of Fish & Game, Coastal Commission (coastal development permit for work within the Coastal Zone), and local agencies (for items such as consistency with the Local Coastal Plan or other regulations).

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