HELIX Environmental Planning

County of San Diego Integrated Vector Management Program

Biological Resources Technical Report

March 2021 | CSD-05.24

Prepared for:

County of San Diego
Department of Environmental Health and Quality
Vector Control Program
5510 Overland Avenue, Suite 102 San Diego, CA 92123

Prepared by:

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheint
AMSL	above mean sea level
BMO	Biological Mitigation Ordinance
BMP	Best Management Practice
CalEPA	California Environmental Protection Agency
Camp Pendleton	Marine Corps Base Camp Pendleton
CCA	California Coastal Act
CCC	California Coastal Commission
CDC	Centers for Disease Control and Prevention
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CDPR	California Department of Pesticide Regulation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG	California Fish and Game
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of San Diego
CPA	Communitiy Planning Area
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DEHQ	Department of Environmental Health and Quality
DPR	Department of Pesticide Regulations
ESA	Environmentally Sensitive Areas
FESA	Federal Endangered Species Act
GIS	Geographic Information System
HCP	Habitat Conservation Plan
HELIX	HELIX Environmental Planning, Inc.
HPS	Hantavirus Pulmonary Syndrome
IVMP	Integrated Vector Management Program

ACRONYMS AND ABBREVIATIONS (cont.)

MBTA	Migratory Bird Treaty Act
MHCP	Multiple Habitat Conservation Program
MHPA	Multi-Habitat Planning Area
MOU	Memorandum of Understanding
MSCP	Multiple Species Conservation Program
NCCP	Natural Communities Conservation Planning
NDH	National Hydrography Dataset
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elmination System
NPPA	Native Plant Protection Act
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
PAMA	Pre-Approved Mitigation Area
PEIR	Program Environmental Impact Report
ROE	Right-of-Entry
RPO	Resource Protection Ordinance
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SANDAG	San Diego Association of Governments
SanGIS	San Diego Geographic Information Source
SCW	South Coast Wildlands
SDG&E	San Diego Gas & Electric
SDWCA	San Diego County Water Authority
SOP	Standard Operating Procedures
Subregions	Subregional Planning Areas
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VCP	Vector Control Program
VDDL	Vector Disease and Diagnostic Laboratory
WDR	Waste Discharge Requirements
WNV	West Nile Virus

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SUMMARY

At the request of the County of San Diego (County) Department of Environmental Health and Quality (DEHQ), HELIX Environmental Planning, Inc. (HELIX) has completed this biological resources technical report for the proposed Integrated Vector Management Program (IVMP). The IVMP carries out a full range of vector control activities, practices, and procedures to protect the public from vector-borne diseases and public nuisances while simultaneously protecting the environment. For the purposes of this analysis, the Proposed Project is the ongoing implementation of the IVMP, which would continue to comprehensively approach vector control through various techniques, including surveillance and monitoring, source reduction (i.e., physical control), source treatment (i.e., biological and chemical controls), public education and outreach, and disease diagnostics. The IVMP is managed by County staff, governed by the County Board of Supervisors, and implemented within a service area that includes all unincorporated areas within the county, as well as the 18 incorporated cities. The purpose of this report is to document the existing biological conditions within the study area and provide an analysis of potential impacts to sensitive biological resources with respect to local, state, and federal policy. This report provides the biological resources technical documentation necessary for review under the California Environmental Quality Act.

HELIX conducted a desktop assessment of baseline biological resource information within the IVMP service area. Several resources were reviewed and compiled as part of this assessment, including regional conservation plans, general plans, sensitive species databases, state and federal agency resource programs, and regional geographic information system (GIS) databases containing spatial data of biological resources throughout the county. In addition, County and State guidance documents directing vector control activities, existing approvals and permits, and annual reports summarizing vector control activities were consulted.

San Diego County is a diverse region with a variety of land uses, habitats, and climatic and topographic conditions. Because of the diversity of vector habitat within the IVMP service area, vector control activities are conducted in a wide variety of ecosystems, habitat types, and land uses throughout the county. Various wetlands, riparian habitat, and sensitive upland vegetation communities occur throughout the service area. These communities support a large number of special status plant and animal species, including state- and/or federally-listed species, many of which are endemic to California. Additionally, the U.S. Fish and Wildlife Service (USFWS) has designated critical habitat for nine federally listed plant species and 11 federally listed animal species. USFWS-designated critical habitat occurs throughout the county.

Numerous drainages, creeks, rivers, wetlands, and riparian habitat occur within the IVMP service area, which support waters of the U.S. subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE), pursuant to Section 404 of the federal Clean Water Act (CWA); waters of the State subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB), pursuant to Section 401 of the CWA and/or Porter-Cologne Water Quality Act; and unvegetated stream channels and riparian habitat, subject to the regulatory jurisdiction of the CDFW to Section 1600 *et seq*. of California Fish and Game (CFG) Code.

Several conservation-planning efforts have been completed, or are in progress, throughout the county. These efforts consist of region-wide Natural Community Conservation Plans (NCCP) and Habitat Conservation Plans (HCP) with the long-term goal of establishing regional reserve systems that will protect native habitats and ensure the long-term survival of sensitive plant and animal species that

inhabit them. There are several NCCPs/HCPs in effect or under development within the IVMP service area. These include the San Diego Multiple Species Conservation Program (MSCP) covering the County of San Diego and other city jurisdictions in the southwestern portion of county, the North County Multiple Habitat Conservation Program (MHCP) covering the northwestern portion of the county, and respective MSCP and MHCP subarea plans. Adopted subarea plans under these programs include the County of San Diego (South County) MSCP Subarea Plan, City of San Diego MSCP Subarea Plan, and City of San Diego Vernal Pool HCP, City of Chula Vista MSCP Subarea Plan, City of La Mesa MSCP Subarea Plan, and City of Carlsbad Habitat Management Plan. Additionally, the San Diego County Water Authority (SDCWA) and San Diego Gas & Electric (SDG&E) have each developed and adopted their own respective NCCP/HCPs covering new projects and ongoing activities along existing SDCWA and SDG&E infrastructure which occurs throughout the county.

Implementation of the IVMP could result in potential significant impacts to special status plant and animal species, riparian habitat and sensitive vegetation communities, and jurisdictional waters and wetlands. These impacts may be associated with surveillance and monitoring, source reduction, and/or source treatment activities. Other vector control techniques (i.e., public education and outreach and disease diagnostics) would be unlikely to result in impacts to biological resources. The IVMP would follow state and local guidance documents for conducting inspections and vector treatment abatement activities and would implement Best Management Practices (BMPs) to avoid and minimize impacts to sensitive biological resources. Mitigation measures are proposed to fully mitigate potential significant impacts on special status species, sensitive vegetation communities/habitats, and jurisdictional waters and wetlands. Implementation of these mitigation measures would reduce potential impacts to below a level of significance.

1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

HELIX Environmental Planning, Inc. (HELIX) has completed this biological resources technical report for the County of San Diego (County) Department of Environmental Health and Quality (DEHQ) Integrated Vector Management Program (IVMP; Proposed Project). The IVMP carries out a full range of vector control activities, practices, and procedures to protect the public from vector-borne diseases and public nuisances while simultaneously protecting the environment. For the purposes of this analysis, the Proposed Project consists of the ongoing implementation of the IVMP. The purpose of this report is to document the existing biological conditions within the study area and provide an analysis of potential impacts to sensitive biological resources with respect to local, state, and federal policy. This report provides the biological resources technical documentation necessary for review under the California Environmental Quality Act (CEQA).

1.2 PROJECT BACKGROUND, LOCATION, AND DESCRIPTION

1.2.1 Project Background

The County's DEHQ Vector Control Program (VCP) is a public health program that was established to monitor and control vectors that transmit diseases and create public nuisances within San Diego County. For the purposes of the Proposed Project, a vector is defined as any animal capable of spreading disease or producing human discomfort or injury, including, but not limited to, mosquitoes, flies, mites, ticks, other arthropods, and rodents and other vertebrates (California Health and Safety Code Section 2002[k]).

The VCP is managed by County staff, governed by the County Board of Supervisors, and implemented within a service area that includes all 18 incorporated cities and unincorporated areas of San Diego County. The VCP serves to reduce exposure to vectors and vector-borne diseases in a manner that minimizes risks to people, property, and the environment through a coordinated set of activities collectively known as the IVMP. The IVMP carries out a full range of vector control activities, practices, and procedures to protect the public from vector-borne diseases and public nuisances while allowing for the inclusion of progressive and emerging vector control techniques, tools, and materials. The IVMP would continue to operate using a comprehensive approach by applying such techniques as surveillance, source reduction, source treatment, public education, and outreach. These techniques would be applied to the various vectors and nuisance species covered under the IVMP, including but not limited to mosquitoes, ticks, rodents, eye gnats, and flies.

Vector-Borne Diseases in the Service Area

Commonly encountered species of mosquitoes (*Culex tarsalis*, *Culex quinquefasciatus*, *Culex erythrothorax*, *Culex stigmatosoma*, *Culex thriambus*, *Culex restuans*, *Culiseta inornata*, *Anopheles hermsi*, *Aedes sierrensis*, and *Aedes taeniorhynchus*) detected in San Diego County have the ability to transmit endemic diseases such as encephalitis, malaria, canine heartworm, and/or West Nile virus. Two invasive *Aedes* species detected in the county since 2014 and 2015 (*Aedes aegypti* and *Aedes albopictus*, respectively) can transmit viruses such as dengue, Zika, and chikungunya. A third invasive *Aedes* species, *Aedes notoscriptus*, has also been detected, and has the potential to transmit viruses and heartworm as

well. Potential breeding sources may include private and public lands containing rivers, streams, marshlands, lagoons, ponds, and various other human-made and natural sources of standing water.

In addition to mosquito-borne diseases, the VCP also conducts surveys and tests for diseases carried by other insects and small mammals. This includes tick-borne illnesses such as tularemia, Lyme disease, and Rocky Mountain Spotted Fever; plague, a disease caused by the bacterium *Yersinia pestis*, transmitted by the bite of infected fleas and infected rodents, particularly California ground squirrel (*Otospermophilus beecheyi*); and rodent-borne illnesses such as Hantavirus Pulmonary Syndrome (HPS).

1.2.2 Project Location

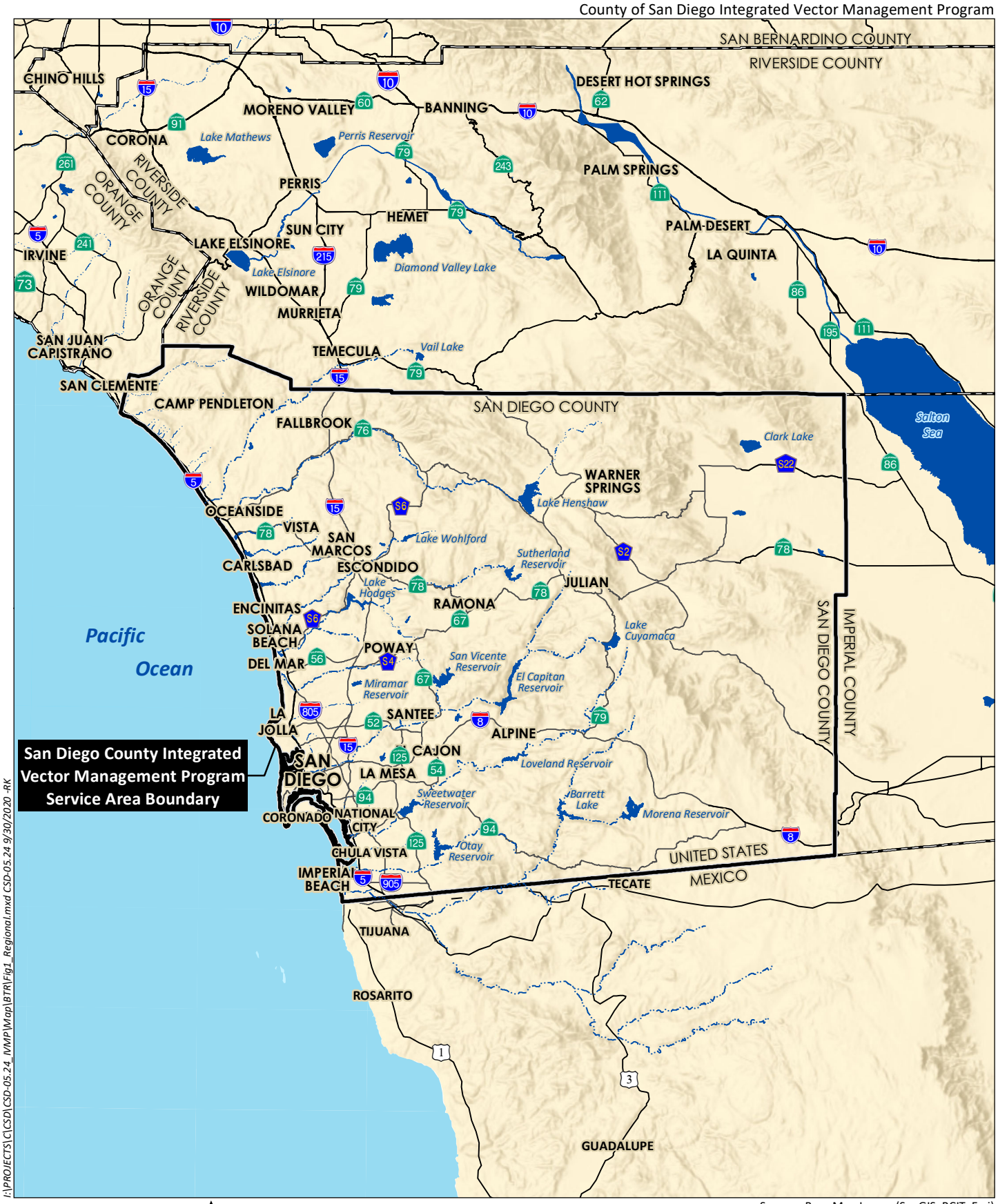
The IVMP service area is located in southwestern California and is defined by the boundaries of San Diego County (Figure 1, *Regional Location*; Figure 2, *Integrated Vector Management Program Service Area*). The county is bordered by Orange and Riverside counties to the north, Imperial County to the east, the Pacific Ocean to the west, and the U.S./Mexico International Border to the south. The service area encompasses approximately 4,261 square miles, and includes all unincorporated areas within the county, as well as the 18 incorporated cities (Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, and Vista). The unincorporated portion of the county is divided into 23 planning areas. Fourteen of the planning areas are referred to as Community Planning Areas (CPAs), and nine areas are called Subregional Planning Areas (Subregions). The CPAs are Alpine, Bonsall, County Islands, Fallbrook, Julian, Lakeside, Pendleton/De Luz, Rainbow, Ramona, San Dieguito, Spring Valley, Sweetwater, Valle de Oro, and Valley Center. The nine Subregions are Central Mountain, Crest/Dehesa/Harbison Canyon/Granite Hills, Desert, Jamul/Dulzura, Mountain Empire, North County Metropolitan, North Mountain, Otay, and Pala/Pauma Valley. The location and extent of specific activities implemented under the IVMP are evaluated based on the site-specific situation and dictated by the targeted vector, regulatory requirements, and applicable management approaches.

1.2.3 Project Description

Under the Proposed Project, the IVMP would continue to comprehensively implement vector control through various techniques, including surveillance and monitoring, source reduction (i.e., physical control), source treatment (i.e., biological and chemical controls), public education and outreach, and disease diagnostics. Each of these techniques would be applied to the applicable vectors under the IVMP, including disease-transmitting mosquitoes (i.e., *Culex* spp. and *Aedes* spp.); nuisance mosquitoes (i.e., not disease-transmitting); vectors associated with mammalian disease reservoirs (i.e., ticks and rodents); and other nuisance species (e.g., eye gnats not on commercial organic farms) deemed necessary for control as approved by the VCP. The five core services of the IVMP include: (1) early detection of public health risks through comprehensive vector surveillance and testing; (2) control and reduction of vectors that transmit diseases to humans or create public nuisance; (3) dissemination of information regarding tools for prevention, protection, and reporting of vectors that transmit diseases; (4) appropriate and timely response to vector-related customer complaints; and (5) detection of vector-borne pathogens.

The objectives of the IVMP are to:

1. Protect public health, well-being, and economic effects from vectors throughout San Diego County by applying integrated vector management practices.



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Regional Location

Figure 1

County of San Diego Integrated Vector Management Program

ORANGE COUNTY

RIVERSIDE COUNTY

IMPERIAL COUNTY

MEXICO

Pacific Ocean

CAMP PENDLETON MARINE CORPS BASE

MCAS MIRAMAR

OCEANSIDE

VISTA

SAN MARCOS

CARLSBAD

ESCONDIDO

ENCINITAS

SOLANA BEACH

DEL MAR

POWAY

SANTEE

EL CAJON

SAN DIEGO

LA MESA

LEMON GROVE

NATIONAL CITY

CORONADO

CHULA VISTA

IMPERIAL BEACH

5 78 15 52 8 125 94 805

San Diego County Integrated Vector Management Program Service Area Boundary

Incorporated Cities

Freeways

Excluded Areas

Federal Lands

Tribal Lands

0 8 Miles

N

Source: Base Map Layers (SanGIS and Esri)

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Integrated Vector Management Program Service Area

Figure 2

2. Implement effective and efficient integrated vector management practices in a manner that balances environmental impacts with the need to protect humans from vector-borne diseases and public nuisances.

3. Coordinate with other regional vector control districts throughout California as well as state and federal public health and environmental protection agencies to allow for the inclusion of new, innovative, and improved vector control activities and technologies.

Vector control and surveillance activities are conducted by VCP staff under standard operating procedures (SOPs) and use a risk-based approach to determine appropriate levels of response to each vector of concern. The IVMP incorporates various vector management principles and techniques from guidance documents that are regularly updated, such as the VCP's annual *Mosquito, Vector, and Disease Control Assessment Engineer's Report* (hereafter referred to as Engineer's Report); West Nile Virus Strategic Response Plan; and Aedes Transmitted Disease Strategic Response Plan (County 2018a, 2018b and 2018c, respectively), as well as procedural documents such as the *Mosquito Breeding Site Access Standard Operating Procedure* (County 2014). The Engineer's Report describes the VCP's general practices and procedures and is updated annually. A general discussion of the key IVMP activities is discussed below.

Surveillance and Monitoring

Vector surveillance, monitoring, and diagnostics are needed to assess location and abundance of vector populations and species so that data-informed decisions can be made. Vector surveillance involves monitoring vector populations and habitat, their disease pathogens, and human/vector interactions. Vector surveillance provides the VCP with valuable information about which vector species are present or likely to occur, locations in which they may occur, abundance, and if they are carrying disease(s). The information obtained from surveillance is evaluated against treatment and risk-based response criteria to decide when and where to implement vector control measures, and to help form action plans that can also assist in reducing the risk of contracting disease or causing nuisance. Vector surveillance can help minimize the area to which control techniques may be applied by directing activities to the areas where it is needed.

The VCP monitors disease-carrying animals such as mosquitoes, ticks, and rodents, as well as other pests, including flies on commercial poultry ranches, within the IVMP service area. Monitoring includes such techniques as setting traps to determine abundance and species of mosquitoes; testing mosquitoes for presence of disease; collecting and testing dead birds for West Nile virus; and conducting surveys via ground vehicles, aircraft (including piloted and unmanned), watercraft, and remote sensing equipment to evaluate mosquito-breeding sources. Surveillance is also conducted for ticks and rodents.

The VCP operates the Vector Disease and Diagnostic Laboratory (VDDL), which provides diagnostic testing to support the VCP, helps evaluate public health risk, and determines the appropriate response or treatment. The VDDL tests vector specimens from the field for numerous diseases that could be a risk to public health.

Source Reduction

Source reduction (i.e., environmental modification) techniques are used to reduce vector-breeding sources such as habitat and other areas of harborage. Source reduction also involves physical control techniques that eliminate or reduce standing water, including but not limited to, ground disturbance

(e.g., grading), vegetation management (including physical removal and/or herbicide application), water control, and other maintenance activities. Trapping and removal of vectors is also a form of source reduction.

Source Treatment

Source treatment includes biological and chemical controls of vectors. Specifically, this includes the use of mosquito fish (*Gambusia affinis*) and application of pesticides, such as larvicides and adulticides to reduce larval and adult mosquito populations, respectively. Larvicides can include either naturally-occurring bacteria or synthetic products. For this reason, certain larvicides may be considered either a biological or chemical control. However, for the purpose of this technical report, the following analysis considers the physical act of applying pesticides since all pesticides used by the program have already been approved by the EPA as being safe for the environment when applied according to label directions (which the IVMP adheres to). The type and location of biological and chemical control varies based on different factors, including, but not limited to, the vector species and growth stage, environment, disease presence, and risk level to public health. Any pesticides applied within waterbodies defined by federal and state regulations as waters of the U.S. and/or State are conducted in accordance with the Statewide National Pollutant Discharge Elimination System (NPDES) Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. from Vector Control Applications (Order No. 2016-0039-DWQ, General Permit No. CAG990004). Methods of application include, but are not limited to, backpack applicators, truck-mounted equipment, or other motorized vehicles (e.g., piloted and unmanned aircraft, watercraft). Source treatment of non-mosquito vectors can include, but are not limited to, chemical controls applied to mammal vectors such as rodents and mammal-related disease carriers such as ticks, fleas, and other arthropods. When pesticides are applied, label requirements are followed by VCP staff.

Public Education and Outreach

Public education and outreach activities are conducted to increase prevention and protection against disease-carrying vectors. VCP staff distribute educational materials, provide informational displays and presentations, use social media and informational emails, and conduct media campaigns.

Vector Control Strategies

Vector management strategies are updated as new information becomes available and are adapted and applied to new or emerging vectors as they arise. New vector control methods are based on empirical data, scientific evidence, published research, current state and federal guidelines, expert guidance, and the VCP's experience conducting vector control activities. The IVMP would allow for the integration of new and improved vector control activities and materials established in coordination with other regional vector control districts and research institutions throughout California, as well as state and federal agencies such as the California Department of Public Health (CDPH), California Environmental Protection Agency (CalEPA), the U.S. Environmental Protection Agency (USEPA), and the Centers for Disease Control and Prevention (CDC). Emerging safe and effective vector control strategies that may be implemented to address future public health risks and public nuisances could include, but not be limited to, increased or advanced/early source prevention and/or reduction, surveillance, or physical/biological/chemical controls, depending on the assessment.

1.3 METHODS

1.3.1 Literature Review

Baseline biological resources information for the service area was reviewed and compiled from several sources including the Final Multiple Species Conservation Program (MSCP) Plan (County 1998), County MSCP Subarea Plan (County 1997), the U.S. Fish and Wildlife Service (USFWS) species records (USFWS 2020a), California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB; CDFW 2020a), County's SanBIOS data (County 2020), and California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2020). Recent aerial imagery, topographic maps, soils maps (Natural Resource Conservation Service [NRCS] 2020), regional vegetation mapping (San Diego Geographic Information Source [SanGIS] 2020), and other maps of the service area were acquired and reviewed to obtain updated information on the natural environmental setting.

1.3.2 Nomenclature

Nomenclature used in this report generally comes from Holland (1986) and Oberbauer (2008) for vegetation; Jepson eFlora (2020) and Baldwin et al. (2012) for plants; NatureServe (2020) for insects; Pelham (2020) and Davenport (2018) for butterflies; Society for the Study of Amphibians and Reptiles (2020) for reptiles and amphibians; American Ornithological Society (2020) for birds; and Tremor et al. (2017) for mammals. Plant species status is from the CNPS Rare Plant Inventory (CNPS 2020), CDFW (2020b), and County (2010a). Animal species status is from the CDFW (2020c) and County (2010a).

1.4 ENVIRONMENTAL SETTING

1.4.1 Regional Context

The county is generally a semi-arid environment and supports a wide range of habitats and biological communities that vary greatly depending on the eco-region, soils and substrate, elevation, and topography. Representative habitats within the county include beaches, tidal marshes, and lagoons along the coast; coastal sage scrub, chaparral, grassland, riparian scrub and forests, oak woodlands, and freshwater lakes (both natural and artificial) throughout the lowlands and foothills; mixed chaparral, oak woodlands, and coniferous forest associated with the higher elevation mountain ranges in the east; and desert scrub and badlands located in the eastern portion of the county within the Colorado Desert. These communities provide habitat for a vast assemblage of flora and fauna, many of which are endemic to California.

Several conservation-planning efforts have been completed, or are in progress, throughout the county. These efforts consist of region wide Natural Community Conservation Plans (NCCP) and Habitat Conservation Plans (HCP) with the long-term goal of establishing regional preserve systems that will protect native habitats and ensure the long-term survival of sensitive plant and animal species that inhabit them. There are several NCCPs/HCPs in effect or under development within the IVMP service area as summarized in Table 1, *Natural Community Conservation Plans/Habitat Conservation Plans within San Diego County*. These include the San Diego County MSCP covering the County and other city jurisdictions in the southwestern portion of county, the North County Multiple Habitat Conservation Program (MHCP) covering the northwestern portion of the county, and respective MSCP and MHCP subarea plans (Figure 3, *Natural Community Conservation Plans/Habitat Conservation Plans*). Additionally, the San Diego County Water Authority (SDWCA) and San Diego Gas & Electric (SDG&E)

have each developed and adopted their own respective NCCP/HCPs covering new projects and ongoing activities along existing infrastructure which occurs throughout the county. These plans are specific to activities conducted by the SDWCA and SDG&E and are not applicable to other agencies and projects.

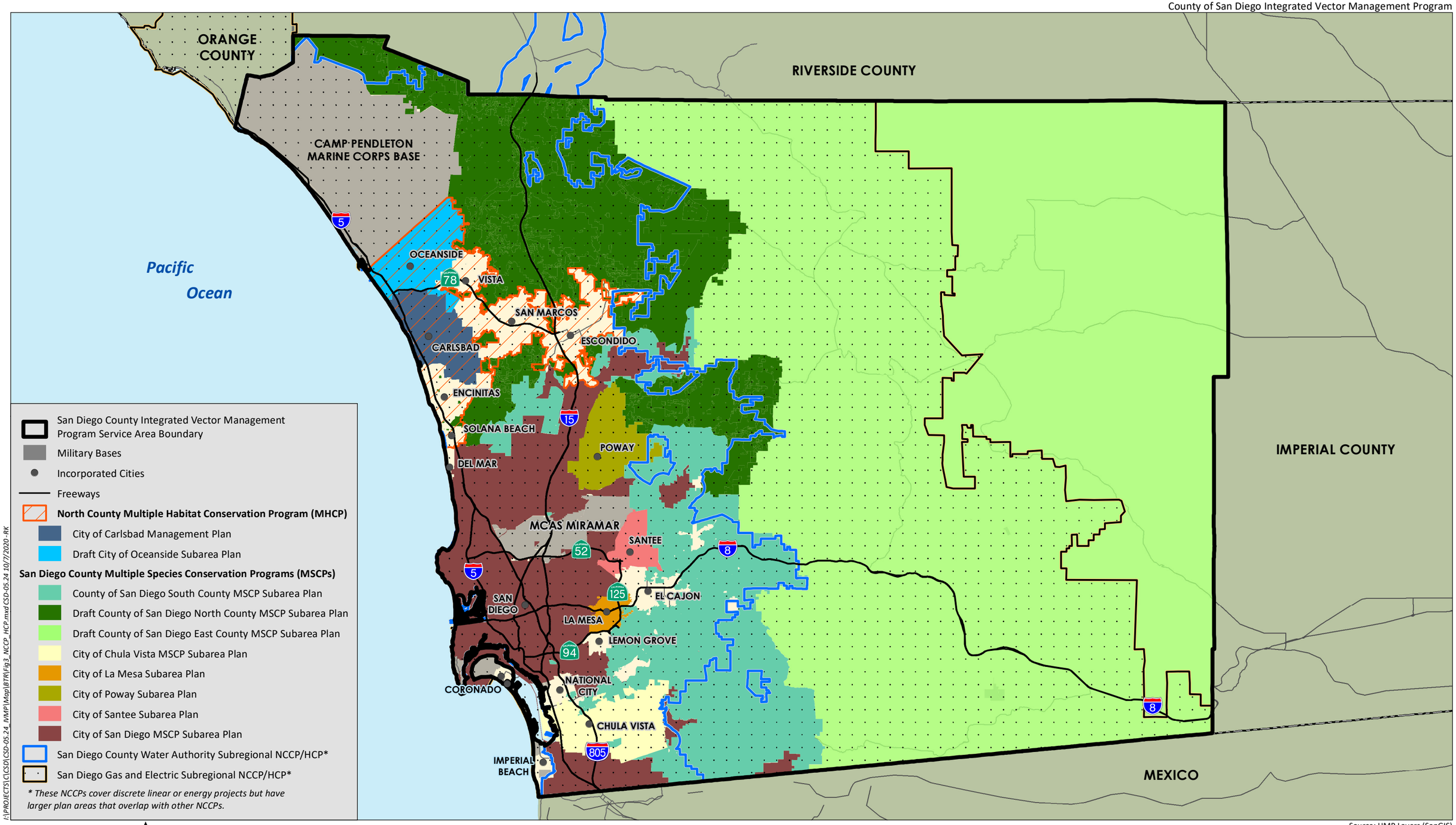
Table 1
NATURAL COMMUNITY CONSERVATION PLANS/
HABITAT CONSERVATION PLANS WITHIN SAN DIEGO COUNTY

NCCP/HCP
North County Multiple Habitat Conservation Program (MHCP)
Final Plans
City of Carlsbad Habitat Management Plan
In Development
City of Encinitas MHCP Subarea Plan
City of Escondido MHCP Subarea Plan
City of Oceanside MHCP Subarea Plan
City of San Marcos MHCP Subarea Plan
City of Vista MHCP Subarea Plan
San Diego County Multiple Species Conservation Program (MSCP)
Final Plans
County of San Diego (South County) MSCP Subarea Plan
City of Chula Vista MSCP Subarea Plan
City of La Mesa MSCP Subarea Plan
City of Poway MSCP Subarea Plan
City of San Diego MSCP Subarea Plan
City of San Diego Vernal Pool Habitat Conservation Plan
In Development
County of San Diego (North County) MSCP Subarea Plan
County of San Diego (East County) MSCP Subarea Plan
City of Coronado MSCP Subarea Plan
City of Del Mar MSCP Subarea Plan
City of El Cajon MSCP Subarea Plan
City of Santee MSCP Subarea Plan
San Diego County Water Authority Subregional NCCP/HCP (Final Plan)[1]
San Diego Gas & Electric Subregional NCCP (Final Plan)[1]

[1] These NCCPs cover discrete linear or energy projects but have larger plan areas that overlap with other NCCPs.

These NCCPs/HCPs have been designed to protect and preserve native habitats and sensitive plants and animal species by delineating areas of high biological value for conservation. Areas targeted for preservation include the County Pre-Approved Mitigation Areas (PAMA) and Hardline Preserve Areas, City of San Diego's Multi-Habitat Planning Area (MHPA), and other preserve areas associated with the various MSCP and MHCP subarea plans (Figure 4, *Open Space, Preserves, and Conserved Areas*). Additionally, various open space and other conserved lands occur throughout the county including private preserves; state preserves, ecological reserves, and wildlife areas; and federal national wildlife refuges.

Within the county, USFWS has designated critical habitat for nine federally listed plant species and 11 federally listed animal species (Figure 5, *USFWS-Designated Critical Habitat*; USFWS 2020b). Critical habitat includes specific areas that contain physical and biological features that are essential to the



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Source: HMP Layers (SanGIS)

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Natural Community Conservation Plans/Habitat Conservation Plans

Figure 3

ORANGE COUNTY

RIVERSIDE COUNTY

IMPERIAL COUNTY

MEXICO

Pacific Ocean

CAMP PENDLETON MARINE CORPS BASE

MCAS MIRAMAR

OCEANSIDE

VISTA

SAN MARCOS

ESCONDIDO

CARLSBAD

ENCINITAS

SOLANA BEACH

DEL MAR

POWAY

SANTEE

EL CAJON

LA MESA

LEMON GROVE

SAN DIEGO

NATIONAL CITY

CORONADO

CHULA VISTA

IMPERIAL BEACH

5 78 15 52 125 94 8 805

San Diego County Integrated Vector Management Program Service Area Boundary

Military Bases

Incorporated Cities

Freeways

Conserved Lands*

North County Multiple Habitat Conservation Program (MHCP) Preserve Areas

City of Carlsbad HMP Hardline Preserve

City of Encinitas MHCP Softline and Hardline Preserves

City of Oceanside Preserves

San Diego County Multiple Species Conservation Programs (MSCPs)

City of Chula Vista MSCP Preserves

City of San Diego Multi-Habitat Planning Area

County of San Diego South County MSCP Subarea Plan PAMA and Hardline Preserve

Draft County of San Diego North County MSCP PAMA and Preserve Areas

Draft County of San Diego East County MSCP Open Space and Preserve Areas

**Conserved Lands come from SanGIS, as created by SANDAG, and represent open space areas including those located inside and outside NCCP areas.*

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Source: Open Space/Preserve Layers (SanGIS, City of Chula Vista, City of Carlsbad, City of Encinitas, City of Oceanside)

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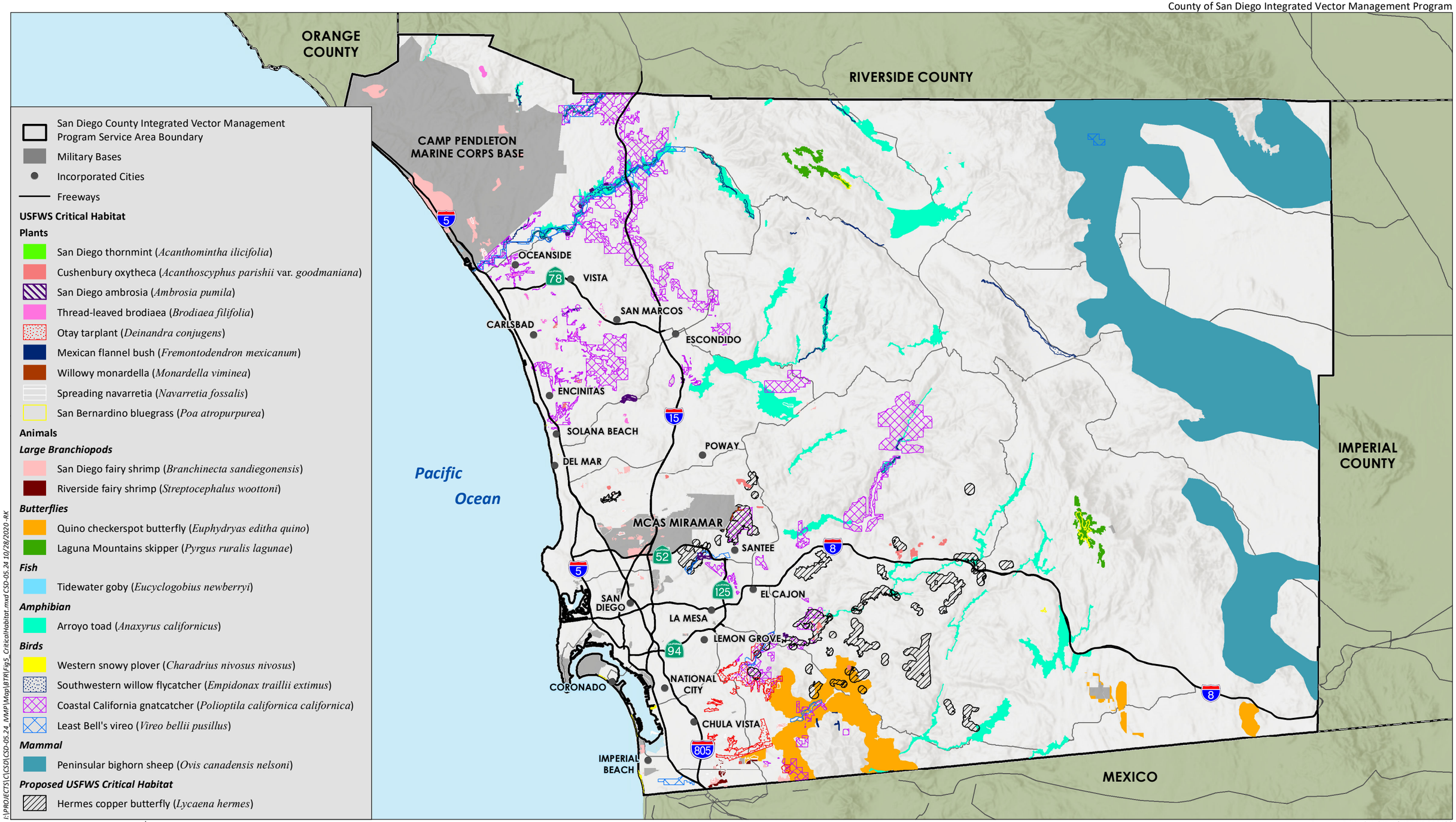
Open Space, Preserves, and Conserved Lands

Figure 4



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Source: Critical Habitat (USFWS 2020b)

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USFWS - Designated Critical Habitat

Figure 5

conservation and recovery of federally listed species. USFWS-designated critical habitat for the following species occurs within the IVMP service area:

1. Plants: San Diego thornmint (*Acanthomintha ilicifolia*), cushenbury oxytheca (*Acanthoscyphus parishii* var. *goodmaniana*), San Diego ambrosia (*Ambrosia pumila*), thread-leaved brodiaea (*Brodiaea filifolia*), Otay tarplant (*Deinandra conjugens*), Mexican flannel bush (*Fremontodendron mexicanum*), willowy monardella (*Monardella viminea*), spreading navarretia (*Navarretia fossalis*), and San Bernardino bluegrass (*Poa atropurpurea*);

2. Large brachiopods: San Diego fairy shrimp (*Branchinecta sandiegonensis*) and Riverside fairy shrimp (*Streptocephalus woottoni*);

3. Butterflies: quino checkerspot butterfly *(Euphydryas editha quino*) and Laguna Mountains skipper (*Pyrgus ruralis lagunae*);

4. Fish: tidewater goby (*Eucyclogobius newberryi*);

5. Amphibian: arroyo toad (*Anaxyrus californicus*);

6. Birds: western snowy plover (*Charadrius nivosus nivosus*), southwestern willow flycatcher (*Empidonax traillii extimus*), coastal California gnatcatcher (*Polioptila californica californica*), and least Bell's vireo (*Vireo bellii pusillus*);

7. Mammal: Peninsular bighorn sheep (*Ovis canadensis nelsoni*).

Additionally, on January 8, 2020 the USFWS proposed listing the Hermes copper butterfly (*Lycaena hermes*) and designating its associated critical habitat. The public comment period closed on March 9, 2020. As of the date of this report, no ruling has been issued by USFWS classifying the species as threatened or designated its critical habitat.

1.4.2 General Land Uses

Land uses within the county vary between the urban areas along the coast and the more rural areas in the eastern regions. The majority of the land in the unincorporated county is open space or undeveloped, while the majority of land in the incorporated cities is developed. More than 50 percent of the total land area in the region is not available for urban development, including public lands, dedicated parks and open space, lands constrained for environmental reasons, and military use (SANDAG 2015). The highest population densities are found in the western (coastal) third of the county, where topography and mild coastal climatic conditions are more inducive to development. Urban uses tend to consist of residential and commercial uses, as well as small-scale agricultural and industrial uses. Land uses that occur throughout the county include low-density residential and commercial uses, agricultural operations, mineral resources and extraction, and undeveloped habitats, as well as national forest and state park lands. Public and semi-public facilities, recreational areas, and open space conservation areas are located throughout the county.

The existing transportation network consists of freeways, highways, regional arterials, local streets and roads, alternative transportation facilities, commercial and general aviation facilities, seaport facilities, and ports of entry at the U.S./Mexico border. These facilities serve the 18 cities and unincorporated areas of the county.

1.4.3 Topography

The county is bisected by the Laguna Mountain Range which extends roughly north to south and generally parallel to the coast and is located approximately 45 miles inland. The Laguna Mountains have peaks reaching over 6,000 feet above mean sea level (AMSL) and separates the western coastal area from the eastern desert portion of the county. The coastal region is made up of coastal terraces that rise from the ocean into wide mesas that transition into the Laguna Foothills to the east. Farther east, the topography gradually rises to the rugged mountains, then drops rapidly to the Anza-Borrego Desert, which is characterized by several broken mountain ranges with desert valleys in between. To the north of the county are the Santa Ana Mountains, which trend along the coast of Orange County, turning east to join with the Laguna Mountains near the San Diego-Orange County border (County 2011).

1.4.4 Climate

The climate of the San Diego region varies by location, but is generally classified as a Mediterranean climate, with warm, dry summers and mild, wet winters. Temperatures in the region are typically moderate on the coast, with an average high temperature of 69.9 degrees Fahrenheit (°F) and an average low temperature of 56.5°F. Average monthly temperatures rarely exceed 75°F. Average annual precipitation on the coast is approximately 10.1 inches. In contrast, the average high temperature within the desert subregion (e.g., unincorporated community of Borrego Springs) is 88.3°F, and the average low is 63.6°F. Average monthly temperatures in the desert subregion typically exceed 100°F in summer months, which are very dry and see little precipitation. Average annual precipitation in the desert subregion is 5.3 inches (SANDAG 2015).

1.4.1 Habitat Types/Vegetation Communities

Several vegetation communities are present within the IVMP service area, including vegetated wetlands such as freshwater marsh, tidal marshes, sloughs, wet meadows, riparian scrub, and riparian forest, unvegetated open waters such as lakes and ponds, and upland vegetation communities such as oak woodland, sage scrub, chaparral, desert scrub, and grassland habitats (Figure 6*, Regional Vegetation Mapping*). Due to the programmatic nature of this document and the vast size of the IVMP service area, vegetation communities are only described in generalized terms. Table 2, *Vegetation Communities within San Diego County*, lists representative vegetation communities that are mapped on a regional scale according to publicly available data available through the SanGIS website (SanGIS 2020) and are separated into three categories: wetlands and waters, sensitive uplands, and non-sensitive uplands. The numeric codes in parentheses following each community/land use type name are from the Holland classification system (Holland 1986) as added to by Oberbauer (2008). A comprehensive list and description of vegetation communities within county is included in the *Draft Vegetation Communities of San Diego County* (Oberbauer 2008).

Table 2
VEGETATION COMMUNITIES WITHIN SAN DIEGO COUNTY

Vegetation Community[1]		
Wetlands and Waters	**Sensitive Uplands**	**Non-Sensitive Uplands**
Disturbed Wetland (11200)	Coastal Dunes (21000)	Non-Native Vegetation (11000)
Vernal Pool (44000)	Desert Dunes (22000)	Disturbed Habitat (11300)
Meadows and Seeps (45000)	Coastal Bluff Scrub (31000)	Urban/Developed (12000)
Alkali Playa (46000)	Coastal Scrub (32000)	Agriculture (18000)
Coastal Salt Marsh (52100)	Sonoran Desert Scrub (33000)	Badlands/Mudhills (25000)
Freshwater Marsh (52400)	Chaparral (37000)	Eucalyptus Woodland (79100)
Herbaceous Wetland (52510)	Native Grassland (42100)	
Riparian Forest (61000)	Non-native Grassland (42200)	
Riparian Woodland (62000)	Oak Woodlands (71100)	
Riparian Scrub (63000)	Oak Forest (81310)	
Open Water (64100)	Closed-Cone Coniferous Forest (83000)	
Non-Vegetated Floodplain or Channel (64200)	Lower Montane Coniferous Forest (84000)	
Saltpan/Mudflats (64300)		
Beach (64400)		
Non-Native Riparian (65000)		

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).

Sensitive vegetation communities/habitat types are defined as land that supports unique vegetation communities or the habitats of rare or endangered species or subspecies of animals or plants as defined by Section 15380 of the state CEQA Guidelines. Sensitive vegetation communities within the county include those that have been identified within the County Guidelines for Determining Significance of Biological Resources (County 2010a), various MSCP and MHCP subarea plans, and are protected by local jurisdictions and ordinances.

Sensitive vegetation communities/habitat types within the IVMP service area include all waters and wetland habitat, coastal and desert dunes, coastal and desert scrub habitats, chaparral, native and non-native grasslands, oak woodlands and forests, and coniferous forests.

1.4.2 Special Status Plant Species

Special status plant species have been afforded special status and/or recognition by the USFWS, CDFW, and/or the County and may also be included in the CNPS Inventory of Rare and Endangered Plants. Their status is often based on one or more of three distributional attributes: geographic range, habitat specificity, and/or population size. A species that exhibits a small or restricted geographic range (such as those endemic to the region) is geographically rare. A species may be abundant but occur only in very specific habitats. Lastly, a species may be widespread but exist naturally in small populations.

Based on a review of CNPS (2020), CNDDB (CDFW 2020a), and USFWS species occurrence data (USFWS 2020a), a total of 296 special status plant species have been documented within the IVMP service area. Of these, 36 are federally and/or state listed or candidate species. A list of special status plant species and habitat associations is included in Appendix A, *Special Status Plant Species with Potential to Occur within the IVMP Service Area*. Status codes are defined in Appendix C, *Explanation of Status Codes for Plant and Animal Species*. Due to the programmatic nature of this document and the vast size of the IVMP service area, only special status plant species that are state- and/or federally-listed have a

California Rare Plant Rank (CRPR) of 1 or 2, as designated by CNPS, or are considered sensitive by the County (County 2010a) are included in Appendix A.

USFWS has designated critical habitat for nine federally listed plant species within the county (Figure 5), including San Diego thornmint, cushenbury oxytheca, San Diego ambrosia, thread-leaved brodiaea, Otay tarplant, Mexican flannel bush, willowy monardella, spreading navarretia, and San Bernardino bluegrass.

1.4.3 Special Status Animal Species

Special status animal species include those that have been afforded special status and/or recognition by the USFWS, CDFW, and/or the County. In general, the principal reason an individual taxon (species or subspecies) is given such recognition is the documented or perceived decline or limitations of its population size or geographical extent and/or distribution, resulting in most cases from habitat loss.

Based on a review of CNDDB (CDFW 2020a), USFWS species occurrence data (USFWS 2020a), and SanBIOS (County 2020), a total of 192 special status animal species have been documented within the IVMP service area consisting of 16 invertebrates, 6 fish, 7 amphibians, 27 reptiles, 107 birds, and 29 mammals. Of these, 41 are federally and/or state listed or candidate species. These species and habitat associations are included in Appendix B, *Special Status Animal Species with Potential to Occur within the IVMP Service Area*. Status codes are defined in Appendix C.

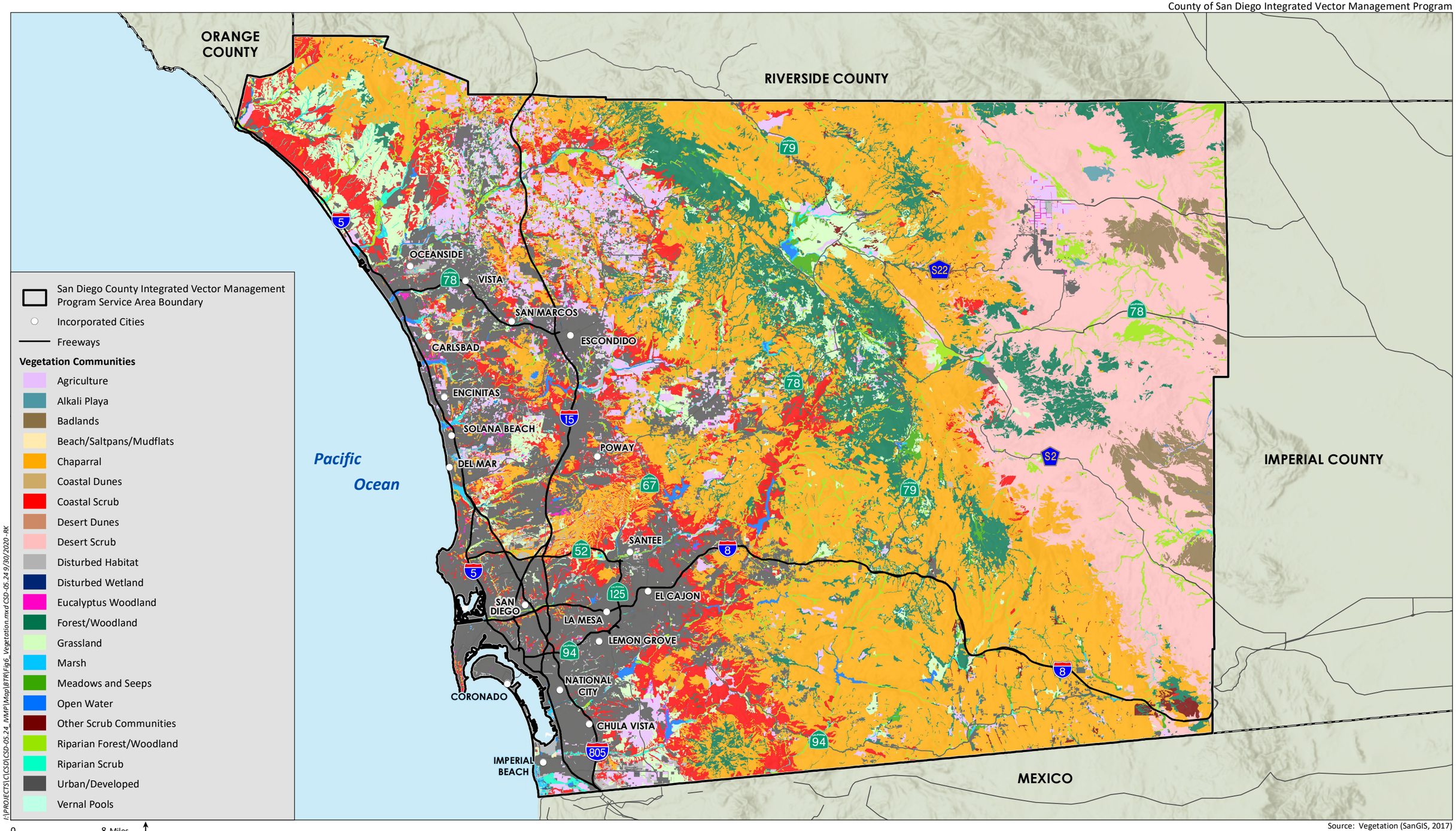
USFWS has designated critical habitat for 11 federally listed animal species within the county (Figure 5), including San Diego fairy shrimp, Riverside fairy shrimp, quino checkerspot butterfly, Laguna Mountains skipper, tidewater goby, arroyo toad, western snowy plover, southwestern willow flycatcher, coastal California gnatcatcher, least Bell's vireo, and Peninsular bighorn sheep. Additionally, proposed critical habitat for the proposed threatened Hermes copper butterfly is present within the county.

Raptor Foraging Habitat

The County (2010a) defines raptor foraging habitat as, "Land that is a minimum of five acres (not limited to project boundaries) of fallow or open areas with any evidence of foraging potential (i.e., burrows, raptor nests, etc.)." Suitable raptor foraging habitat occurs in a wide distribution across the county, typically consisting of grasslands, marshes, and fallow agricultural fields. There are several hawk and raptor species that are resident and migratory to San Diego County. Common species found within both urban, rural, and undeveloped areas include Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), and red-shouldered hawk (*Buteo lineatus*). Northern harrier (*Circus hudsonius*) and white-tailed kite (*Elanus leucurus*) are commonly found within wetland and riparian areas and forage over adjacent grasslands and open fields. Golden eagle (*Aquila chrysaetos*) tend to occur within the more rural and undeveloped eastern portions of the county where suitable nesting habitat, i.e., steep slopes and cliff ledges, is present and human disturbances are low.

1.4.4 Jurisdictional Waters and Wetlands

There are numerous waters and wetlands within the county which support waters of the U.S. subject to the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE), pursuant to Section 404 of the federal Clean Water Act (CWA); waters of the State, subject to the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB), pursuant to Section 401 of the CWA and/or Porter-Cologne Water Quality Act; and unvegetated stream channels and riparian habitat, subject to the regulatory jurisdiction of the CDFW to Section 1600 *et seq*. of California Fish and Game (CFG) Code. National



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Source: Vegetation (SanGIS, 2017)

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Regional Vegetation Mapping

Figure 6

datasets from the U.S. Geological Survey's (USGS 2020) National Hydrography Dataset (NHD) and the USFWS's National Wetland Inventory (NWI; USFWS 2020c) depicting the approximate location of these resources are shown on Figure 7, *Potential Jurisdictional Resources*. Though these datasets provide a representative depiction of the location and abundance of potential jurisdictional resources present within the county, they are not considered a final determination on the extent and jurisdictional status of waters and wetlands within the IVMP service area. Instead, these datasets are used as references to help inform the potential for jurisdictional resources in an area, which would then require field verification and/or a formal delineation to determine the actual extent of potential jurisdictional resources. Potential jurisdictional resources within the IVMP service area consists of streams and rivers, ephemeral drainages, ponds and lakes, lagoons and estuaries, and associated wetland and riparian habitat.

1.4.5 Habitat Connectivity and Wildlife Corridors

Wildlife corridors connect otherwise isolated pieces of habitat and allow movement or dispersal of plants and animals. Local wildlife corridors allow access to resources such as food, water, and shelter within the framework of their daily routine. Regional corridors provide these functions over a larger scale and link two or more large habitat areas, allowing the dispersal of organisms and the consequent mixing of genes between populations. A corridor is a specific route that is used for the movement and migration of species and may be different from a linkage in that it represents a smaller or narrower avenue for movement. A linkage is an area of land that supports or contributes to the long-term movement of animals and genetic exchange by providing live-in habitat that connects to other habitat areas. Many linkages occur as stepping-stone linkages that are made up of a fragmented archipelago arrangement of habitat over a linear distance.

Local and regional wildlife movement corridors within the county primarily consist of riparian corridors and larger blocks of undeveloped habitat containing rugged terrain that provide sufficient vegetative cover to facilitate movement of both small and large mammals. These areas contain vital resources, such as food and water and conceal wildlife from anthropogonic influences that would otherwise deter wildlife usage. Movement corridors can provide both live-in habitat as well as a temporary refuge for wildlife when moving between more expansive blocks of habitat or areas of higher biological value. Wildlife movement within the western portion of the county, particularly along the coast, is heavily impaired and constrained by urban and residential development. Riparian corridors, preserves, and open space areas function as local movement corridors for smaller mammals, such as coyote (*Canis latrans*) and bobcat (*Lynx rufus*), and provide stepping-stone linkages for birds between key habitat blocks of upland and riparian habitat providing important breeding, foraging and dispersal functions. Movement of larger mammals, such as mule deer (*Odocoileus hemionus*), within the western portion of the county is concentrated within larger blocks of undeveloped habitat and open space areas such as Los Peñasquitos Canyon Preserve. Further inland, these wildlife movement corridors increase in function and support a wider range of species as development is largely rural, fewer major highways and roadways are present, and there are larger blocks of undeveloped land.

Regional movement corridors within the county have been identified in regional planning documents such as the San Diego MSCP and North County MHCP. The San Diego MSCP and North County MHCP delineated biological core and linkage areas which represent areas of high biological value that support sensitive resources and the identified linkages connecting these areas together (Figure 8, *Wildlife Movement Corridors and Linkages*; San Diego Management and Monitoring Program 2020). These linkages tend to be formed by rivers and valleys, mesa tops, and ridgelines such as San Diego River,

San Luis Rey River, San Dieguito River, Los Peñasquitos Creek, Sweetwater River, Otay River, Del Mar Mesa, Jamul Mountains, Otay Mountain, Lakes Hodges, and Lyons Valley. Areas targeted for conservation under the individual MSCP and MHCP subarea plans are based on the core and linkage concept of landscape-level conservation. The configuration of preserve lands includes large, contiguous areas of habitat supporting important species populations or habitat areas and important functional linkages and movement corridors between them. Additional linkage studies conducted by South Coast Wildlands (SCW), a nonprofit organization, have aimed to identify and conserve the highest-priority linkages in the South Coast Ecoregion, including San Diego region, known as the South Coast Missing Linkages (SCW 2008; Figure 8). SCW has identified linkages within the northern and eastern portions of the county connecting large blocks of habitat within Marine Corps Base Camp Pendleton (Camp Pendleton) and Laguna Mountains with the San Jacinto Mountains in Riverside County to the north.

1.5 APPLICABLE REGULATIONS

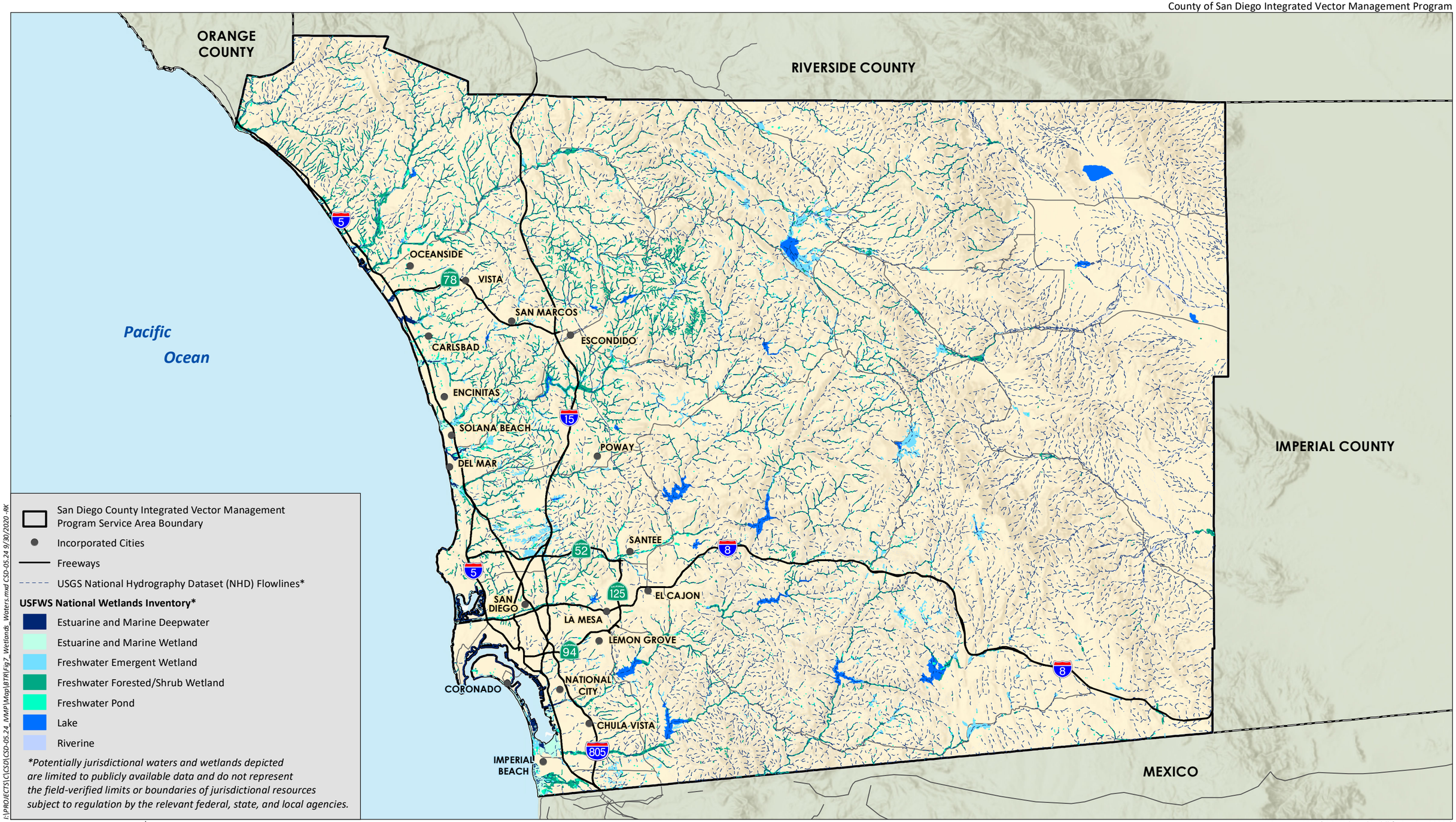
Biological resources in the IVMP service area are subject to regulatory review by federal, state, and local agencies. This section summarizes the program approvals/permits in Section 1.5.1 and describes the overall regulatory framework for the program in Section 1.5.2 (federal), Section 1.5.3 (state), and Section 1.5.4 (local).

1.5.1 Program Approvals/Permits

The VCP operates under the authority of the Mosquito Abatement and Vector Control District Law of the State of California (Health and Safety Code Section 2000-2093), which details the need and rationale for creating Mosquito Abatement and Vector Control Districts in the State. In July 1989, the County Board of Supervisors assumed the powers of a Vector Control District. The city council of each incorporated city consented to the Board's resolution, and the County's service area was formed, which includes all 18 incorporated cities and unincorporated areas of San Diego County. The Board delegated implementation and enforcement duties to the VCP, which continues to provide countywide vector prevention and control services to this day. The VCP's authority is further established in the California Government Code, California Health and Safety Code, California Civil Code, California Penal Code, San Diego County Code of Regulatory County Ordinances, San Diego County Code of Administrative County Ordinances, and CEQA.

Aside from the VCP's regulatory authority to monitor and control vectors, individual IVMP activities would be subject to applicable federal, state, and local environmental regulations, such as the Endangered Species Acts, Migratory Bird Treaty Act, Clean Water Act and Rivers and Harbors Act, Statewide General NPDES Permit for Vector Control, CFG Code, Porter-Cologne Water Quality Control Act, and others.

For individual IVMP activities located within federal, state, or local wildlife refuges, preserves, or conservation areas, DEHQ will continue to coordinate, review activities, and collaborate with applicable agencies including the USFWS, CDFW, and other local agencies, municipalities, and property owners. DEHQ will also continue to coordinate with various land managers and Resource Agencies (USACE, RWQCB, and CDFW) as needed to minimize the impacts of IVMP activities on jurisdictional waters and biological resources within designated reserves and refuges. IVMP activities will continue to be conducted in accordance with all current and future regulatory permits, right-of-entry agreements, and guidance documents including, but not limited to, those included in Table 3, *Regulatory Permits, Approvals, and Guidance Documents for Activities Implemented Under the IVMP*:



San Diego County Integrated Vector Management Program Service Area Boundary

Incorporated Cities

Freeways

USGS National Hydrography Dataset (NHD) Flowlines*

USFWS National Wetlands Inventory*

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

**Potentially jurisdictional waters and wetlands depicted are limited to publicly available data and do not represent the field-verified limits or boundaries of jurisdictional resources subject to regulation by the relevant federal, state, and local agencies.*

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Sources: NWI (U.S. Fish and Wildlife Service 2020c)

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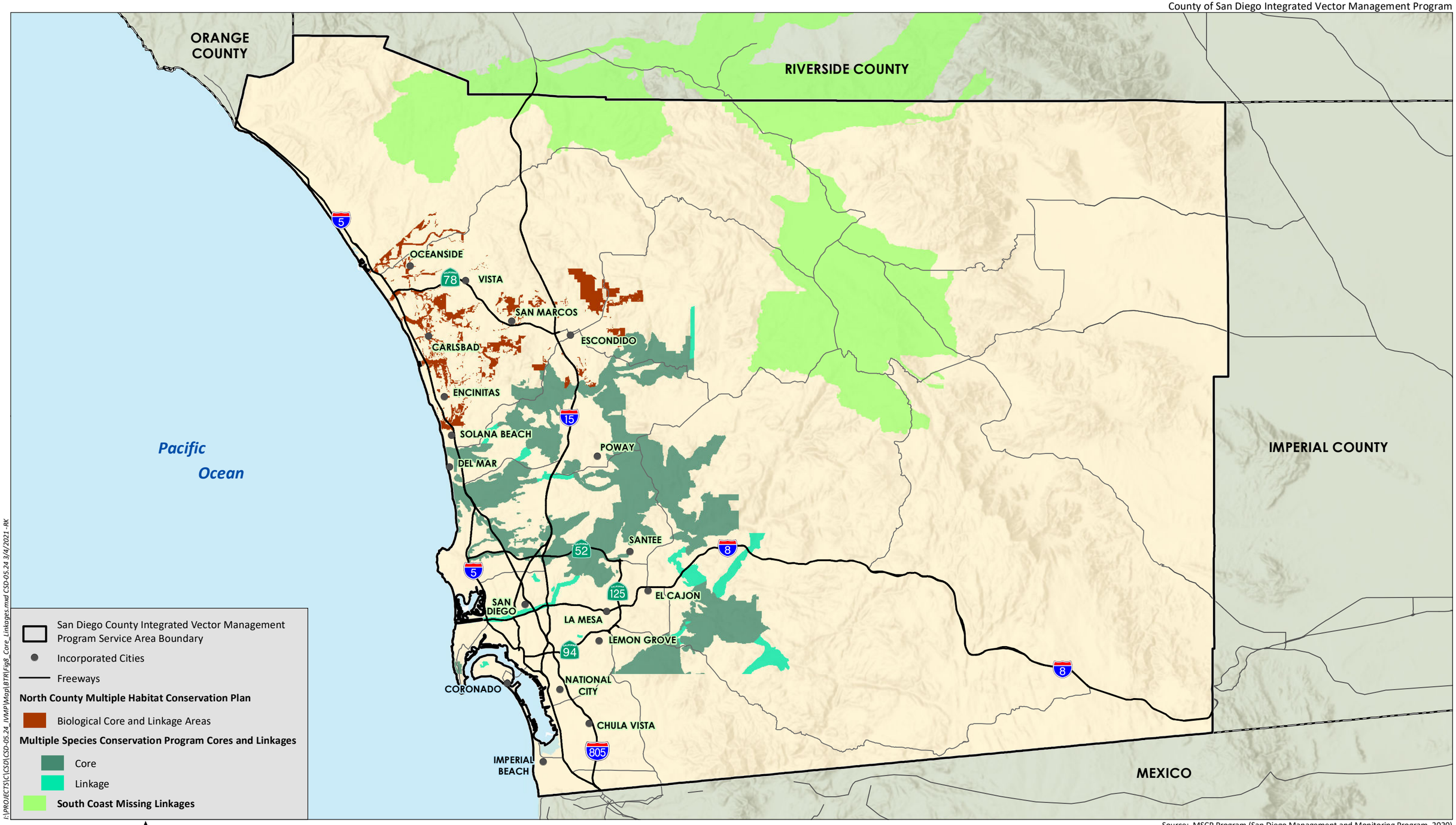
Potential Jurisdictional Waters and Wetlands

Figure 7



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Source: MSCP Program (San Diego Management and Monitoring Program, 2020)

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Wildlife Movement Corridors and Habitat Linkages

Figure 8

Table 3
REGULATORY PERMITS, APPROVALS, AND GUIDANCE DOCUMENTS FOR ACTIVITIES IMPLEMENTED UNDER THE IVMP[1]

Title	Document (Permit/Guidance)	Agency	Summary
Federal Permits			
USFWS Special Use Permit - San Diego County Department of Environmental Health and Quality Vector Control Program	Special Use Permit	USFWS	Updated annually. Permits the County to access and conduct IVMP activities on USFWS-owned lands, such as the Tijuana Slough National Wildlife Refuge and San Diego Bay National Refugee, in coordination with USFWS Refuge staff.
State Permits			
Cooperative Agreement between CDPH and County of San Diego	n/a	CDPH	Renewed annually. Authorizes the County to conduct pest and vector prevention activities pursuant to California Health and Safety Code, Section 116180.
Statewide National Pollutant Discharge Elimination System (NPDES) Permit for Biological and Residual Pesticide Discharges to Waters of the United States from Vector Control Applications	General Permit No. CAG990004 Order No. 2016-0039-DWQ Enrollee No. 937AP00009	State Water Resources Control Board	Permits the use and discharge of biological and residual pesticides, including larvicides and adulticides, that are currently registered by the California Department of Pesticide Regulation, within waters of the U.S.
Memorandum of Understanding (MOU) between California Department of Fish and Wildlife (CDFW) and California Department of Public Health (CDPH) for Salvage of Bird, Lagomorph, and Rodent Carcasses for Detection of West Nile Virus Infection	MOU	CDFW	Renewed every five years. Allows for the salvage of dead birds, dead lagomorphs (rabbits and hares), and dead rodents (e.g., tree squirrels) for the detection of West Nile virus.
Local Permits			
Unified Program Facility Permit	DEH2010-HUPFP-211944	County DEHQ	Permit is required since the VCP stores/handles hazardous materials and generates hazardous waste.

Table 3 (cont.)
REGULATORY PERMITS, APPROVALS, AND GUIDANCE DOCUMENTS FOR ACTIVITIES IMPLEMENTED UNDER THE IVMP[1]

Title	Document (Permit/Guidance)	Agency	Summary
Guidance Documents			
California Mosquito-Borne Virus Surveillance and Response Plan (CDPH 2020)	Guidance	CDPH	Provides statewide guidelines and information on the surveillance and control of endemic mosquito-borne viruses in California, provides local and state agencies with a decision support system, and outlines the roles and responsibilities of local and state agencies involved with mosquito-borne virus surveillance and response.
Best Management Practices for Mosquito Control in California (CDPH 2012)	Guidance	CDPH	Provides property owners and land managers with Best Management Practices (BMPs) to control and reduce mosquito populations.
Best Management Practices for Mosquito Control on California State Properties (CDPH 2008)	Guidance	CDPH	Provides State agencies with BMPs to control and reduce mosquito populations on state-owned properties.
Mosquito Breeding Site Access and Proper Pesticide Treatment Standard Operating Procedure	Guidance	County	Establishes uniform procedures for accessing non-domestic mosquito breeding sources by VCP staff and safely applying pesticides according to the label in sensitive areas.
County of San Diego Department of Environmental Health and Quality Community Health Division Vector Control Program "Sensitive Species Site Access Guidance"	Guidance	CDPH	Provides guidance for technicians conducting inspections and treatments for mosquito abatement in habitats with sensitive species in order to minimize potential negative environmental impacts.

[1] Note: this table is not intended to be an exhaustive list of all permits or guidance documents currently utilized. Furthermore, all permits and guidance documents identified in this table are subject to change/revision.

1.5.2 Federal Government

Federal Endangered Species Act

Depending on the location and nature of individual IVMP activities, DEHQ may be required to consult with the USFWS under Section 7 of the federal Endangered Species Act (FESA) to address potential

impacts to sensitive species and habitats. DEHQ maintains a Special Use Permit for performing vector control activities on USFWS-owned land, including the Tijuana Estuary and the Sweetwater Marsh Unit.

Administered by the USFWS, the FESA provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a "take" under the FESA. Section 9(a) of the FESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" and "harass" are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

The USFWS designates critical habitat for endangered and threatened species. Critical habitat is a term defined and used in the FESA and refers to specific geographic areas that contain features considered necessary for endangered or threatened species to recover. Critical habitat designations can include areas that are not currently occupied by the species, as the ultimate goal is to restore healthy populations of listed species within their native habitats so they can be removed from the list of threatened or endangered species. Once an area is designated as critical habitat pursuant to the FESA, all federal agencies must consult with the USFWS to ensure that any action they authorize, fund, or carry out is not likely to result in destruction or adverse modification of the critical habitat. Only activities that involve a federal permit, license, or funding require consultation with the USFWS.

Sections 7 and 10(a) of the FESA regulate actions that could jeopardize endangered or threatened species. Section 7 describes a process of federal interagency consultation for use when federal actions may adversely affect listed species. In this case, take can be authorized via a letter of biological opinion issued by the USFWS for non-marine related listed species issues. A Section 7 consultation (formal or informal) is required when there is a nexus between endangered species' use of a site and an associated federal action for a proposed impact (e.g., the USACE would initiate a Section 7 consultation with the USFWS for impacts proposed to USACE jurisdictional areas that may also affect listed species or their critical habitat). Section 10(a) allows issuance of permits for incidental take of endangered or threatened species with preparation of an HCP when there is no federal nexus. The term "incidental" applies if the taking of a listed species is incidental to, and not the purpose of, an otherwise lawful activity. An HCP demonstrating how the taking would be minimized and how steps taken would ensure the species' survival must be submitted for issuance of Section 10(a) permits. The San Diego MSCP and North County MHCP are regional HCPs that were developed pursuant to Section 10(a) of the FESA.

Migratory Bird Treaty Act

All migratory bird species that are native to the United States or its territories are protected under the federal Migratory Bird Treaty Act (MBTA), as amended under the Migratory Bird Treaty Reform Act of 2004 (FR Doc. 05-5127). The MBTA is generally protective of migratory birds but does not actually stipulate the type of protection required. In common practice, the MBTA is used to place restrictions on disturbance of active bird nests during the breeding season. The general bird breeding season is February 15 to September 15 (includes riparian birds). In addition, the USFWS commonly places restrictions on disturbances allowed near active raptor nests. The raptor breeding season is generally January 15 through July 15. These breeding seasons are further corroborated in the County Guidelines for Determining Significance, Biological Resources (County 2010a).

Clean Water Act and Rivers and Harbors Act

Federal wetland regulation (non-marine issues) is guided by the Rivers and Harbors Act of 1899 and the CWA. The Rivers and Harbors Act deals primarily with discharges into navigable waters, while the purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of all waters of the U.S. Permitting for projects filling waters of the U.S. is overseen by the USACE under Section 404 of the CWA. A CWA Section 401 Water Quality Certification administered by the State Water Resources Control Board (SWRCB) must be issued prior to any 404 Permit. If individual IVMP activities would affect waters of the U.S. or State, coordination and potential permits may be required from the USACE and RWQCB.

1.5.3 State of California

California Environmental Quality Act

Primary environmental legislation in California is found in CEQA and its implementing guidelines (State CEQA Guidelines), which require that projects with potential adverse effects (or impacts) on the environment undergo environmental review. Adverse environmental impacts are typically mitigated as part of the environmental review process in accordance with existing laws and regulations.

Under CEQA, impacts associated with a proposed project or program are assessed with regard to significance criteria determined by the CEQA lead agency, pursuant to CEQA Guidelines. The County is the lead agency for the CEQA environmental review process of the IVMP, in accordance with state law and local ordinances.

Statewide General NPDES Permit for Vector Control

Under the requirements of the Porter-Cologne Act and the federal Clean Water Act, the SWRCB is delegated authority for protection of surface and groundwater. The application of pesticides at, near, or over waters of the U.S. that would result in discharges of pollutants requires coverage under a National Pollutant Discharge Elimination System permit. The VCP and IVMP are subject to the following permit: Statewide NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. from Vector Control Applications (State Water Quality Order No. 2016-0039-DWQ, General Permit No. 990004). The General Permit covers the point source discharge of biological and residual pesticides resulting from direct to water and spray applications for vector control using larvicides and adulticides with active ingredients that are currently registered in California and allowed for use. The County VCP submitted a Notice of Intent to the SWRCB to operate under the General Permit in 2016 (enrollee number 937AP00009) and submits annual reports to the SWRCB regarding pesticide use in compliance with the permit.

California Department of Fish and Wildlife – California Fish and Game Code

Assembly Bill 896

On September 20, 2014, the State approved Assembly Bill 896, which updated Section 1506 of the CFG Code, relating to wildlife management. Assembly Bill 896 clarifies the intent of the Legislature to control mosquito production on managed wetland habitat owned or managed by CDFW and to increase coordination and communication between CDFW, local mosquito abatement and vector control districts, and County CDPH.

Streambed Alteration Agreement

The CFG Code provides specific protection and listing for several types of biological resources. Section 1600 of CFG Code requires a Streambed Alteration Agreement (SAA) for any activity that would alter the flow, change, or use any material from the bed, channel, or bank of any perennial, intermittent, or ephemeral river, stream, and/or lake. Typical activities that require an SAA include excavation or fill placed within a channel, vegetation clearing, structures for diversion of water, installation of culverts and bridge supports, cofferdams for construction dewatering, and bank reinforcement. Notification is required prior to any such activities.

Nesting Birds

Pursuant to CFG Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Raptors and owls and their active nests are protected by CFG Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. These regulations could require that program activities (particularly vegetation removal or vector control near nests) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by CDFW and/or USFWS.

California Endangered Species Act

The CESA established that it is state policy to conserve, protect, restore, and enhance state endangered species and their habitats. Under state law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California Fish and Game Commission. The CESA authorizes that private entities may "take" plant or wildlife species listed as endangered or threatened under the FESA and CESA, pursuant to a federal Incidental Take Permit if the CDFW certifies that the incidental take is consistent with CESA (CFG Code Section 2080.1[a]). For state-only listed species, Section 2081 of CFG Code authorizes the CDFW to issue an Incidental Take Permit for state listed threatened and endangered species if specific criteria are met. Approved MSCP and MHCP subarea plans (refer to Table 1) are regional NCCPs that have been granted take coverage under Section 2081 of the CESA.

Native Plant Protection Act

Sections 1900–1913 of the CFG Code (Native Plant Protection Act; NPPA) direct the CDFW to carry out the state legislature's intent to "…preserve, protect, and enhance endangered or rare native plants of this state." The NPPA gives the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take.

Natural Communities Conservation Planning Act

The NCCP program is a cooperative effort to protect habitats and species. It began under the state's NCCP Act of 1991, legislation broader in its orientation and objectives than the CESA or FESA. These laws are designed to identify and protect individual species that have already declined significantly in number. The NCCP Act of 1991 and the associated Southern California Coastal Sage Scrub NCCP Process

Guidelines (1993), Southern California Coastal Sage Scrub NCCP Conservation Guidelines (1993), and NCCP General Process Guidelines (1998) have been superseded by the NCCP Act of 2003.

The primary objective of the NCCP program is to conserve natural communities at the ecosystem level while accommodating compatible land use. The program seeks to anticipate and prevent the controversies and gridlock caused by species' listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process.

This voluntary program allows the state to enter into planning agreements with landowners, local governments, and other stakeholders to prepare plans that identify the most important areas for a threatened or endangered species, and the areas that may be less important. These NCCP plans may become the basis for a state permit to take threatened and endangered species in exchange for conserving their habitat. The CDFW and USFWS worked to combine the NCCP program with the federal HCP process to provide take permits for state and federal listed species. Under the NCCP, local governments, such as the County, can take the lead in developing these NCCP plans and become the recipients of state and federal take permits. The County MSCP Subarea Plan is an NCCP plan adopted for South County. Other NCCP plans adopted within the IVMP service area include the City of Carlsbad Habitat Management Plan, City of Chula Vista MSCP Subarea Plan, City of La Mesa MSCP Subarea Plan, City of San Diego MSCP Subarea Plan, and City of San Diego Vernal Pool HCP.

Porter-Cologne Water Quality Control Act

The SWRCB and the RWQCB regulate the discharge of waste to waters of the State via the 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne) as described in the California Water Code. The California Water Code is the State's version of the Federal CWA. Waste, according to the California Water Code, includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.

State waters that are not federal waters (i.e., areas not regulated by the CWA) may be regulated under Porter-Cologne. A Report of Waste Discharge must be filed with the RWQCB for projects that result in discharge of waste into waters of the State. The RWQCB will issue Waste Discharge Requirements (WDRs) or a waiver. The WDRs are the Porter-Cologne version of a CWA 401 Water Quality Certification.

California Coastal Act

The California Coastal Commission (CCC) regulates coastal wetlands under the California Coastal Act (CCA). Certain IVMP activities conducted within the coastal zone may be subject to regulation under the CCA.

1.5.4 County of San Diego

The County regulates natural resources (among other resources) via the MSCP, Biological Mitigation Ordinance (BMO), and Resource Protection Ordinance (RPO), as discussed below.

Multiple Species Conservation Program

The California NCCP Act of 1991 (Section 2835) allows the CDFW to authorize take of species covered by plans in agreement with NCCP guidelines. A Natural Communities Conservation Program initiated by the State of California focuses on conserving coastal sage scrub, and in concert with the USFWS and the FESA, is intended to avoid the need for future federal and state listing of coastal sage scrub-dependent species.

The San Diego MSCP Plan for the southwestern portion of San Diego County was approved in August 1998 and covers 85 species (County 1998). The City of San Diego, portions of the unincorporated County, and 10 additional city jurisdictions make up the San Diego MSCP Plan area. It is a comprehensive, long-term habitat conservation plan that addresses the needs of multiple species by identifying key areas for preservation as open space in order to link core biological areas into a regional wildlife preserve.

County MSCP Subarea Plan

The County (South County) MSCP Subarea Plan (County 1997) implements the MSCP within the unincorporated areas under County jurisdiction. It was adopted by the Board of Supervisors in March 1998. The County MSCP Subarea Plan is divided into three Segments: Lake Hodges, Metropolitan-Lakeside-Jamul, and South County. The Plan addresses areas authorized for take and planned for conservation, including portions of the South County Segment that are conserved subject to agreements with the Wildlife Agencies. Take of covered species and their habitat is authorized for projects that satisfy the requirements of the County's BMO.

Biological Mitigation Ordinance

The BMO (County 2010b) is the ordinance by which the County implements the County MSCP Subarea Plan at the project level within the unincorporated area to attain the goals set forth in the County MSCP Subarea Plan. The BMO contains design criteria and mitigation standards that, when applied to projects requiring discretionary permits, protect habitats and species and ensure that a project does not preclude the viability of the MSCP Preserve System. In this way, the BMO promotes the preservation of lands that contribute to contiguous habitat core areas or linkages.

Resource Protection Ordinance

The County regulates natural resources (among other resources) as sensitive biological resources via the RPO (County 2011), the regulations of which cover wetlands, wetland buffers, sensitive plant and animal species, sensitive vegetation communities/habitat types, and habitats containing sensitive animals or plants. It is the intent of the RPO to increase the preservation and protection of the County's unique topography, natural beauty, biological diversity, and natural and cultural resources.

Pursuant to Section 86.603 of the RPO, the RPO is applicable to discretionary applications such as Tentative Map, Tentative Parcel Map, Revised Tentative Map and Revised Tentative Parcel Map, Rezone, Major Use Permit, Major Use Permit Modification, and Site Plan, Vacation of Open Space Easement Expired Map, Certificate of Compliance, or Administrative Permit. The Proposed Project is a program that would allow the County authority to control vectors; it is not a discretionary application. Therefore, the RPO is not applicable in this case and is not discussed further in this report.

1.5.5 Other Local Jurisdictions

The IVMP is a countywide program that will occur within the boundaries of other local jurisdictions that have also adopted local zoning ordinances to protect and preserve biological resources including native habitats, sensitive plant and animal species, waters and wetlands, trees, and open space areas. Depending on the location and nature of individual IVMP activities, DEHQ may be required to consult with local jurisdictions to address potential impacts to sensitive species and habitats.

1.6 BEST MANAGEMENT PRACTICES

The IVMP follows vector control guidance documents and BMPs prepared by the CDPH that detail surveillance methods, vector control management strategies, and pesticide application procedures. These documents include Best Management Practices for Mosquito Control in California (California Department of Public Health [CDPH]; 2012), Best Management Practices for Mosquito Control on California State Properties (CDPH 2008), and in the California Mosquito-Borne Virus Surveillance and Response Plan (CDPH 2020), among other management practices and guidance documents that are regularly updated and published on the CDPH website (https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/VBDS.aspx).

In addition, the County integrates BMPs into the IVMP serving as a comprehensive management framework for implementation of individual activities. The following BMPs will be incorporated into the IVMP, which demonstrate the County's commitment to avoid or minimize impacts to the maximum extent feasible:

General BMPs

- All pesticides or herbicides (i.e., chemical and biological controls) applied by the VCP are approved by the California Department of Pesticide Regulation (CDPR) and their application shall continue to abide by all label instructions and regulations of the USEPA and CDPH, including application rates and methods, storage, transportation, mixing, and container disposal. In addition, the VCP will continue to comply with all pesticide reporting, equipment calibration, and inspection requirements as regulated by the County Agricultural Commissioner.
- In accordance with CDPH regulations, pesticides or herbicides shall only be applied by Certified Vector Control Technicians. VCP staff who apply pesticides or remove vegetation will continue to complete all training required by CDPH to maintain status as a Certified Vector Control Technician and will follow the VCP's comprehensive documents, including the annual Engineer's Report, strategic response plans, and Standard Operating Procedures to avoid and minimize negative environmental impacts. These activities are conducted in accordance with the BMPs described in the Best Management Practices for Mosquito Control in California (CDPH 2012), Best Management Practices for Mosquito Control on California State Properties (CDPH 2008), and in the California Mosquito-Borne Virus Surveillance and Response Plan (CDPH 2020), or as updated, in order to ensure pesticides are selected and applied appropriately and potential impacts on non-targeted areas are eliminated or minimized.
- Pesticides will be applied at the lowest effective concentration for a specific, targeted set of vectors and site conditions. Application rates will never exceed the USEPA and CDPH-approved maximum label application rate. All pesticide application equipment is currently and will continue to be

calibrated and inspected annually as required by regulating agencies, such as CDPH and County Department of Agriculture, Weights, and Measures.

- Pesticide application shall be modified, postponed, or ceased when weather parameters exceed product label specifications, such as when wind speeds exceed the velocity stated on the product label or may result in drift, or when a high chance of rain is predicted and rain is a determining factor on the label of the material to be applied.
- Microbial larvicides (Bti, Bs) or insect growth regulator (e.g., methoprene) will be used as the primary treatment method when necessary to control mosquito larvae. Only when necessary, surfactants may be used to control late stage larvae or pupae.
- Vehicles will only be driven on existing roadways, access roads, and existing unpaved access paths. Vehicles driven on levees to travel near aquatic areas (such as tidal marshes, sloughs, or channels) for surveillance or treatment activities will travel at speeds slow enough to avoid or minimize noise and the production of dust, typically 15 miles per hour or less.
- Watercraft will be utilized to access aquatic environments where access is permissible, including but not limited to marshes, lagoons, and estuaries, to conduct surveillance and control of vectors and when their use would reduce the risk of potential impacts that may otherwise occur from land-based vehicles. Operation of watercraft within CDFW-owned lands and easements, USFWS-owned lands and preserves, and other open space areas would be completed in coordination with CDFW, USFWS, and/or other applicable land managers and agencies and would follow avoidance and minimization measure as required by the relevant agencies and right-of-entry (ROE), Special Use, and other relevant permits.

BMPs Pertaining to Biological Resources

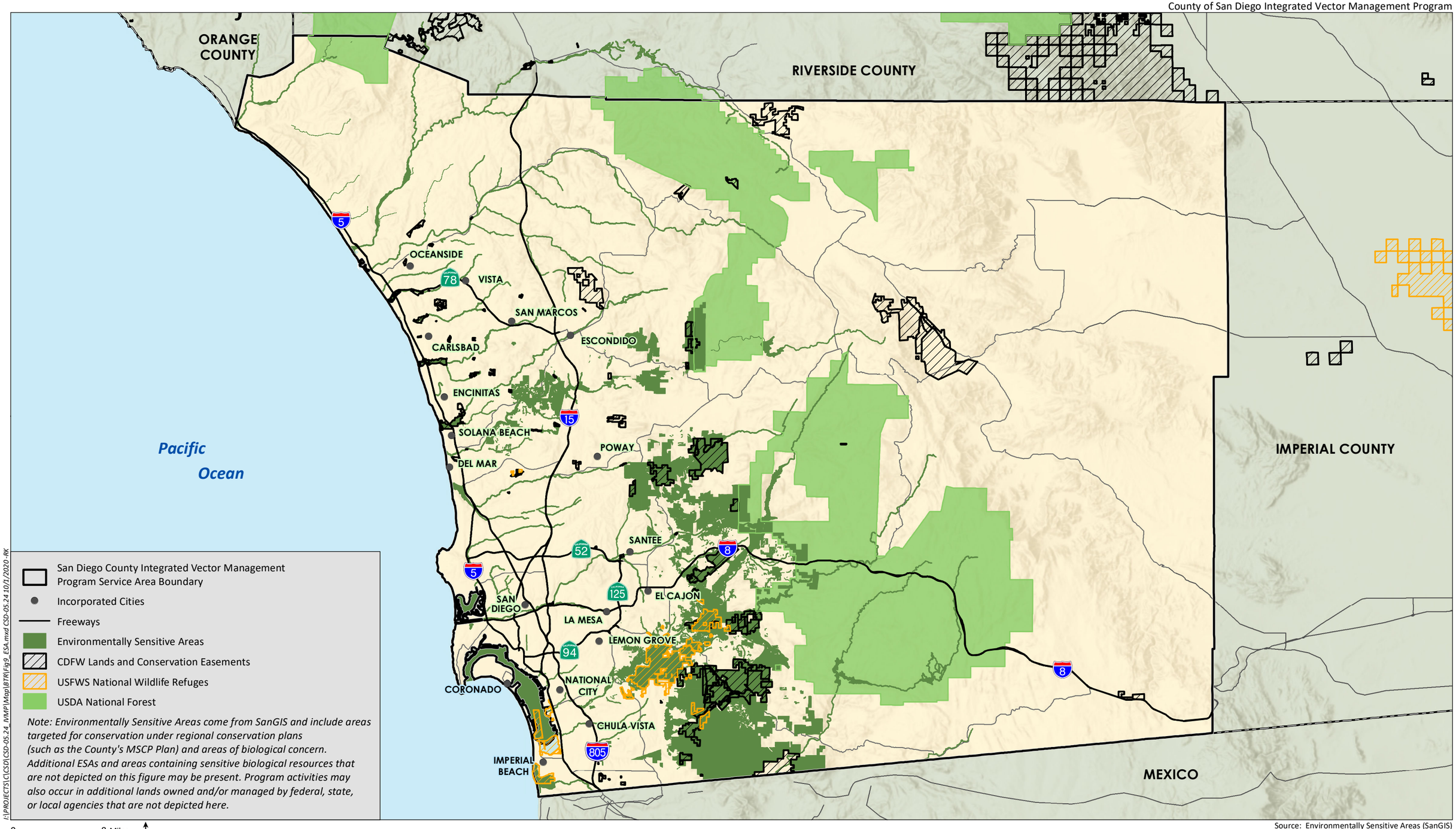
- VCP staff shall receive annual training regarding techniques and procedures to avoid or minimize negative effects to protect state- and/or federally-listed threatened or endangered species, listed species habitat, and wildlife/wildlife habitat. For example, training includes observation and avoidance measures when accessing areas that may serve as bird nesting habitat (e.g., watch for flushing birds that may indicate a nest is nearby).
- VCP staff shall receive annual training on the identification of sensitive biological resources, including sensitive habitat and special status species (e.g., vernal pools and fairy shrimp, coastal sage scrub, bird species, etc.).
- VCP staff has cooperative, collaborative relationships with federal, state, and local agencies. The VCP regularly communicates with resource agencies and wildlife agencies, including USFWS and CDFW, and abides by all applicable permits and agreements regarding planned vector activities in sensitive habitats. Access, timing, and methods of surveillance and control are discussed. Methods to minimize impacts to special status species, habitat, and wildlife are agreed upon prior to entering protected and sensitive habitats. The VCP will continue to foster these relationships, communication, and collaboration.
- Before conducting monitoring or treatment, a Certified Vector Control Technician will review all site records in the County's enterprise database (currently Accela) used by the Vector Control Program for any applicable permits or agreements on file dictating how a site should be addressed, or any other notes discussing environmental constraints/requirements, points of access, whether a qualified biological monitor is required, or any other pertinent information prior to visiting a site. An

ESA is defined as a location with potential environmentally sensitive species and habitats. Sensitive sites may include, but are not limited to, CDFW or USFWS-owned or operated lands, easements, and preserves; National Forests; County-owned parks and open space areas; or other lands identified by the SanGIS. Potential ESAs are generically depicted on Figure 9, *Environmentally Sensitive Areas*.

- Prior to entering an ESA or other site that has the potential to contain sensitive habitat or species, VCP staff will identify suspected vector breeding sources using satellite images, topographic maps, historical records, and on-site evaluation to help ascertain the least environmentally impactful way to access the site. If more than one access route is available, staff will prioritize the path that would minimize or avoid environmental impacts to sensitive biological resources. If site conditions warrant a qualified biologist to accompany the Certified Vector Control Technician, the VCP will arrange for a qualified biologist to accompany field staff. Certified Vector Control Technicians will strictly follow all guidance and instructions from the biologist, including where access is permissible or should be avoided near sensitive habitat.

- If a site has been flagged in the County's enterprise database (currently Accela) for potentially containing sensitive biological resources, staff will review applicable sensitive species databases such as USFWS occurrence records, CDFW's California Natural Diversity Database, and County SanBIOS data, in order to determine if any potentially special-status species (i.e. birds, fish, insects, plants, or other animals) are present or have high potential to occur at the site and research any unfamiliar species with photos and descriptions of biology and habitat. Also discuss preferred access points, methods, and paths for reaching vector breeding source(s) with supervisor and/or land manager.

- Prior to commencing activities that would disturb state- and/or federally-listed plants or wildlife, VCP will consult and coordinate with all applicable wildlife agencies (e.g., USFWS, CDFW) and obtain all required permits.
- VCP staff will minimize potential disturbance to wildlife while performing surveillance and control activities. When walking or using small equipment in sensitive habitats, existing trails, levees, and access roads will be used whenever feasible to avoid or minimize impacts to wetlands, sensitive vegetation communities, and special status species.
- When accessing sensitive habitat, VCP staff will minimize the use of motorized vehicles to the extent feasible by conducting activities on foot with handheld equipment and remain on existing roads when vehicle use is needed. Aerial surveillance or control (e.g., helicopter or unmanned aircraft) will also be utilized when feasible and appropriate during pesticide applications and identification of potential vector sites, respectively.
- Prior to entering sensitive habitat, VCP staff will minimize the potential for the introduction and spread of invasive plant species by ensuring all equipment, vehicles, and personal gear (such as clothing and boots) are washed and disinfected, as appropriate.
- Vegetation trimming or removal, when necessary to provide access to vector habitat for surveillance and control activities, will be conducted by hand using handheld tools rather than gas-powered equipment or heavy machinery to minimize negative environmental effects. Vegetation trimming to maintain existing paths or create safe access points through dense vegetation will be of the minimum extent necessary and may include minor trimming of overhanging limbs, brush and other vegetation that obstruct access to the vector site. Vegetation trimming or removal activities will be



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Source: Environmentally Sensitive Areas (SanGIS)

HELIX Environmental Planning

Environmentally Sensitive Areas

Figure 9

conducted outside of the general bird breeding season (February 15 to September 15 for general birds, including riparian species; January 15 to July 15 for raptors) to the greatest extent feasible.

- Downed trees and large vegetation that have fallen due to storm events or disease may be trimmed and/or removed to the minimum extent necessary to maintain existing access points or to allow access to for vector monitoring or control.
- Any staging of equipment or materials will occur in developed/disturbed areas outside of existing wetland and non-wetland waters of the U.S./State, wetland and riparian habitats, and native or rare upland areas.
- The changing of oil, refueling, and other actions that could result in a release of a hazardous substance shall be restricted to designated service areas such as maintenance yards and gas stations or, when necessary, areas that are a minimum of 100 feet from any documented special status plant populations, sensitive habitats, or drainages. Equipment shall be checked for leaks prior to operation and repaired as necessary. Fueling areas shall be installed in the field, as applicable, by berms, sandbags, or other artificial barriers designed to prevent accidental spills.
- Chemical controls applied within waterbodies defined by federal and state regulations as wetland and/or non-wetland waters of the U.S. and/or State must be used in accordance with the Statewide NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. from Vector Control Applications (Order No. 2016-0039-DWQ, General Permit No. CA990004).
- Only staff that are certified by the CDPH as a Vector Control Technician, or staff who have received training such as proper application methods to protect the environment and public health, shall be allowed to access ESAs.

2.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

The following guidance is used to determine potential significance of impacts on biological resources pursuant to County Guidelines (County 2010a). A project would result in a significant or potentially significant biological resources impact if it would result in:

1. A substantial adverse effect, either directly or through habitat modifications, on a candidate, sensitive, or special status species listed in local or regional plans, policies, or regulations, or by the CDFW or USFWS;

2. A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the USFWS or CDFW;

3. A substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

4. Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or

5. A conflict with one or more local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and/or would conflict with the provisions of an adopted

Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.0 PROJECT EFFECTS

This section describes potential direct and indirect impacts associated with the implementation of the IVMP. Direct impacts immediately alter the affected biological resources such that those resources are eliminated temporarily or permanently. Indirect impacts are actions that are not direct removal of habitat but affect the surrounding biological resources either as a secondary effect of the direct impacts (e.g., construction noise, runoff, nighttime lighting, fugitive dust, etc.), or as the cause of degradation of a biological resource over time (e.g., edge effects and adjacency issues). Cumulative impacts are those caused by numerous projects in the region and their additive effect of multiple direct and indirect impacts to biological resources over time.

Under the proposed project, the IVMP would continue the use of the following vector control techniques: surveillance and monitoring, source reduction (i.e., physical control), source treatment (i.e., biological and chemical controls), public education and outreach, and disease diagnostics. Emerging vector control strategies that may be implemented to address future public health risks and public nuisances could include, but not be limited to, increased or advanced/early source prevention and/or reduction, surveillance, or physical/biological/chemical controls. Of these, surveillance and monitoring, source reduction, and source treatment are the only vector control techniques evaluated in this analysis, as the other techniques (i.e., public education and outreach and disease diagnostics) would be unlikely to result in impacts to biological resources.

3.1 SPECIAL STATUS SPECIES

3.1.1 Guidelines for the Determination of Significance

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

3.1.2 Analysis of Project Effects

Special Status Plant Species

Surveillance and Monitoring

Surveillance and monitoring activities include evaluation of mosquito-breeding areas by conducting surveys via ground vehicles, aircraft (including piloted and unmanned), watercraft, and remote sensing equipment; trapping of mosquitoes and rodents; and testing of collected samples for vector-borne diseases. Surveillance activities generally occur along existing access routes that have already been established and are regularly maintained. In order to avoid or minimize potential adverse environmental impacts, the IVMP follows CDPH and County guidance documents for conducting inspections and vector treatment abatement activities and employs BMPs, as detailed in Section 1.6, in areas with potential to support sensitive biological resources. These BMPs include coordination with the appropriate land managers and agency staff to determine the least environmentally impactful way to access the site and conduct IVMP activities. As part of surveillance and monitoring activities, minor trimming of vegetation

along existing access routes and paths may be required to provide access to the mosquito breeding source. Trimming of vegetation would only be implemented on an as-needed basis, would be the minimum amount necessary to provide safe access, and whenever feasible would not impact native trees and shrubs. Impacts from minor trimming of vegetation would be less than significant due to the negligible area involved, selective nature of the trimming, and the temporary nature of the action as vegetation would grow back, and no individual plants would be removed. Therefore, impacts to special status plant species would be less than significant as part of surveillance and monitoring activities, and no mitigation is required.

Source Reduction

The reduction of vector-breeding sources also involves physical control techniques that eliminate or reduce standing water that functions as mosquito breeding habitat. These techniques include, but are not limited to, vegetation management including trimming and removal of vegetation and application of herbicides; removal of sediment; water control; and other maintenance activities. Minor trimming of vegetation would be a less than significant impact as detailed above in *Surveillance and Monitoring*. Application of herbicides would follow State and County guidance documents and be conducted in accordance with all applicable BMPs, as detailed in Section 1.6, in order to avoid or minimize potential adverse environmental impacts. These BMPs include application of approved herbicides by Certified Vector Control Technicians pursuant to all instructions, applications rates and methods, and regulations of the USEPA and CDPH. Additionally, IVMP activities within sensitive areas are coordinated with the appropriate land managers and agencies to ensure that activities avoid and minimize potential impacts to sensitive biological resources to the greatest extent feasible. Therefore, impacts to special status plant species from herbicide application would be less than significant and no mitigation is required.

Source reduction activities that involve the removal of vegetation could result in potentially significant impacts to special status plant species if they are found to be present within a project-specific IVMP activity area and significant impacts would require mitigation. Generally, impacts to plant species with a CRPR of 1 or 2 are considered potentially significant; whereas CRPR 3 and 4 species are relatively widespread and impacts to such species would not substantially reduce their populations in the region and are not typically significant. It is anticipated that impacts to special status plant species from source reduction would be avoided to the extent feasible with implementation of BMPs and other design considerations, as detailed in Section 1.6, and that unavoidable impacts would be minimized and unlikely to affect large numbers of individuals. Although the significance of impacts would be assessed on an individual project basis for CRPR 1 and 2 plant species, for purposes of this programmatic analysis, impacts to special status plant species from source reduction would have a potentially significant impact (BIO-1) and require mitigation. Mitigation would include species-specific or habitat-based compensation.

Source Treatment

Biological Control

Biological controls used to manage and reduce vectors can include the use of naturally-occurring bacterial larvicides, natural predators, parasites, or pathogens to reduce immature mosquito numbers. One of the techniques employed by the IVMP is the application of mosquito fish in artificial mosquito breeding sources such as ornamental ponds, rain barrels, horse troughs, neglected swimming pools, and spas to reduce the abundance of mosquitoes. Special status plant species would not be impacted by the

use of mosquito fish as mosquito fish are used only within contained water sources that do not connect to natural waterways.

The other biological control technique employed by the IVMP includes the application of naturally-occurring bacterial larvicides. As a form of pesticide, bacterial larvicides are applied through on-ground techniques such as by foot with backpack applicators, truck-mounted equipment, or watercraft by Certified Vector Control Technicians , or by aircraft (including piloted and unmanned) when land-based methods are not practicable due to the size of the area to be treated or impediments to access. As outlined in the following section, routine maintenance of existing access paths may involve minor trimming of native vegetation which would only be implemented on an as-needed basis, would be the minimum necessary to provide access to the mosquito breeding source, and, whenever feasible, would not impact native trees or shrubs. Minor trimming of vegetation would be a less than significant impact, as detailed in *Surveillance and Monitoring.*

As such, impacts to special status plant species from biological control activities would be less than significant and no mitigation is required.

Chemical Control

In addition to the above methods, the IVMP controls mosquito populations through the application of chemical controls that target both larvae (larvicides) and adult mosquitos (adulticides), both of which are forms of pesticides[1]. Pesticides are applied through on-ground techniques such as by foot with backpack applicators, truck-mounted equipment, or watercraft by Certified Vector Control Technicians , or by aircraft (including piloted and unmanned) when land-based methods are not practicable due to the size of the area to be treated or impediments to access. As detailed in Section 1.6, the IVMP follows CDPH and County guidance documents for conducting inspections and vector treatment abatement activities and employs BMPs in order to avoid or minimize potential adverse environmental impacts. These BMPs include application of CDPR-approved pesticides by Certified Vector Control Technicians in strict accordance with all label instructions, applications rates and methods, and regulations of the USEPA and CDPH. Additionally, IVMP activities within sensitive areas are coordinated with the appropriate land managers and agencies, and activities are conducted in such a manner to ensure site access and abatement activities avoid and minimize potential impacts to sensitive biological resources to the greatest extent feasible. Application of pesticides through land-based methods would prioritize utilization of existing access routes and avoid creation of new pedestrian access paths unless no other alternatives are present. Routine maintenance of existing access paths may involve minor trimming of native vegetation which would only be implemented on an as-needed basis, would be the minimum necessary to provide access to the mosquito breeding source, and, whenever feasible, would not impact native trees or shrubs. Minor trimming of vegetation would be a less than significant impact, as detailed in *Surveillance and Monitoring*. No removal of vegetation or other ground-disturbing activities would occur as part of chemical control activities. As such, impacts to special status plant species from chemical control activities would be less than significant and no mitigation is required.

[1] As discussed in Section 1.2.3, larvicides can include either naturally-occurring bacteria or synthetic products. For this reason, certain larvicides may be considered either a biological or chemical control. However, for the purpose of this technical report, the following analysis considers the physical act of applying pesticides since all pesticides used by the program have already been approved by the EPA as being safe for the environment when applied according to label directions (which the IVMP adheres to).

Special Status Animal Species

Surveillance and Monitoring

The VCP monitors mosquito-breeding sources throughout the county utilizing various techniques such as setting traps to determine abundance and species of mosquitoes; testing mosquitoes for presence of disease; conducting surveys via ground vehicles, aircraft (including piloted and unmanned), watercraft, and remote sensing equipment to evaluate mosquito-breeding sources; and collecting and testing dead birds for West Nile virus (WNV). Monitoring and testing of sentinel chicken flocks for virus exposure is another technique that the VCP has previously used and may continue to use in the future to detect viruses in the environment[2]. Surveillance is also conducted for rodents (for plague and hantavirus) and ticks (for tularemia, Lyme disease, Rocky Mountain spotted fever, and other spotted fever rickettsia). Surveillance and monitoring techniques according to taxon and the potential effect of these activities on special status animal species with potential to occur within the IVMP service area are discussed below.

Mosquitoes

Surveillance and monitoring activities related to mosquito detection and control include evaluation of mosquito-breeding areas by conducting surveys via ground vehicles, aircraft (including piloted and unmanned), watercraft, and remote sensing equipment; trapping of mosquitoes; and testing of collected samples for vector-borne diseases. Surveillance activities generally occur along existing access routes that have already been established and are regularly maintained. In order to minimize potential adverse environmental impacts, the IVMP follows CDPH and County guidance documents for conducting inspections and vector treatment abatement activities and employs BMPs, as detailed in Section 1.6, in areas with potential to support sensitive biological resources. These BMPs include coordination with the appropriate land managers and agency staff to determine the least environmentally impactful way to access the site and conduct IVMP activities.

As part of surveillance and monitoring activities, minor trimming of vegetation along existing access routes and paths may be required to provide access to the mosquito breeding source. Trimming of vegetation would only be implemented on an as-needed basis, would be the minimum necessary to provide safe access, and, whenever feasible, would not impact native trees and shrubs. With the exception of potential impacts to nesting birds (further discussed below), impacts to sensitive animal species from trimming of vegetation would be less than significant due to the negligible area involved, selective nature of the trimming, and the temporary nature of the action as vegetation would grow back, and no individual plants would be removed. However, if minor trimming were to occur during the general bird breeding season (February 15 to September 15, including riparian birds; January 15 to July 15 for raptors) potential direct impacts to nesting individuals would be considered potentially significant (BIO-2) and would require mitigation.

Operation of ground vehicles, watercrafts, and piloted and unmanned aircraft within the IVMP service area is not anticipated to have a significant impact on special status animal species with potential to occur within the IVMP service area. Vehicles would only be operated on existing roadways, access roads, and existing unpaved access paths. Watercrafts would be operated in open water environments where access is currently permissible. Any surveillance activities via watercraft on CDFW-owned lands and

[2] Sentinel chickens are used primarily for detection of the mosquito-borne West Nile and Saint Louis Encephalitis viruses. If bitten by infected mosquitoes, chickens develop antibodies to the virus but do not develop symptoms. Sentinel chickens may be placed in various locations throughout the IVMP service area and regularly tested to detect these viruses.

easements, USFWS-owned lands and preserves, and other open space areas would be completed in coordination with CDFW, USFWS, and/or other applicable land managers and agencies and would follow avoidance and minimization measure as required by the relevant agencies and ROE, Special Use, and other relevant permits. Though the operation of piloted and unmanned aircraft may result in temporary noise disturbances to animal species, including special status species, activities would consist of sporadic events of short duration. If wildlife were to avoid or move away from the area as a result of surveillance and monitoring activities, they would be anticipated to move back within the area once activities ceased and the likelihood of wildlife abandoning the area would be negligible. Therefore, impacts on special status animal species from the operation of ground vehicles, watercraft, and aircraft for surveillance and monitoring activities would be less than significant and no mitigation would be required.

Trapping of mosquitos would be completed at known and suspected breeding sources such as slow-moving streams, stagnant water sources, ponds, and lakes. Surveillance devices include carbon dioxide baited traps and Reiter Gravid traps, as well as other species-specific traps such as BG Sentinel traps that target invasive *Aedes* mosquito species. Reiter Gravid traps are used for collecting female mosquitoes searching for a place to lay their eggs. The traps are strategically placed to measure mosquito levels throughout the county and are used to determine disease infection levels and help locate mosquito breeding sources. As these are species-specific traps, the mosquito trapping program would not result in significant impacts to special status animal species (specifically insects) present within the IVMP service area such as the Crotch bumble bee (*Bombus crotchii*) and quino checkerspot butterfly, and no mitigation would be required.

Birds

Deceased birds that are reported by the public to the VCP are collected and tested by VCP for WNV. Species of particular importance include those previously shown to be susceptible to WNV such as crows, ravens, jays, hawks, and owls. The salvage of dead birds, and other species such as rabbits and hares and other rodents, is permitted under the authority of the CDPH in accordance with the provisions detailed in an MOU between the CDFW and CDPH authorizing said activities. No significant impacts to special status animal species would occur through the salvaging and testing dead birds, as authorized under the CDPH's MOU, and no mitigation is required.

Mammals

Trapping of rodents and other small mammals would occur as part of surveillance and monitoring activities associated with the IVMP. Within the IVMP service area, trapping activities are restricted to ports of entry and developed campgrounds and utilize non-lethal capture and release methods; therefore, no individuals are intentionally killed or salvaged as part of the IVMP. Targeted species for trapping at ports of entry include non-native species such as Norway rat (*Rattus norvegicus*) and black rat (*Rattus rattus*), and California ground squirrel at developed campgrounds. Captured individuals are combed for fleas (which are collected for further testing) and blood samples are collected which are tested for plague at the County's VDDL. Any trapping activities proposed to occur on CDFW-owned lands and easements, USFWS-owned lands and preserves, and other open space areas would be completed in coordination with CDFW, USFWS, and/or other applicable land managers and agencies and would follow avoidance and minimization measure as required by the relevant agencies and ROE, Special Use, and other relevant permits. Staff conducting trapping activities will possess the required federal and state permits, as applicable to specific activities.

Several special status small mammal species have potential to occur within the IVMP service area including two state- and federally-listed species: Stephens' kangaroo rat (*Dipodomys stephensi*) and Pacific pocket mouse (*Perognathus longimembris pacificus*). Stephens' kangaroo rat occurs within the northern portions of the county, particularly at Camp Pendleton in the northwestern portion of the county, and the Vista, Bonsall, and San Luis Rey River valley regions in the north-central portion of the county. Pacific pocket mouse has been extirpated from the vast majority of the county in localities where the species historically occurred (USFWS 2010). Currently, the species is restricted to the Oceanside area in the northwestern portion of the county at Camp Pendleton. Trapping activities associated with implementation of the IVMP primarily occur within higher elevation developed campgrounds outside of the known range of both of these species, and developed regions along the coast at ports of entry which do not support suitable habitat for either species; therefore, no adverse effects would occur to Stephens' kangaroo rat and Pacific pocket mouse as part of surveillance and monitoring activities. Furthermore, trapping activities are unlikely to result in adverse effects on other special status mammal species with potential to occur within the IVMP service area as activities are generally confined to developed areas lacking suitable habitat (sparse native scrub habitats and grasslands with sandy, friable soils) that support these species. Therefore, no significant impacts to special status animal species would occur through trapping activities, and no mitigation is required.

Source Reduction

The reduction of vector-breeding sources also involves physical control techniques that eliminate or reduce standing water that functions as mosquito breeding habitat. These techniques include, but are not limited, to vegetation management including trimming and removal of vegetation and application of herbicides; removal of sediment; water control; and other maintenance activities. Minor trimming of vegetation would be a less than significant impact if conducted outside of the bird breeding season, as detailed above in *Surveillance and Monitoring.* Application of herbicides would follow State and County guidance documents and be conducted in accordance with all applicable BMPs, as detailed in Section 1.6, in order to avoid or minimize potential adverse environmental impacts. These BMPs include application of approved herbicides by Certified Vector Control Technicians pursuant to all instructions, applications rates and methods, and regulations of the USEPA and CDPH. Additionally, IVMP activities within sensitive areas are coordinated with the appropriate land managers and agencies to ensure that activities avoid and minimize potential impacts to sensitive biological resources to the greatest extent feasible. Therefore, impacts to special status animal species from herbicide application would be less than significant and no mitigation is required.

Source reduction activities that involve the removal of vegetation could result in significant direct impacts to nesting birds and raptors present within project-specific IVMP activity area s if activities were to occur during the general bird breeding season (February 15 to September 15, including riparian birds; January 15 to July 15 for raptors) and would require mitigation (BIO-2). Additionally, potentially significant indirect noise impacts could occur (BIO-3) and require mitigation if activities were to take place within 500 feet of nesting raptors or state- and/or federally-listed species including, but not limited to, coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, and light-footed Ridgway's rail (*Rallus obsoletus levipes*).

Habitat modification and ground disturbance activities also have the potential to adversely affect state- and/or federally-listed species (such as arroyo toad), USFWS-designated critical habitat, and raptor foraging habitat (i.e., grasslands) within the IVMP service area if activities were to occur within areas containing habitat suitable to support these species and/or USFWS-designated critical habitat. These

impacts would be considered significant and require mitigation. Impacts to these communities are anticipated to be localized and limited to the smallest footprint necessary to eliminate or reduce mosquito-breeding sources. For example, drainage improvements for slow-moving and/or stagnant areas would be limited in scope to the removal of sediment and debris jams to increase flows. Due the programmatic nature of this document, the specific location and quantity of impacts cannot be assessed at this time. However, project-specific impacts would be assessed through future project approvals; impacts to riparian habitat and sensitive natural communities would be mitigated in accordance with local policies and ordinances and/or adopted NCCPs/HCPs (see Section 3.2).

Source Treatment

Biological Control

Biological controls used to manage and vectors can include the use of naturally-occurring bacterial larvicides, natural predators, parasites, or pathogens to reduce immature mosquito numbers. One of the techniques employed by the IVMP is the application of mosquito fish in artificial mosquito breeding sources such as ornamental ponds, rain barrels, horse troughs, neglected swimming pools, and spas to reduce the abundance of mosquitoes. Special status animal species would not be impacted by the use of mosquito fish as mosquito fish are used only within contained water sources that do not connect to natural waterways.

The other biological control technique employed by the IVMP includes the application of naturally-occurring bacterial larvicides. As a form of pesticide, bacterial larvicides are applied through on-ground techniques such as by foot with backpack applicators, truck-mounted equipment, or watercraft by Certified Vector Control Technicians , or by aircraft (including piloted and unmanned) when land-based methods are not practicable due to the size of the area to be treated or impediments to access. As outlined in the following section, routine maintenance of existing access paths may involve minor trimming of native vegetation which would only be implemented on an as-needed basis, would be the minimum necessary to provide access to the mosquito breeding source, and, whenever feasible, would not impact native trees or shrubs. Minor trimming of vegetation would be a less than significant impact, as detailed in *Surveillance and Monitoring.*

As such, impacts to special status animal species from biological control activities would be less than significant and no mitigation is required.

Chemical Control

In addition to the above methods, the IVMP controls mosquito populations through the application of chemical controls that target both larvae (larvicides) and adult mosquitos (adulticides), both of which are forms of pesticides. Pesticides are applied through on-ground techniques such as by foot with backpack applicators, truck-mounted equipment, or watercraft by Certified Vector Control Technicians, or by aircraft (including piloted and unmanned) when land-based methods are not practicable due to the size of the area to be treated or impediments to access. As detailed in Section 1.6, the IVMP follows CDPH and County guidance documents for conducting inspections and vector treatment abatement activities and employs BMPs in order to avoid or minimize potential adverse environmental impacts. These BMPs include application of CDPR-approved pesticides by Certified Vector Control Technicians in strict accordance all label instructions, applications rates and methods, and regulations of the USEPA and CDPH. Therefore, use of chemical controls would not have a significant impact on non-target and special status animal species and no mitigation is required. Operation of ground vehicles, watercrafts,

and aircraft (piloted and unmanned) within the IVMP service area is not anticipated to have a significant impact on special status animal species with potential to occur within the IVMP service area. Vehicles can only be operated on existing roadways, access roads, and existing unpaved access paths. Watercrafts would be operated in open water environments where access is currently permissible. Any chemical application activities conducted via watercraft on CDFW-owned lands and easements, USFWS-owned lands and preserves, and other open space areas would be completed in coordination with CDFW, USFWS, and/or other applicable land managers and agencies and would follow avoidance and minimization measure as required by the relevant agencies and ROE, Special Use, and other relevant permits. Though piloted and unmanned aircraft may result in temporary noise disturbances to animals, including special status species, within the vicinity of operation, activities would consist of sporadic events of short duration. If wildlife were to avoid or move away from the area as a result of chemical control activities, they would be anticipated to move back within the area once activities ceased and the likelihood of wildlife abandoning the area would be negligible. Therefore, no significant impacts to special status animal species would occur from chemical control activities and no mitigation would be required.

Although application of chemical controls would not result in significant impacts to special status animal species, minor vegetation trimming along associated access paths could result in a significant impact to breeding birds if conducted during the bird breeding season. Application of pesticides through land-based methods would prioritize utilization of existing access routes and avoid creation of new pedestrian access paths unless no other alternatives are present. Routine maintenance of existing access paths may involve the minor trimming of native vegetation which would only be implemented on an as-needed basis, would be the minimum necessary to provide access to the mosquito breeding source, and whenever feasible would not impact native trees and shrubs. Minor trimming of vegetation would be less than significant as detailed in *Surveillance and Monitoring*. However, if minor trimming were to occur during the general bird breeding season (February 15 to September 15, including riparian birds; January 15 to July 15 for raptors) potential direct impacts to nesting individuals would be considered potentially significant (BIO-2) and would require mitigation.

3.1.3 Mitigation Measures and Design Considerations

Regarding special status plant species, Source Reduction is the only IVMP activity with potential to result in significant impacts.

Regarding special status animal species, Surveillance and Monitoring, Source Reduction, and Source Treatment (Chemical Control) activities have potential to result in significant impacts. Project-specific activities have not yet been identified and therefore cannot be specifically quantified in this programmatic document. However, mitigation for impacts to special status plant and animal species would be consistent with requirements by the County, CDFW, USFWS, and other local jurisdictions where applicable.

Significant impacts to special status plant species would be mitigated through the implementation of the following measures **BIO-1a** through **BIO-1e:**

M-BIO-1a: Prior to conducting IVMP activities that would result in vegetation removal, habitat modification, and/or ground disturbance, a qualified biologist shall conduct a biological evaluation of the individual IVMP activity area. The biological evaluation shall include (1) a general reconnaissance survey; (2) a review of recent aerial imagery, topographic and

soils maps, regional vegetation mapping (as available), and local, state, and federal biological databases including, but not limited to, County SanBIOS data, California Department of Fish and Wildlife (CDFW) Biogeographic Information and Observation System (BIOS) database, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) and critical habitat databases, and Environmental Protection Agency (EPA) Watershed Assessment, Tracking & Environmental Results System (WATERS) database to determine sensitive biological resources known to occur within and adjacent to the IVMP activity area; (3) a query of sensitive species databases such as U.S. Fish and Wildlife Service occurrence records, California Department of Fish and Wildlife California Natural Diversity Database, and County SanBIOS data to determine if special status species are present or have high potential to occur within or adjacent to the individual IVMP activity area; and (4) preparation of a biological resources report. The reconnaissance survey shall include an inventory of existing vegetation communities, flora and fauna resources, and potentially jurisdictional resources present within the individual IVMP activity area; and documentation of special status plant and animal species, if encountered during the survey. The biological resources report shall summarize existing biological resources present within the individual IVMP activity area; identify sensitive biological resources that are present or have potential to occur; provide an assessment of potential impacts; and identify applicable mitigation measures, if necessary.

M-BIO-1b: Prior to conducting IVMP activities that would result in vegetation removal, permanent habitat modification, and/or ground disturbance in areas with potential to support special status plant species, a qualified biologist shall conduct a rare plant survey to confirm the presence/absence of special status plant species within or adjacent to the individual IVMP activity area. The exact timing of the rare plant survey shall be determined based on the location, elevation, and flowering phenology of the special status plant species with potential to occur within and adjacent to the individual IVMP activity area. If special status plant species are discovered within the individual IVMP activity area, those individuals or populations shall be avoided, or additional mitigation measures (which could include transplantation, etc.) shall be implemented that would reduce impacts to below a level of significance. Impacts to state- and/or federally-listed plant species and species' designated critical habitat may require additional consultation with the U.S. Fish and Wildlife Service, pursuant to the Federal Endangered Species Act if the individual IVMP activity area occurs outside of an adopted NCCP/HCP, or if take of that species is not covered under the specific adopted plan. Mitigation for impacts to special status plant species shall be consistent with local jurisdictions' policies and ordinances, and/or adopted NCCPs/HCPs where required, and identified within the individual IVMP activity biological resources report that shall be prepared pursuant to M-BIO-1a.

M-BIO-1c: Prior to conducting IVMP activities, a qualified biologist shall flag areas to be avoided that contain sensitive biological resources. Where indicated by the biologist, these areas shall be fenced or otherwise protected from direct or indirect impacts. Specifically, temporary (i.e., exclusionary) fencing shall be installed where feasible when grubbing, clearing, or grading would be conducted within 100 feet of sensitive biological resources depending on the species or habitat present, individual IVMP activities, and site constraints. Temporary fencing (such as silt or orange construction fencing) shall be

installed at limits of an individual IVMP activity area prior to initiation of activities. A qualified biologist shall monitor the installation of temporary (i.e., exclusionary) fencing wherever it would abut sensitive species or vegetation communities, jurisdictional waters or wetlands, or other sensitive areas such as environmentally-designated open space.

M-BIO-1d: Prior to conducting IVMP activities that would result in vegetation removal, permanent habitat modification, and/or ground disturbance in areas known to contain sensitive biological resources, a qualified biologist shall conduct an environmental training session for personnel, as applicable, to inform them of the sensitive biological resources with potential to occur and any mitigation and/or avoidance measures that must be implemented.

M-BIO-1e: When sensitive biological resources have been identified on-site or adjacent to an individual IVMP activity area, a qualified biologist shall monitor initial vegetation clearing, grubbing, and ground disturbance activities to ensure that activities occur within the approved limits of work and that protection measures (e.g., flagging, fencing, etc.) are in place.

Significant direct and indirect impacts to special status animal species would be mitigated through the implementation of the following measures **M-BIO-2a** through **M-BIO-2f**, and **M-BIO-3:**

M-BIO-2a: see **M-BIO-1a**

M-BIO-2b: IVMP activities that could result in vegetation removal, permanent habitat modification, and/or ground disturbance activities within potentially suitable habitat for state- and/or federally-listed animal species shall occur outside a species' breeding season. If such activities are unavoidable during the respective breeding season, focused protocol surveys for each species with potential to occur shall be conducted prior to conducting IVMP activities. Surveys shall follow the current U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife protocols, as appropriate. If state- and/or federally-listed species are determined to occur within or adjacent to the individual IVMP activity area, consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game under the Federal Endangered Species Act and California Endangered Species Act, respectively, shall be initiated and any resulting mitigation measures (including, but not limited to, breeding season activity restrictions) identified during consultation shall be implemented.

M-BIO-2c: see **M-BIO-1c**

M-BIO-2d: see **M-BIO-1d**

M-BIO-2e: see **M-BIO-1e**

M-BIO-2f: Clearing or grubbing of vegetation during the general avian breeding season (February 15 through September 15) or raptor breeding season (January 15 through July 15) as defined by the County Guidelines for Determining Significance of Biological Resources shall be avoided except as outlined by this measure. These breeding seasons shall not supersede implementing any agreements with the Wildlife Agencies, Habitat

Conservation Plans (HCPs), Habitat/Resource Management Plans (HMPs/RMPs), and Special Area Management Plans (SAMPs). If clearing and grubbing of vegetation is unavoidable during the breeding season, a pre-construction survey shall be conducted by a qualified biologist no more than seven days prior to conducting work in an individual IVMP activity area that supports suitable nesting bird habitat to determine if active bird nests are present. If no nesting birds are documented (includes nest building or other breeding or active nesting behavior) within the individual activity area, clearing, grubbing, and grading shall be allowed to proceed. If an active nest is observed within the activity area, the biologist shall flag the nest and an appropriate buffer, which shall be determined by the biologist based on the biology of the species and the specific site constraints. Activities shall not occur within the buffer area until the biologist has determined that the nest is no longer active, young have fledged, or determined that limited activities within the buffer would not jeopardize nesting success. The buffer area shall be demarcated in the field with flagging, stakes, and/or temporary fencing. The nesting buffer may be determined and adjusted depending on the species present, individual IVMP activities and site constraints, and in consultation with applicable wildlife agencies.

M-BIO-3: For individual IVMP activities located adjacent to habitat occupied by state- and/or federally-listed avian species (e.g., California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher) in which noise would be produced in excess of 60 dB(A)L_{eq} or ambient noise levels (if ambient levels are above 60 dB), the IVMP activities shall:

a) Be postponed until a qualified biologist determines the nest(s) is no longer active or until after the respective breeding season; or

b) Not occur until a temporary noise attenuation structure or barrier is constructed at the edge of the individual IVMP activity area and/or around the noise-generating equipment to ensure that noise levels are reduced to below 60 dBA or ambient, whichever is greater.

3.1.4 Conclusion

Implementation of the IVMP could result in significant impacts to special status plant and animal species through the removal of vegetation, habitat modification, application of chemical controls, and/or noise. A combination of avoidance through project design and implementation of mitigation measures **M-BIO-1a** through **M-BIO-1e, M-BIO-2a** through **M-BIO-2f,** and **M-BIO-3** would reduce impacts to special status plant and animal species to less than significant.

3.2 RIPARIAN HABITAT AND SENSITIVE NATURAL COMMUNITIES

3.2.1 Guidelines for the Determination of Significance

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the USFWS or CDFW?

3.2.2 Analysis of Project Effects

Surveillance and Monitoring

Surveillance and monitoring activities include evaluation of mosquito-breeding areas by conducting surveys via ground vehicles, aircraft (including piloted and unmanned), watercraft, and remote sensing equipment; trapping of mosquitoes and rodents; and testing of collected samples for vector-borne diseases. Surveillance activities generally occur along existing access routes that have already been established and are regularly maintained. In order to minimize potential adverse environmental impacts, the IVMP follows CDPH and County guidance documents for conducting inspections and vector treatment abatement activities and employs BMPs, as detailed in Section 1.6, in areas with potential to support sensitive biological resources. These BMPs include coordination with the appropriate land managers and agency staff to determine the least environmentally impactful way to access the site and conduct IVMP activities, including the avoidance of physical modification to sensitive habitats to the greatest extent feasible. As part of surveillance and monitoring activities, minor trimming of vegetation along existing access routes and paths may be required to provide access to the mosquito breeding source. Trimming of native vegetation would only be implemented on an as-needed basis, would be the minimum amount necessary to provide access, and whenever feasible would not impact native trees and shrubs. Impacts from minor trimming of vegetation would be less than significant due to the negligible area involved, selective nature of the trimming, and the temporary nature of the action as vegetation would grow back and no individual plants would be removed. Therefore, impacts to riparian habitat and other sensitive natural communities would be less than significant as part of surveillance and monitoring activities and no mitigation is required.

Source Reduction

The reduction of vector-breeding sources also involves physical control techniques that eliminate or reduce standing water that function as mosquito breeding habitat. These techniques include, but are not limited to, vegetation management including trimming and removal of vegetation and application of herbicides; removal of sediment; water control; and other maintenance activities. Minor trimming of vegetation would be a less than significant impact as detailed above in *Surveillance and Monitoring.* Application of herbicides would follow State and County guidance documents and be conducted in accordance with all applicable BMPs, as detailed in Section 1.6, in order to avoid or minimize potential adverse environmental impacts. These BMPs include application of approved herbicides by Certified Vector Control Technicians pursuant to all instructions, applications rates and methods, and regulations of the USEPA and CDPH. Additionally, IVMP activities within sensitive areas are coordinated with the appropriate land managers and agencies to ensure that activities avoid and minimize potential impacts to sensitive biological resources to the greatest extent feasible. Therefore, impacts to riparian habitat and sensitive natural communities from herbicide application would be less than significant and no mitigation is required.

Sources reduction activities that involve the removal of vegetation have potential to result in significant impacts to riparian habitat and sensitive natural communities (BIO-4) and significant impacts would require mitigation. Due the programmatic nature of this document, the specific location and quantity of impacts cannot be assessed at this time. However, project-specific impacts would be assessed through future project approvals; impacts to riparian habitat and sensitive natural communities would be mitigated in accordance with local policies and ordinances and/or adopted NCCPs/HCPs.

Source Treatment

Biological Control

Biological controls used to manage and reduce vectors can include the use of naturally-occurring bacterial larvicides, natural predators, parasites, and/or pathogens to reduce immature mosquito numbers. One of the techniques employed by the IVMP is the application of mosquito fish in artificial mosquito breeding sources such as ornamental ponds, rain barrels, horse troughs, neglected swimming pools, and spas to reduce the abundance of mosquitoes. Riparian habitat and other sensitive natural communities would not be impacted by the use of mosquito fish as mosquito fish are used only within contained water sources that do not connect to natural waterways.

The other biological control technique employed by the IVMP includes the application of naturally-occurring bacterial larvicides. As a form of pesticide, bacterial larvicides are applied through on-ground techniques such as by foot with backpack applicators, truck-mounted equipment, or watercraft by Certified Vector Control Technicians , or by aircraft (including piloted and unmanned) when land-based methods are not practicable due to the size of the area to be treated or impediments to access. As outlined in the following section, routine maintenance of existing access paths may involve minor trimming of native vegetation which would only be implemented on an as-needed basis, would be the minimum necessary to provide access to the mosquito breeding source, and, whenever feasible, would not impact native trees or shrubs. Minor trimming of vegetation would be a less than significant impact, as detailed in *Surveillance and Monitoring.*

As such, impacts to riparian habitat and sensitive natural communities from biological control activities would be less than significant and no mitigation is required.

Chemical Control

In addition to the above methods, the IVMP controls mosquito populations through the application of chemical controls that target both larvae (larvicides) and adult mosquitos (adulticides), both of which are forms of pesticides. Pesticides are applied through on ground techniques such as by foot or watercraft by Certified Vector Control Technicians, or by aircraft (including piloted and unmanned) when land-based methods are not practicable based on the size of the area to be treated or impediments to access. As detailed in Section 1.6, the IVMP follows CDPH and County guidance documents for conducting inspections and vector treatment abatement activities and employs BMPs in order to avoid or minimize potential adverse environmental impacts. These BMPs include application of CDPR-approved pesticides by Certified Vector Control Technicians in strict accordance all label instructions, applications rates and methods, and regulations of the USEPA and CDPH. Application of pesticides through land-based methods would prioritize utilization of existing access routes and avoid creation of new pedestrian access paths unless no other alternatives are present. Routine maintenance of existing access paths may involve the minor trimming of native vegetation which would be implemented only on an as-needed basis, would be the minimum necessary to provide safe access to the mosquito breeding source, and whenever feasible would not impact native trees and shrubs. Minor trimming of vegetation would be less than significant as detailed in *Surveillance and Monitoring*. No removal of vegetation or other ground-disturbing activities would occur as part of chemical control activities. Therefore, impacts to riparian habitat and sensitive natural communities would be less than significant as part of chemical control activities, and no mitigation is required.

3.2.3 Mitigation Measures and Design Considerations

Source reduction (vegetation removal) is the only IVMP activity with potential to result in significant impacts to riparian habitat or sensitive natural communities. Project-specific activities have not been identified and therefore cannot be quantified in this programmatic document. However, mitigation for impacts to riparian habitat and sensitive natural communities would occur at ratios consistent with the County Guidelines (County 2010a), Wildlife Agencies (CDFW and USFWS), and other local jurisdictions, where applicable. Table 5 of the County Guidelines (County 2010a) provides a list of habitat mitigation ratios for each vegetation community type.

Significant impacts to riparian habitats and sensitive natural communities would be mitigated through implementation of the mitigation measures **M-BIO-4a** through **M-BIO-4f** below:

M-BIO-4a: see **M-BIO-1a**

M-BIO-4b: see **M-BIO-1c**

M-BIO-4c: see **M-BIO-1d**

M-BIO-4d: see **M-BIO-1e**

M-BIO-4e: Permanent impacts to riparian habitat and other sensitive natural communities shall be offset through mitigation of habitat of equal or higher biological value at ratios commensurate with individual IVMP activity impacts. Mitigation shall occur by implementing one or a combination of the following: off-site or on-site preservation, enhancement, restoration, and/or creation of habitat; deduction of habitat mitigation credits from an approved mitigation area or bank, or other location deemed acceptable by the County and applicable regulatory agencies. Final mitigation obligations shall be determined based on the quality, quantity, and type of habitat impacted at ratios consistent with local policies and ordinances, or for projects within the boundaries of an adopted Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), in accordance with the applicable mitigation ratios and measures of that specific final plan. In the event that the adopted NCCP/HCP does not stipulate mitigation ratios for temporary impacts, temporary impacts to riparian habitat and other sensitive natural communities shall be mitigated through the on-site revegetation of temporarily impacted areas to pre-construction conditions and appropriate vegetation types at a minimum 1:1 ratio.

M-BIO-4f: For individual IVMP activities resulting in permanent impacts to wetland or riparian habitats and/or upland sensitive natural communities, and whose mitigation includes enhancement, restoration, and/or creation of such habitat, a restoration plan shall be prepared by qualified personnel with experience in southern California ecosystems and native plant restoration techniques. At a minimum, the restoration plan shall include the following information: (a) the location of the mitigation site(s); (b) a schematic depicting the mitigation areas; (c) the plant species to be used, container sizes, and seeding rates; (d) a planting schedule; (e) a description of installation requirements, irrigation sources and methodology, erosion control, maintenance and monitoring requirements; (f) measures to properly control exotic vegetation on-site; (g) site-specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria

not be met; (j) a summary of the annual reporting requirements; and (k) identification of the responsible party(ies) for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.

3.2.4 Conclusion

Implementation of the IVMP could result in significant impacts to sensitive natural communities and riparian habitat; however, a combination of avoidance through project design and implementation of project mitigation measures to fully compensate the loss of habitat would reduce impacts to below a level of significance. Mitigation would occur at ratios consistent with County Guidelines, Wildlife Agencies, Resource Agencies, and other local jurisdictions where applicable. With the implementation of mitigation measures **M-BIO-4a** through **M-BIO-4f**, impacts to sensitive natural communities, including riparian habitat, would be less than significant.

3.3 JURISDICTIONAL WETLANDS AND WATERWAYS

3.3.1 Guidelines for the Determination of Significance

Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

3.3.2 Analysis of Project Effects

Surveillance and Monitoring

Surveillance and monitoring activities include evaluation of mosquito-breeding areas by conducting surveys via ground vehicles, aircraft (including piloted and unmanned), watercraft, and remote sensing equipment; trapping of mosquitoes and rodents; and testing of collecting samples for vector-borne diseases. Surveillance activities generally occur along existing access routes that have already been established and are regularly maintained. In order to avoid or minimize potential adverse environmental impacts, the IVMP follows CDPH and County guidance documents for conducting inspections and vector treatment abatement activities and employs BMPs, as detailed in Section 1.6, in areas with potential to support sensitive biological resources. These BMPs include coordination with the appropriate land managers and agency staff to determine the least environmentally impactful way to access the site and conduct IVMP activities. These activities would not result in discharge into, or the removal, filling, or other physical disturbance to waters or wetlands subject to CDFW, RWQCB, and/or USACE jurisdiction. As part of surveillance and monitoring activities, minor trimming of vegetation along existing access routes and paths may be required to provide access to the mosquito breeding source. Trimming of native vegetation would only be implemented on an as-needed basis, would be the minimum amount necessary to provide safe access, and whenever feasible would not impact native trees and shrubs. Impacts from minor trimming of vegetation would be less than significant due to the negligible area involved, selective nature of the trimming, and the temporary nature of the action as vegetation would grow back, and no individual plants would be removed. Therefore, no significant impacts to state and/or federally protected waters or wetlands would occur from surveillance and monitoring, and no mitigation is required.

Source Reduction

The reduction of vector-breeding sources also involves physical control techniques that eliminate or reduce standing water that function as mosquito breeding habitat. These techniques include but are not limited to vegetation management including trimming and removal of habitat and application of herbicides; removal of sediment; water control; installing, removing, or improving culverts, tide gates, and other water control structures; and other maintenance activities. Minor trimming of vegetation would be a less than significant impact as detailed above in *Surveillance and Monitoring*. Application of herbicides would follow State and County guidance documents and be conducted in accordance with all applicable BMPs, as detailed in Section 1.6, in order to avoid or minimize potential adverse environmental impacts. These BMPs include application of approved herbicides by Certified Vector Control Technicians pursuant to all instructions, applications rates and methods, and regulations of the USEPA and CDPH. Additionally, IVMP activities within sensitive areas are coordinated with the appropriate land managers and agencies to ensure that activities avoid and minimize potential impacts to sensitive biological resources to the greatest extent feasible. Therefore, impacts to CDFW, RWQCB, and/or USACE jurisdictional waters and wetlands from herbicide application would be less than significant and no mitigation is required.

Source reduction activities that result in the filling, removal, and or discharge into waters, wetlands, or riparian habitat, such as sediment and vegetation removal, have potential to result in significant impacts to CDFW, RWQCB, and/or USACE jurisdictional waters and wetlands if they are found to be present within a project-specific IVMP activity area (BIO-5). Significant impacts to waters and wetlands subject to CDFW, RWQCB, and/or USACE jurisdiction would require mitigation, in addition to coordination and potential permitting through the appropriate regulatory agencies. Due the programmatic nature of this document, the specific location and quantity of impacts cannot be assessed at this time. However, project-specific impacts would be assessed through future project approvals and permits. Wetland permits that may be required include a CWA Section 404 permit from the USACE, CWA Section 401 Water Quality Certification or State Porter-Cologne Water Quality Control Act Waste Discharge requirements from the RWQCB, and CFG Code Section 1602 Streambed Alteration Agreement from CDFW. Final mitigation requirements for impacts to waters and wetlands under the jurisdiction of the wetland permitting agencies (USACE, RWQCB, and CDFW) would be determined through consultation with these agencies, as applicable.

Source Treatment

Biological Control

Biological controls used to manage and reduce vectors can include the use of naturally-occurring bacterial larvicides, natural predators, parasites, or pathogens to reduce immature mosquito numbers. One of the techniques employed by the IVMP is the application of mosquito fish in artificial mosquito breeding sources such as ornamental ponds, rain barrels, horse troughs, neglected swimming pools, and spas to reduce the abundance of mosquitoes. Waters and wetlands subject to the jurisdiction of the CDFW, RWQCB, and/or USACE would not be impacted by the use of mosquito fish as mosquito fish are used only within contained water sources that do not connect to natural waterways.

The other biological control technique employed by the IVMP includes the application of naturally-occurring bacterial larvicides. As a form of pesticide, bacterial larvicides are applied through on-ground techniques such as by foot with backpack applicators, truck-mounted equipment, or watercraft by Certified Vector Control Technicians , or by aircraft (including piloted and unmanned) when land-based

methods are not practicable due to the size of the area to be treated or impediments to access. As outlined in the following section, routine maintenance of existing access paths may involve minor trimming of native vegetation which would only be implemented on an as-needed basis, would be the minimum necessary to provide access to the mosquito breeding source, and, whenever feasible, would not impact native trees or shrubs. Minor trimming of vegetation would be a less than significant impact, as detailed in *Surveillance and Monitoring.*

As such, impacts to state and/or federally protected waters or wetlands from biological control activities would be less than significant and no mitigation is required.

Chemical Control

In addition to the above methods, the VCP controls mosquito populations through the application of chemical controls that target both larvae (larvicides) and adult mosquitoes (adulticides), both of which are forms of pesticides. Pesticides are applied through on-ground techniques such as by foot or watercraft by Certified Vector Control Technicians, or by aircraft (including piloted and unmanned) when land-based methods are not practicable based on the size of the area to be treated or impediments to access. As detailed in Section 1.6, the IVMP follows CDPH and County guidance documents for conducting inspections and vector treatment abatement activities and employs BMPs in order to avoid or minimize potential adverse environmental impacts. These BMPs include application of CDPR-approved pesticides by Certified Vector Control Technicians in strict accordance all label instructions, applications rates and methods, and regulations of the USEPA and CDPH. Additionally, IVMP activities within sensitive areas are coordinated with the appropriate land managers and agencies, and activities are conducted in such a manner to ensure site access and abatement activities avoid and minimize potential impacts to sensitive biological resources to the greatest extent feasible.

Chemical control activities would not result in the removal, filling, or alteration of waters or wetlands subject to CDFW, RWQCB, and/or USACE jurisdiction. Application of pesticides through land-based methods would prioritize utilization of existing access routes and avoid creation of new pedestrian access paths unless no other alternatives are present. Routine maintenance of existing access paths may involve the minor trimming of native vegetation which would only be implemented on an as-needed basis, would be the minimum necessary to provide access to the mosquito breeding source, and whenever feasible would not impact native trees and shrubs. Minor trimming of vegetation would be less than significant as detailed in *Surveillance and Monitoring*. No removal of vegetation or other ground-disturbing activities would occur as part of chemical control activities.

In November 2011, the SWRCB issued the Statewide NPDES Permit for Biological and Residual Pesticide Discharges to Waters of the U.S. from Vector Control Applications. The NPDES allows pesticides to be applied to waters of the U.S. for vector control purposes. The County VCP submitted a Notice of Intent to the SWRCB to operate under the General Permit in 2011 (enrollee number 937AP00009) and submits annual reports to the SWRCB regarding pesticide use in compliance with the permit. The General Permit covers the point source discharge of biological and residual pesticides resulting from direct to water and spray applications for vector control using larvicides and adulticides with active ingredients that are currently registered in California and allowed for use. In 2013, the SWRCB amended the permit (State Water Quality Order No. 2014-0106-DWQ) which: (1) added all larvicides and adulticides that are currently registered by the Department of Pesticide Regulations (DPR) using the same active ingredients; (2) included additional receiving water limitations and receiving water monitoring triggers for newly added active ingredients; and (3) included a provision for reopening the permit to include new active

ingredients that DPR registers for vector control. Most recently, the SWRCB reissued the general permit (2016-0039-DWQ), which became effective on July 1, 2016. The updated permit includes the addition of minimum risk pesticide which are pesticides exempted from Federal Insecticide, Fungicide, and Rodenticide Act requirements when used only in the manner specified by federal regulations. Accordingly, the County VCP submitted a new Notice of Intent to the SWRCB to operate under the General Permit in 2016. The IVMP and VCP activities are conducted in accordance with these permits and annual reports are submitted to the SWRCB regarding pesticide use in compliance with the permit.

The application of pesticides would not result in the unlawful discharge into, or the removal, filling, alteration of waters or wetlands subject to the jurisdiction of the CDFW, RWQCB, and/or USACE, and would be completed pursuant to the CDPH guidance and state permits. Therefore, no significant impacts will occur to state and/or federally protected waters or wetlands from chemical control activities and no mitigation is required.

3.3.3 Mitigation Measures and Design Considerations

Source reduction is the only IVMP activity with potential to result in significant impacts to state and federally protected waters and wetlands that would be subject to the regulatory jurisdiction of the CDFW, RWQCB, and/or USACE. Impacts to CDFW, RWQCB, and/or USACE jurisdictional waters and wetlands would be mitigated through implementation of mitigation measures **M-BIO-5a through M-BIO-5g** below:

M-BIO-5a: see **M-BIO-1a**

M-BIO-5b: see **M-BIO-1c**

M-BIO-5c: see **M-BIO-1d**

M-BIO-5d: see **M-BIO-1e**

M-BIO-5e: Individual IVMP activities that would result in impacts to federal or State regulated water bodies (i.e., waters of the U.S. and State, streambeds, wetlands, and/or riparian habitat) shall obtain applicable permits from federal and State regulatory agencies prior to the commencement of such discharge or dredging activities. Such agencies may include U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife. Mitigation requirements for impacts to federal and State regulated water bodies would be determined through the wetland permit process.

M-BIO-5f: see **M-BIO-4e**

M-BIO-5g: see **M-BIO-4f**

3.3.4 Conclusion

Implementation of the proposed project may result in impacts to federally or state protected wetlands and waters through the filling, removal, and/or alteration of waters of the U.S., waters of the State, and/or CDFW riparian or stream habitat. Mitigation measures, as determined in consultation with the USACE, RWQCB, and/or CDFW would be required. Impacts to jurisdictional areas would require permitting through the appropriate regulatory agencies. Wetland permits that may be required include a CWA Section 404 permit from the USACE, CWA Section 401 Water Quality Certification or State Porter-

Cologne Water Quality Control Act Waste Discharge requirements from the RWQCB, and CFG Code Section 1602 Streambed Alteration Agreement from CDFW. Final mitigation requirements would be determined through consultation with the USACE, RWQCB, and CDFW, and would reduce impacts to less than significant.

3.4 WILDLIFE MOVEMENT AND NURSERY SITES

3.4.1 Guidelines for the Determination of Significance

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

3.4.2 Analysis of Project Effects

The proposed IVMP would target identified vector threats and apply various methods to protect the public from vector-borne disease and nuisances and is not intended to interfere with the movement of any native resident or migratory fish or wildlife species. The majority of IVMP activities would focus on the surveillance and monitoring of potential vector breeding sources and populations through non-invasive methods (i.e., aerial surveys, trapping of insects and rodents, etc.), and control of vector populations through application of larvicides and adulticides. Surveillance and monitoring activities would not result in the removal or alteration of native habitats. Surveillance and source treatment activities may temporarily be located near local wildlife movement areas due the presence of personnel and equipment, but any potential disruptive effects would be minimal and generally last no longer than a few hours in any given location. Wildlife would be expected to move back into the area once activities have ceased and no habitat or ground disturbance would occur. Therefore, these activities would not impede the movement of native, resident, or migratory fish or wildlife species; interfere with established native, resident, or migratory wildlife corridors, including linkages identified in the County MSCP Plan and North County MHCP; and would not impede the use of native wildlife nursery sites. Impacts would be less than significant, and no mitigation is required.

Source reduction activities to reduce or eliminate vector-breeding sources could potentially result in the removal of native habitats. However, these activities would be localized, and the individual IVMP activities areas would be restricted to the greatest extent feasible such that the width of existing wildlife corridors and linkages would not be affected or reduced. Though these activities have the potential to temporarily be located near local wildlife movement areas, potential disruptive effects would be minimal, and wildlife would be expected to move back into the area once activities have ceased. Existing wildlife corridors and linkages would continue to function in their current capacity. Impacts would be less than significant, and no mitigation is required.

3.4.3 Mitigation Measures and Design Considerations

No mitigation measures are required.

3.4.4 Conclusion

Implementation of the IVMP would not result in significant impacts on wildlife movement and nursery sites. No impact would occur, and mitigation is not required.

3.5 LOCAL POLICIES, ORDINANCES, AND ADOPTED PLANS

3.5.1 Guidelines for the Determination of Significance

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? Would the project conflict with the provisions of an adopted HCP, NCCP plan, or other approved local, regional or state HCP?

3.5.2 Analysis of Project Effects

Implementation of the IVMP will be consistent with local policies and ordinances protecting biological resources. There are seven city or County-adopted conservation plans that occur within the IVMP service areas and several plans that are still in development as detailed in Table 1 (see Section 1.4.1). The IVMP will not conflict with any of the policies and conservation goals of these NCCP/HCPs. The VCP will consult with local jurisdictions, land managers, and regulatory agencies prior to conducting activities that have potential to result to impacts to sensitive biological resources within adopted NCCP/HCP areas to ensure that impacts are minimized to the greatest extent feasible and mitigated in accordance with local requirements when required. Therefore, no significant impact on local policies, ordinances, and adopted plans would occur through implementation of the IVMP.

3.5.3 Mitigation Measures and Design Considerations

No mitigation measures are required.

3.5.4 Conclusion

Implementation of the IVMP would not result in conflicts with local policies, ordinances, and adopted plan. No impact would occur, and mitigation is not required.

3.6 CUMULATIVE IMPACT ANALYSIS

The Proposed Project includes implementation of a countywide IVMP in which individual localized activities would occur throughout San Diego County. The IVMP consists of a range of activities involving surveillance of existing and potential vector threats as well as physical, biological, and chemical control methods to reduce the spread of mosquito-borne and other vector-borne diseases and nuisances. Due to the programmatic nature of this document, the exact locations and extent of all activities to be conducted under the IVMP are not known at this time. Activities anticipated to be implemented under the IVMP will be required to comply with all federal, state, and location regulations including various NCCPs/HCPs; conform with project design features and SOPs dictating approved activities; and implement all project mitigation measures as summarized in Section 4.0, *Summary of Project Impacts and Mitigation*, to reduce potential impacts to sensitive biological resources to below a level of significance. Therefore, the IVMP would not have a cumulatively significant impact on biological resources within the IVMP service area.

4.0 SUMMARY OF PROJECT IMPACTS AND MITIGATION

The proposed project has the potential to cause significant impacts to special status plant and animal species, sensitive natural communities, jurisdictional wetlands and/or riparian habitats as defined by the USACE, RWQCB, and CDFW (Table 4, *Summary of Potentially Significant Biological Resources Impacts*). In each case, however, the identified significant impact can be mitigated to a less than significant level. Table 5, *Summary of Biological Resources Mitigation Measures*, provides a summary of the proposed mitigation measures.

Table 4
SUMMARY OF POTENTIALLY SIGNIFICANT BIOLOGICAL RESOURCES IMPACTS

Criteria	IVMP Activity[1]			
	Surveillance and Monitoring	Source Reduction	Source Treatment[2]	
			Biological Control	Chemical Control
Special Status Plant Species	Less than Significant Impact	**Potentially Significant Impact (BIO-1)**	Less than Significant Impact	Less than Significant Impact
Special Status Animal Species	**Potentially Significant Impact (BIO-2)**	**Potentially Significant Impact (BIO-2 & BIO-3)**	**Potentially Significant Impact (BIO-2)**	**Potentially Significant Impact (BIO-2)**
Riparian Habitat and Sensitive Natural Communities	Less than Significant Impact	**Potentially Significant Impact (BIO-4)**	Less than Significant Impact	Less than Significant Impact
Jurisdictional Wetlands and Waterways	Less than Significant Impact	**Potentially Significant Impact (BIO-5)**	Less than Significant Impact	Less than Significant Impact
Wildlife Movement and Nursery Sites	Less than Significant Impact	Less than Significant Impact	No Impact	No Impact
Local Policies, Ordinances, and Adopted Plans	No Impact	No Impact	No Impact	No Impact

[1] Surveillance and monitoring, source reduction, and source treatment are the only vector control techniques evaluated. Other techniques (i.e., public education and outreach and disease diagnostics) would not result in impacts to biological resources and therefore are not discussed further.

[2] For the purpose of this technical report, Source Treatment activities are defined as the physical act of applying pesticides, which may include vegetation trimming. As a result, impact conclusions shown here for Source Treatment are based on the potential to conduct vegetation trimming.

Table 5
SUMMARY OF BIOLOGICAL RESOURCES MITIGATION MEASURES

Impact Summary	Impact No.	Mitigation Measure	Level of Significance After Mitigation
Direct impacts to special status plant species due to habitat modification (Guideline Number 3.1)	**BIO-1**	**M-BIO-1a:** Prior to conducting IVMP activities that would result in vegetation removal, habitat modification, and/or ground disturbance, a qualified biologist shall conduct a biological evaluation of the individual IVMP activity area. The biological evaluation shall include (1) a general reconnaissance survey; (2) a review of recent aerial imagery, topographic and soils maps, regional vegetation mapping (as available), and local, state, and federal biological databases including, but not limited to, County SanBIOS data, California Department of Fish and Wildlife (CDFW) Biogeographic Information and Observation System (BIOS) database, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) and critical habitat databases, and Environmental Protection Agency (EPA) Watershed Assessment, Tracking & Environmental Results System (WATERS) database to determine sensitive biological resources known to occur within and adjacent to the IVMP activity area; (3) a query of sensitive species databases such as U.S. Fish and Wildlife Service occurrence records, California Department of Fish and Wildlife California Natural Diversity Database, and County SanBIOS data to determine if special status species are present or have high potential to occur within or adjacent to the individual IVMP activity area; and (4) preparation of a biological resources report. The reconnaissance survey shall include an inventory of existing vegetation communities, flora and fauna resources, and potentially jurisdictional resources present within the individual IVMP activity area; and documentation of special status plant and animal species, if encountered during the survey. The biological resources report shall summarize existing biological resources present within the individual IVMP activity area; identify sensitive biological resources that are present or have potential to occur; provide an assessment of potential impacts; and identify applicable mitigation measures, if necessary.	Less than significant

Table 5 (cont.)
SUMMARY OF BIOLOGICAL RESOURCES MITIGATION MEASURES

Impact Summary	Impact No.	Mitigation Measure	Level of Significance After Mitigation
Direct impacts to special status plant species due to habitat modification (Guideline Number 3.1)	**BIO-1**	**M-BIO-1b:** Prior to conducting IVMP activities that would result in vegetation removal, permanent habitat modification, and/or ground disturbance in areas with potential to support special status plant species, a qualified biologist shall conduct a rare plant survey to confirm the presence/absence of special status plant species within or adjacent to the individual IVMP activity area. The exact timing of the rare plant survey shall be determined based on the location, elevation, and flowering phenology of the special status plant species with potential to occur within and adjacent to the individual IVMP activity area. If special status plant species are discovered within the individual IVMP activity area, those individuals or populations shall be avoided, or additional mitigation measures (which could include transplantation, etc.) shall be implemented that would reduce impacts to below a level of significance. Impacts to state- and/or federally-listed plant species and species' designated critical habitat may require additional consultation with the U.S. Fish and Wildlife Service, pursuant to the Federal Endangered Species Act if the individual IVMP activity area occurs outside of an adopted NCCP/HCP, or if take of that species is not covered under the specific adopted plan. Mitigation for impacts to special status plant species shall be consistent with local jurisdictions' policies and ordinances, and/or adopted NCCPs/HCPs where required, and identified within the individual IVMP activity biological resources report that shall be prepared pursuant to M-BIO-1a.	Less than significant
		M-BIO-1c: Prior to conducting IVMP activities, a qualified biologist shall flag areas to be avoided that contain sensitive biological resources. Where indicated by the biologist, these areas shall be fenced or otherwise protected from direct or indirect impacts. Specifically, temporary (i.e., exclusionary) fencing shall be installed where feasible when grubbing, clearing, or grading would be conducted within 100 feet of sensitive biological resources depending on the species or habitat present, individual IVMP activities, and site constraints. Temporary fencing (such as silt or orange construction fencing) shall be installed at limits of an individual IVMP activity area prior to initiation of activities. A qualified biologist shall monitor the installation of temporary (i.e., exclusionary) fencing wherever it would abut sensitive species or vegetation communities, jurisdictional waters or wetlands, or other sensitive areas such as environmentally-designated open space.	

Table 5 (cont.)
SUMMARY OF BIOLOGICAL RESOURCES MITIGATION MEASURES

Impact Summary	Impact No.	Mitigation Measure	Level of Significance After Mitigation
Direct impacts to special status plant species due to habitat modification (Guideline Number 3.1)	**BIO-1**	**M-BIO-1d:** Prior to conducting IVMP activities that would result in vegetation removal, permanent habitat modification, and/or ground disturbance in areas known to contain sensitive biological resources, a qualified biologist shall conduct an environmental training session for personnel, as applicable, to inform them of the sensitive biological resources with potential to occur and any mitigation and/or avoidance measures that must be implemented.	Less than significant
		M-BIO-1e: When sensitive biological resources have been identified on-site or adjacent to an individual IVMP activity area, a qualified biologist shall monitor initial vegetation clearing, grubbing, and ground disturbance activities to ensure that activities occur within the approved limits of work and that protection measures (e.g., flagging, fencing, etc.) are in place.	
Direct impacts to special status animal species (Guideline Number 3.1)	**BIO-2**	**M-BIO-2a:** see **M-BIO-1a**	Less than significant
		M-BIO-2b: IVMP activities that could result in vegetation removal, permanent habitat modification, and/or ground disturbance activities within potentially suitable habitat for state- and/or federally-listed animal species shall occur outside a species' breeding season. If such activities are unavoidable during the respective breeding season, focused protocol surveys for each species with potential to occur shall be conducted prior to conducting IVMP activities. Surveys shall follow the current U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife protocols, as appropriate. If state- and/or federally-listed species are determined to occur within or adjacent to the individual IVMP activity area, consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game under the Federal Endangered Species Act and California Endangered Species Act, respectively, shall be initiated and any resulting mitigation measures (including, but not limited to, breeding season activity restrictions) identified during consultation shall be implemented.	
		M-BIO-2c: see **M-BIO-1c**	
		M-BIO-2d: see **M-BIO-1d**	
		M-BIO-2e: see **M-BIO-1e**	

Table 5 (cont.)
SUMMARY OF BIOLOGICAL RESOURCES MITIGATION MEASURES

Impact Summary	Impact No.	Mitigation Measure	Level of Significance After Mitigation
Direct impacts to special status animal species (Guideline Number 3.1)	**BIO-2**	**M-BIO-2f:** Clearing or grubbing of vegetation during the general avian breeding season (February 15 through September 15) or raptor breeding season (January 15 through July 15) as defined by the County Guidelines for Determining Significance of Biological Resources shall be avoided except as outlined by this measure. These breeding seasons shall not supersede implementing any agreements with the Wildlife Agencies, Habitat Conservation Plans (HCPs), Habitat/Resource Management Plans (HMPs/RMPs), and Special Area Management Plans (SAMPs). If clearing and grubbing of vegetation is unavoidable during the breeding season, a pre-construction survey shall be conducted by a qualified biologist no more than seven days prior to conducting work in an individual IVMP activity area that supports suitable nesting bird habitat to determine if active bird nests are present. If no nesting birds are documented (includes nest building or other breeding or active nesting behavior) within the individual activity area, clearing, grubbing, and grading shall be allowed to proceed. If an active nest is observed within the activity area, the biologist shall flag the nest and an appropriate buffer, which shall be determined by the biologist based on the biology of the species and the specific site constraints. Activities shall not occur within the buffer area until the biologist has determined that the nest is no longer active, young have fledged, or determined that limited activities within the buffer would not jeopardize nesting success. The buffer area shall be demarcated in the field with flagging, stakes, and/or temporary fencing. The nesting buffer may be determined and adjusted depending on the species present, individual IVMP activities and site constraints, and in consultation with applicable wildlife agencies.	Less than significant
Indirect impacts to special status animal species (Guideline Number 3.1)	**BIO-3**	**M-BIO-3:** For individual IVMP activities located adjacent to habitat occupied by state- and/or federally-listed avian species (e.g., California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher) in which noise would be produced in excess of 60 dB(A)L_{eq} or ambient noise levels (if ambient levels are above 60 dB), the IVMP activities shall: a) Be postponed until a qualified biologist determines the nest(s) is no longer active or until after the respective breeding season; or b) Not occur until a temporary noise attenuation structure or barrier is constructed at the edge of the individual IVMP activity area and/or around the noise-generating equipment to ensure that noise levels are reduced to below 60 dBA or ambient, whichever is greater.	Less than significant

Table 5 (cont.)
SUMMARY OF BIOLOGICAL RESOURCES MITIGATION MEASURES

Impact Summary	Impact No.	Mitigation Measure	Level of Significance After Mitigation
Direct impacts to riparian habitat and sensitive natural communities due to habitat modification (Guideline Number 3.2)	**BIO-4**	**M-BIO-4a:** see **M-BIO-1a**	Less than significant
		M-BIO-4b: see **M-BIO-1c**	
		M-BIO-4c: see **M-BIO-1d**	
		M-BIO-4d: see **M-BIO-1e**	
		M-BIO-4e: Permanent impacts to riparian habitat and other sensitive natural communities shall be offset through mitigation of habitat of equal or higher biological value at ratios commensurate with individual IVMP activity impacts. Mitigation shall occur by implementing one or a combination of the following: off-site or on-site preservation, enhancement, restoration, and/or creation of habitat; deduction of habitat mitigation credits from an approved mitigation area or bank, or other location deemed acceptable by the County and applicable regulatory agencies. Final mitigation obligations shall be determined based on the quality, quantity, and type of habitat impacted at ratios consistent with local policies and ordinances, or for projects within the boundaries of an adopted Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), in accordance with the applicable mitigation ratios and measures of that specific final plan. In the event that the adopted NCCP/HCP does not stipulate mitigation ratios for temporary impacts, temporary impacts to riparian habitat and other sensitive natural communities shall be mitigated through the on-site revegetation of temporarily impacted areas to pre-construction conditions and appropriate vegetation types at a minimum 1:1 ratio.	

Table 5 (cont.)
SUMMARY OF BIOLOGICAL RESOURCES MITIGATION MEASURES

Impact Summary	Impact No.	Mitigation Measure	Level of Significance After Mitigation
Direct impacts to riparian habitat and sensitive natural communities due to habitat modification (Guideline Number 3.2)	**BIO-4**	**M-BIO-4f:** For individual IVMP activities resulting in permanent impacts to wetland or riparian habitats and/or upland sensitive natural communities, and whose mitigation includes enhancement, restoration, and/or creation of such habitat, a restoration plan shall be prepared by qualified personnel with experience in southern California ecosystems and native plant restoration techniques. At a minimum, the restoration plans shall include the following information: (a) the location of the mitigation site(s); (b) a schematic depicting the mitigation areas; (c) the plant species to be used, container sizes, and seeding rates; (d) a planting schedule; (e) a description of installation requirements, irrigation sources and methodology, erosion control, maintenance and monitoring requirements; (f) measures to properly control exotic vegetation on-site; (g) site-specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; (j) a summary of the annual reporting requirements; and (k) identification of the responsible party(ies) for meeting the success criteria and providing for conservation of the mitigation site in perpetuity.	Less than significant
Direct impacts to jurisdictional wetlands and waterways due to habitat modification (Guideline Number 3.3)	**BIO-5**	**M-BIO-5a:** see **M-BIO-1a**	Less than significant
		M-BIO-5b: see **M-BIO-1c**	
		M-BIO-5c: see **M-BIO-1d**	
		M-BIO-5d: see **M-BIO-1e**	
		M-BIO-5e: Individual IVMP activities that would result in impacts to federal or State regulated water bodies (i.e., Waters of the U.S. and State, streambeds, wetlands, and/or riparian habitat) shall obtain applicable permitting from federal and State regulatory agencies prior to the commencement of such discharge or dredging activities. Such agencies may include U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife. Mitigation requirements for impacts to federal and State regulated water bodies would be determined through the wetland permit process.	
		M-BIO-5f: see **M-BIO-4e**	
		M-BIO-5g: see **M-BIO-4f**	

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Appendix A

Special Status Plant Species with Potential to Occur within the VCP Service Area

Appendix A
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Red sand verbena (*Abronia maritima*)	--/-- CRPR 4.2 County List D	Perennial herb. Grows on coastal dunes from San Luis Obispo County south to San Diego County and on the Channel Islands. Flowering period: February to November. Elevation: below 330 feet (100 meters).
Chaparral sand-verbana *(Abronia villosa* var. *aurita)*	--/-- CRPR 1B.1 County List A	Annual herb. Grows on desert dunes and in sandy areas within coastal scrub, chaparral. Found along the coast from Ventura County south to San Diego County, and east to San Bernardino, Riverside, and Imperial Counties. Flowering period: March to September. Elevation: 245 to 5,250 feet (75 to 1,600 meters).
Shrubby Indian mallow (*Abutilon abutiloides*)	--/-- CRPR 2B.1	Perennial herb. Occurs within Sonoran desert scrub on rocky or granitic soil in San Diego County. Flowering period: August to November. Elevation: 2,805 to 2,955 feet (855 to 900 meters).
San Diego thorn-mint *(Acanthomintha ilicifolia)*	FT/CE CRPR 1B.1 County List A MSCP Covered NE	Annual herb. Typically grows on clay soils within chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Found in San Diego County. Flowering period: April to June. Elevation: below 30 to 3,150 feet (10 to 960 meters).
Pygmy lotus (*Acmispon haydonii*)	--/-- CRPR 1B.3 County List A	Perennial herb. Occurs in pinyon-juniper woodland and Sonoran desert scrub on rocky outcrops. Found in Riverside, Imperial, and San Diego Counties. Flowering period: January to June. Elevation: 1705 to 3935 feet (520 to 1200 meters).
Nuttall's lotus (*Acmispon prostratus*)	--/-- CRPR 1B.1 County List A MSCP Covered	Annual herb. Grows on coastal dunes and sandy areas coastal scrub in San Diego County. Flowering Period: March to June. Elevation: below 35 feet (10 meters).
California adolphia (*Adolphia californica*)	--/-- CRPR 2B.1 County List B	Perennial shrub. Most often found in coastal scrub but occasionally occurs in peripheral chaparral habitats, particularly hillsides near creeks on clay soils. Found in San Diego County. Flowering period: December to May. Elevation: 30 to 2,430 feet (10 to 740 meters).
Shaw's agave (*Agave shawii* var. *shawii*)	--/-- CRPR 2B.1 County List B MSCP Covered NE	Perennial succulent. Most often found on coastal bluffs and along mesas and foothill within coast bluff scrub, coastal scrub. Maritime succulent scrub, and chaparral. Found in San Diego County. Flowering period: September to May. Elevation: below 395 feet (120 meters).
San Diego bur-sage (*Ambrosia chenopodiifolia*)	--/-- CRPR 2B.1 County List B	Perennial shrub. Found in coastal scrub within southwestern San Diego County. Flowering period: April to June. Elevation: 180 to 510 feet (55 to 155 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Singlewhorl burrobrush (*Ambrosia monogyra*)	--/-- CRPR 2B.2	Perennial shrub. Found on sandy soils within washes and dry riverbeds within chaparral and Sonoran desert scrub. Flowering period: August to November. Found in San Bernardino, Riverside, and San Diego Counties Elevation: 30 to 1,640 feet (10 to 500 meters).
San Diego ambrosia (*Ambrosia pumila*)	FE/-- CRPR 1B.1 County List A NE	Perennial herb. Occurs on sandy loam or clay, sometimes alkaline, soils within grasslands, dry drainages, stream floodplain terraces, and vernal pool margins. Also occurs on slopes, disturbed places, and in coastal sage scrub or chaparral. Found in Riverside and San Diego Counties. Flowering period: April to October. Elevation: 65 to 1,360 feet (20 to 415 meters).
California rockjasmine (*Androsace elongata* ssp. *acuta*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs within meadows and seeps, grasslands, coastal scrub, chaparral, cismontane woodlands, and pinyon-juniper woodland. Found along the Cascade Range and foothills; North and South Coast Ranges; Sacrament and San Joaquin Valleys; foothills of southern Sierra Nevada; western Transverse and Peninsular Ranges; San Bernardino and San Jacinto mountains; and along the coast of southern California. Flowering period: March to June. Elevation: 490 to 1,000 feet (150 to 305 meters).
Aphanisma (*Aphanisma blitoides*)	--/-- CRPR 1B.2 County List A MSCP Covered	Annual herb. Occurs on sandy or gravelly soils within coastal dunes, coastal bluff scrub, and coastal scrub. Found along the coast from Santa Barbara County south to San Diego County and the Channel Islands. Flowering period: June to September. Elevation: below 656 feet (305 meters).
Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)	FE/-- CRPR 1B.1 County List A MSCP Covered	Perennial shrub. Occurs within relatively open, coastal chaparral and maritime chaparral on sandy soils. At occasional inland sites it occurs in denser mixed chaparral vegetation. Found in San Diego County. Flowering Period: December to June. Elevation: below 1,200 feet (365 meters).
Otay manzanita (*Arctostaphylos otayensis*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial shrub. Grows on metavolcanics soils within chaparral and cismontane woodland in San Diego County. Flowering period: January to April. Elevation: 900 to 5,580 feet (275 to 1,700 meters).
Rainbow manzanita (*Arctostaphylos rainbowensis*)	--/-- CRPR 1B.1 County List A	Perennial shrub. Occurs among granitic outcrops within chaparral. Found in Riverside and San Diego Counties. Flowering period: December to March. Elevation: 670 to 2,200 feet (205 to 670 meters).
San Diego sagewort (*Artemisia palmeri*)	--/-- CRPR 4.2 County List D	Perennial herb. Typically found along stream courses, often beneath riparian woodland, on sandy and mesic soils. May occur in coast live oak woodland, coastal sage scrub, and southern mixed chaparral. Found in San Diego County Flowering period: June to October. Elevation: 50 to 3,000 feet (15 to 915 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Western spleenwort (*Asplenium vespertinum*)	--/-- CRPR 4.2 County List D	Perennial rhizomatous herb. Occurs in chaparral, cismontane woodland, and coastal scrub along rocky bluffs. Found along the coastal regions from Ventura south San Diego County and east to San Bernardino and Riverside Counties. Flowering period: February to June. Elevation: 590 to 3,280 feet (180 to 1,000 meters).
Salton milk-vetch (*Astragalus crotalariae*)	--/-- CRPR 4.3 County List D	Perennial herb. Grows on sandy or gravelly soils within Sonoran desert scrub. Found in Riverside, Imperial, and San Diego Counties. Flowering period: January to April. Elevation: below 820 feet (250 meters).
Dean's milk-vetch (*Astragalus deanei*)	--/-- CRPR 1B.1 County List A	Perennial herb. Grow on open, shrubby slopes in chaparral. Also occurs within coastal scrub, cismontane woodland, and riparian forest. Found in San Diego County. Flowering period: February to May. Elevation: 245 to 2,280 feet (75 to 695 meters).
Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*)	--/-- CRPR 1B.2 County List A	Perennial herb. Grows on rocky outcrops within grasslands, chaparral, cismontane woodland, pinyon- juniper woodland, and riparian scrub. Found in San Diego County. Flowering period: April to June. Elevation: 2,950 to 4,495 feet (900 to 1,370 meters).
Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*)	--/-- CRPR 2B.2 County List B	Annual herb. Grows on desert dunes and sandy or gravelly soils within Mojave desert scrub. Found in San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: January to May. Elevation: below 2,330 feet (710 meters).
Borrego milk-vetch (*Astragalus lentiginosus* var. *borreganus*)	--/-- CRPR 4.3 County List D	Annual herb. Grows on sandy soils within Mojave and Sonoran desert scrub. Found in San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: February to May. Elevation: 95 to 2,935 feet (30 to 895 feet).
Big Bear Valley woollypod (*Astragalus leucolobus*)	--/-- CRPR 1B.2	Perennial herb. Occurs within pebble plain, pinyon-juniper woodland, montane coniferous forest on rocky soils. Found in San Benito, Inyo, Kern, Los Angeles, Ventura San Bernardino, Riverside, and San Diego Counties. Flowering period: May to July. Elevation: 3605 to 9465 feet (1100 to 2885 meters).
Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*)	FT/SE CRPR 1B.2 County List A	Perennial herb. Grows on desert dunes within Imperial and San Diego Counties. Flowering period: December to April. Elevation: 195 to 740 feet (60 to 225 meters).
San Diego milk-vetch (*Astragalus oocarpus*)	--/-- CRPR 1B.2 County List A	Perennial herb. Grows in openings of chaparral and oak woodlands in San Diego County. Flowering period: May to August. Elevation: 1,000 to 5,000 feet (305to 1,524 meters).
Jaeger's bush milk-vetch (*Astragalus pachypus* var. *jaegeri*)	--/-- CRPR 1B.1 County List A	Perennial shrub. Grows on sandy or rocky soils within chaparral, cismontane woodland, coastal scrub, and grasslands. Found in Riverside and San Diego Counties. Flowering period: December to June. Elevation: 1,195 to 3,200 feet (365 to 975 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
gravel milk-vetch (*Astragalus sabulonum*)	--/-- CRPR 2B.2	Perennial herb. Grows on desert dunes and sandy, sometimes gravelly, soils within Mojave and Sonoran desert scrub. Also occurs on flats, washes, and along road sides. Found in Inyo, Riverside, Imperial, and San Diego Counties. Flowering period: February to June. Elevation: below 3,050 feet (930 meters).
Coastal dunes milk vetch (*Astragalus tener* var. *titi*)	FE/SE CRPR 1B.1 County List A MSCP Covered	Annual herb. Occurs in coastal bluff scrub, coastal dunes, and coastal prairie. Associated with moist, sandy depressions of bluffs or dunes near the Pacific Ocean. Found in Monterey, Los Angeles, and Sn Diego Counties. Flowering period: March to May. Elevation: below 165 feet (50 meters).
Coulter's saltbush (*Atriplex coulteri*)	--/-- CRPR 1B.2 County List A	Perennial herb. Occurs on alkaline or clay soils within coastal dunes, coastal bluffs, coastal sage scrub, and grasslands. Found along the coastal regions from Santa Luis Obispo County south to San Diego County, western portions of San Bernardino and Riverside Counties, and the Channel Islands. Flowering period: March to October. Elevation: below 1,510 feet (460 meters).
South coast saltscale (*Atriplex pacifica*)	--/-- CRPR 1B.2 County List A	Annual herb. Found coastally on dunes and within playas in alkali sinks, sage scrub and wetland riparian communities. Found along the coastal regions from Santa Barbara County south to San Diego County, western portions of San Bernardino and Riverside Counties, and the Channel Islands. Flowering period: March to October. Elevation: below 460 feet (140 meters).
Parish's brittlescale (*Atriplex parishii*)	--/-- CRPR 1B.1 County List A	Annual herb. Occurs in chenopod scrub, playas, and vernal pools on alkaline soils. Found in San Bernardino, Los Angeles, Orange, Riverside, and San Diego Counties. Flowering period: June to October. Elevation: 80 to 6,235 feet (25 to 1,900 meters).
Davidson's saltscale (*Atriplex serenana* var. *davidsonii*)	--/-- CRPR 1B.2 County List A	Annual herb. Occur in alkaline soils within coastal sage scrub and coastal bluff scrub. Found in the coastal regions from San Luis Obispo County south to Orange County, western portions of San Bernardino and Riverside County, and the Channel Islands. Not known from San Diego County. Flowering Period: April to October. Elevation: 30 to 655 feet (10 to 200 meters).
Mexican mosquito fern (*Azolla microphylla*)	--/-- CRPR 4.2 County List D	Annual to perennial herb. Occurs within marsh and swamps habitats associated with ponds and slow-moving waters. Found in Sacramento and San Joaquin Valleys; Sierra Nevada and eastern valley; White and Inyo Mountains; San Bernardino Mountains; San Francisco Bay Area, and along the central coast. Not known from San Diego County. Flowering period: August. Elevation: feet (30 to 100 meters).
California ayenia (*Ayenia compacta)*	--/-- CRPR 2B.3 County List B	Perennial herb. Grows in Mojave and Sonoran desert scrub on rocky soils. Found in San Bernardino, Riverside, and San Diego Counties. Flowering period: March to April. Elevation: 490 to 3595 feet (150 to 1095 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Encinitas baccharis (*Baccharis vanessae*)	FT/SE CRRP 1B.1 County List A MSCP Covered NE	Perennial shrub. Grows on sandstone within chaparral, maritime chaparral, woodlands, and Torrey-pine forest understory. Found in San Diego County. Flowering period: August to December. Elevation: 195 to 2,360 feet (60 to 720 meters).
San Diego County viguiera (*Bahiopsis laciniata*)	--/-- CRPR 4.3 County List D	Perennial shrub. Occurs on a variety of soil types within coastal sage scrub in San Diego County. Generally, shrub cover is more open than at mesic, coastal locales supporting sage scrub. Found along the coastal regions from Ventura County south to San Diego County and western Riverside County. Flowering period: February to August. Elevation: 295 to 2,461 feet (90 to 750 meters).
Fremont barberry (*Berberis fremontii*)	--/-- CRPR 2B.3 County List C	Perennial evergreen shrub. Occurs in Joshua tree, pinyon, and juniper woodland on rocky or granitic soils. Found in San Bernardino and San Diego Counties. Flowering period: March to May. Elevation: 3,755 to 5,645 feet (1,145 to 1,720 meters).
Nevin's barberry (*Berberis nevinii*)	FE/SE CRPR 1B.1 County List A NE	Perennial evergreen shrub. Occurs in chaparral, cismontane woodland, coastal scrub, and riparian scrub on sandy or gravelly soils. Found in Los Angeles, San Bernardino, Riverside, and San Diego Counties. Flowering period: March to June. Elevation: 225 to 2,705 feet (70 to 825 meters).
Golden-spined cereus (*Bergerocactus emoryi*)	--/-- CRPR 2B.2 County List B	Stem succulent shrub. Occurs coastally on sandy open hills within chaparral, coastal scrub, and closed-cone pine forests. Found in Los Angeles and San Diego Counties, and San Clemente and Santa Catalina Islands. Flowering period: May to June. Elevation: below 1,295 feet (395 meters).
San Diego goldenstar (*Bloomeria clevelandii*)	--/-- CRPR 1B.1 County List A MSCP Covered	Perennial bulbiferous herb. Occurs in valley grasslands and coastal scrub, particularly near mima mound topography or in the vicinity of vernal pools, on clay soils. Found in Riverside and San Diego Counties. Flowering period: April to May. Elevation: 160 to 1,525 feet (50 to 465 meters).
Hirshberg's rockcress (*Boechera hirshbergiae*)	--/-- CRPR 1B.2 County List A	Perennial herb. Occurs on pebble plain within San Diego County. Flowering period: March to May. Elevation: 4,590 to 4,640 feet (1,400 to 1,415 meters).
Thread-leaved brodiaea (*Brodiaea filifolia*)	FT/SE CRPR 1B.1 County List A MSCP Covered NE	Perennial herb. Often associated with vernal pools. Also occurs within playas, grasslands, coastal scrub, openings in chaparral, and cismontane woodland; often on clay soils. Found in Los Angeles, Orange, San Bernardino, Riverside, and San Diego Counties. Flowering period: March to June. Elevation: 80 to 3,675 feet (25 to 1,120 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Orcutt's brodiaea (*Brodiaea orcuttii*)	--/-- CRPR 1B.1 County List A MSCP Covered	Perennial bulbiferous herb. Occurs within closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools. Prefers mesic or clay soils. Found in Riverside San Diego Counties. Flowering period: May to July. Elevation: 98 to 5,550 feet (30 to 1,692 meters).
Santa Rosa Basalt brodiaea (*Brodiaea santarosae*)	--/-- CRPR 1B.2	Perennial herb. Occurs within grassland son basaltic soils. Found in Riverside and San Diego Counties. Flowering period: May to June. Elevation: 1,850 to 3,430 feet (565 to 1,045 meters).
little-leaf elephant tree (*Bursera microphylla*)	--/-- CRPR 2B.3 County List B	Perennial deciduous tree. Occurs within Sonoran desert scrub on rocky soils. Found in Riverside, Imperial, and San Diego Counties. Flowering period: June to July. Elevation: 655 to 2,295 feet (200 to 700 meters).
Fire reedgrass (*Calamagrostis koelerioides*)	--/-- MSCP Covered	Perennial herb. Grows on dry slopes, hills, and ridges within meadows. Found along the along the north and central coast; Klamath, North Coast, and South Coast Ranges; San Francisco Bay Area; San Jacinto Mountains; and Peninsular Ranges. Flowering period: June to August. Elevation: below 7,545 feet (2,300 meters).
Brewer's calandrinia (*Calandrinia breweri*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs within chaparral or coastal scrub on sandy or loamy soil, disturbed sites, and after burns. Flowering Period: January to June. Elevation: 32 to 4,000 feet (10 to 1,220 meters).
Seaside calandrinia (*Calandrinia maritima*)	--/-- CRPR 4.2 County List D	Annual herb. Grows on sandy soils within grasslands, coastal bluff scrub, and coastal scrub. Found along the coastal regions from Santa Barbara south to San Diego County and the Channel Islands. Flowering period: March to June. Elevations: 15 to 985 feet (5 to 300 meters).
Round leaved filaree (*California macrophylla*)	--/-- County List B	Annual herb. Occurs in open sites on clay, occasionally serpentine, soils within grasslands and cismontane woodlands. Found along the central and southern coast; Sacramento and San Joaquin Valleys; North Coast, South Coast, western Transverse, and Peninsular Ranges; San Francisco Bay area; southern Sierra Nevada foothills; Tehachapi and San Jacinto mountains; and the Channel Islands. Flowering Period: March to July. Elevation: below 3,940 feet (1,200 meters).
pink fairy-duster (*Calliandra eriophylla*)	--/-- CRPR 2B.3 County List B	Perennial shrub. Occurs within Sonoran desert scrub on sandy or rocky soils. Found in Riverside, Imperial, and San Diego Counties. Flowering period: January to March. Elevation: 390 to 4,920 feet (120 to 1,500 meters).
Cataline mariposa (*Calochortus catalinae*)	--/-- CRPR 4.2 County List D	Perennial herb. Occurs within grasslands, coastal scrub, chaparral, and cismontane woodlands. Found along the coastal regions from San Luis Obispo County south to San Diego County and east to western San Bernardino and Riverside Counties. Flowering period: March to June. Elevation: 50 to 2,300 feet (15 to 700 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Dunn's mariposa lily (*Calochortus dunnii*)	--/-- CRPR 1B.2 County List A MSCP Covered NE	Perennial herb. Found in closed-cone coniferous forest, chaparral, and valley and foothill grassland, typically on gabbroic, metavolcanics, or rocky soils. Found in San Diego County. Flowering Period: Feb to June. Elevation: 605 to 6,005 feet (185 to 1,830 meters).
San Jacinto mariposa lily (*Calochortus palmeri* var. *munzii*)	--/-- CRPR 1B.2	Perennial herb. Occurs within chaparral, lower montane coniferous forest, meadows and seeps. Found in Riverside and San Diego Counties. Flowering Period: April to July. Elevation: 2,805 to 7,220 feet (855 to 2,200 meters).
Arizona pussypaws (*Calyptridium arizonicum*)	--/-- CRPR 1B.1	Annual herb. Grows in washes on metamorphic soils within Sonoran desert scrub in San Diego County. Flowering Period: April to July. Elevation: 2,000 to 2,590 feet (610 to 790 meters).
Lewis' evening-primrose (*Camissoniopsis lewisii*)	--/-- CRPR 3 County List C	Annual herb. Occurs on sandy or clay soils within grasslands, coastal scrub, cismontane woodland, and coastal bluffs and dunes. Found in Los Angeles, Orange, and San Diego Counties. Flowering period: March to June. Elevation: below 985 feet (300 meters).
San Luis Obispo sedge (*Carex obispoensis*)	--/-- CRPR 1B.2	Perennial herb. Occurs along springs and streams within chaparral, coastal sage scrub, and grasslands. Often associated with serpentine, gabbro, and clay soils. Found within Monterey, San Luis Obispo, San Diego Counties. Flowering period: April to June. Elevation: 30 to 2,690 feet (10 to 820 meters).
Arizona carlowrightia (*Carlowrightia arizonica*)	--/-- CRPR 2B.2 County List B	Perennial deciduous shrub. Occurs within Sonoran desert scrub on sandy, granitic alluvium soils in San Diego County. Flowering period: March to May. Elevation: 935 to 1,410 feet (285 to 430 meters).
San Bernardino Mountains owl's-clover (*Castilleja lasiorhyncha*)	--/-- CRPR 1B.2	Annual (hemiparasitic) herb. Grows in mesic areas within meadows and seeps, pebble plain, chaparral, riparian woodlands, upper montane coniferous forests in mesic areas. Found in San Bernardino, Riverside, and San Diego Counties. Flowering period: May to August. Elevation: 4,265 to 7,840 feet (1,300 to 2,390 meters).
Slender pod jewelflower (*Caulanthus heterophyllus*)	--/-- MSCP Covered	Annual herb. Grows on dry sites within open coastal scrub and chaparral. Often occurs in burned and disturbed areas. Found along the coast of southern California; South Coast, western Transverse, and Peninsular Ranges; San Gabriel and San Bernardino mountains; and the Channel Islands. Flowering period: March to May. Elevation: below 4,600 feet (1,400 meters).
Payson's jewelflower (*Caulanthus simulans*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs within coastal sage scrub, chaparral, and pinyon-juniper woodlands on sandy and granitic soils. Found in Riverside and San Diego Counties. Flowering period: February to June. Elevation: 295 to 7,220 feet (90 to 2,200 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Lakeside ceanothus (*Ceanothus cyaneus*)	--/-- CRPR 1B.2 County List A MSCP Covered NE	Perennial shrub. Occurs on slopes and ridgelines in closed-cone coniferous forests and chaparral. Found in Riverside and San Diego Counties. Flowering period: April to June. Elevation: 770 to 2,540 feet (235 to 755 meters).
Viejas Mountain ceanothus (*Ceanothus foliosus* var. *viejasensis*)	--/-- CRPR 1B.2	Perennial shrub. Occurs within chaparral on gabbro soils in San Diego County. Flowering period: March to June. Elevation: 2,575 to 4,495 feet (785 to 1,370 meters).
Otay Mountain ceanothus (*Ceanothus otayensis*)	--/-- CRPR 1B.2	Perennial shrub. Found in chaparral dominated by chamise and ceanothus species on metavolcanics or gabbroic soils. Mild soil disturbances may enable this plant to pioneer on road cuts and in burn areas. Only known from Otay Mountain in San Diego County. Flowering Period: January to April. Elevation: 1,965 to 3,610 feet (600 to 1,100 meters).
Pendleton ceanothus (*Ceanothus pendletonensis*)	--/-- CRPR 1B.2 County List B	Perennial shrub. Found within chaparral and cismontane woodlands with granitic soils in San Diego County. Flowering period: March to June. Elevation: 360 to 2,855 feet (110 to 870 meters).
Wart-stemmed ceanothus (*Ceanothus verrucosus*)	--/-- CRPR 2B.2 County List B MSCP Covered	Perennial shrub. Found on rocky slopes within chaparral, particularly southern maritime chaparral. Found in Riverside and San Diego Counties. Flowering period: December to May. Elevation: below 1,245 feet (380 meters).
Southern tarplant (*Centromadia parryi* ssp. *australis*)	--/-- CRPR 1B.1 County List A	Annual herb. Found at the margins of salt marshes, vernally mesic areas within grasslands, and vernal pools. Found in the coastal regional from Santa Barbara County south to San Diego County and the Channel Islands. Flowering Period: May to November. Elevation: below 1,575 feet (480 meters).
Smooth tarplant (*Centromadia pungens* ssp. *laevis*)	--/-- CRPR 1B.1 County List A	Annual herb. Occurs on alkaline soils in chenopod scrub, meadows and seeps, playas, riparian woodland, and valley and foothill grassland. Found in San Bernardino, Los Angeles, Riverside, and San Diego Counties. Flowering Period: April to September. Elevation: below 2,100 feet (640 meters).
Peirson's pincushion (*Chaenactis carphoclinia* var. *peirsonii*)	--/-- CRPR 1B.3 County List A	Annual herb. Found on sandy soils within Sonoran desert scrub. Found in Riverside, Imperial, and San Diego Counties. Flowering Period: March to April. Elevation: 5 to 1,640 feet (3 to 500 meters).
Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*)	--/-- CRPR 1B.1 County List A	Annual herb. Found on coastal dunes and sandy areas within coastal bluff scrub. Typically, in proximity to moist ocean breezes from Ventura County south to San Diego County. Elevation: below 330 feet (100 meters). Flowering Period: January to August.

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Parish's chaenactis (*Chaenactis parishii*)	--/-- CRPR 1B.3 County List A	Perennial herb. Found within chaparral on rocky outcroppings. Flowering Period: May to July. Found in Riverside and San Diego Counties. Elevation: 4,265 to 8,200 feet (1,300 to 2,500 meters).
Southern mountain misery (*Chamaebatia australis*)	--/-- CRPR 4.2 County List D	Perennial shrub. Occurs in chaparral on gabbroic or metavolcanics soils. Found in Los Angeles and San Diego Counties. Blooms November to May. Elevation: 980 to 3,350 feet (300 to 1,020 meters).
Salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*)	FE/SE CRPR 1B.2 County List A MSCP Covered	Annual herb. Found in coastal salt marshes and swamps, particularly on slightly raised hummocks, and on coastal dunes. Found along the coastal regions from San Luis Obispo south to San Diego County and east to San Bernardino County. Flowering Period: May to October. Elevation: below 100 feet (30 meters).
Peninsular spineflower (*Chorizanthe leptotheca*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs on alluvial fans and sandy and gravelly soils within coastal sage scrub, chaparral, and coniferous forests. Found within San Bernardino, Riverside, and San Diego Counties. Flowering period: May to August. Elevation: 980 to 6,235 feet (300 to 1,900 meters).
Orcutt's spineflower (*Chorizanthe orcuttiana*)	FE/SE CRPR 1B.1 County List A	Annual herb. Found in sandy openings of coastal sage scrub, maritime chaparral, and closed-cone coniferous forests. Known from only three occurrences in Encinitas and Point Loma within San Diego County. Flowering period: March to May. Elevation: 5 to 410 feet (3 to 125 meters).
Long-spined spineflower *(Chorizanthe polygonoides* var. *longispina)*	--/-- CRPR 1B.2 County List A	Annual herb. Occurs in chaparral, coastal scrub, and native grassland, often on clay soils. Found within Orange, Riverside, San Bernardino, and San Diego Counties. Flowering period: April to July. Elevation: 95 to 5,020 feet (30 to 1,530 meters).
White-bracted spineflower *(Chorizanthe xanti* var. *leucotheca)*	--/-- CRPR 1B.2	Annual herb. Occurs within coastal scrub, Mojave desert scrub, and pinyon-juniper woodland, especially on alluvial fans and sandy or gravelly soils. Found within Los Angeles, Riverside, San Bernardino, and San Diego Counties. Flowering period: April to June. Elevation: 980 to 3,935 feet (300 to 1,200 meters).
Delicate clarkia (*Clarkia delicata*)	--/-- CRPR 1B.2 County List A	Annual herb. Occurs in shaded areas or the periphery of oak woodlands and cismontane chaparral, often on gabbroic soils. Found in San Diego County. Flowering period: April to June. Elevation: 770 to 3,280 feet (235 to 1,000 meters).
San Miguel savory (*Clinopodium chandleri*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial shrub. Occurs within chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland on rocky, gabbroic, or metavolcanic soils. Flowering Period: March to July. Found in Orange, Riverside, and San Diego Counties. Elevation: 390 to 3,525 feet (120 to 1,075 meters.
Las Animas colubrina (*Colubrina californica*)	--/-- CRPR 2B.3 County List B	Perennial shrub. Occurs in Mojave and Sonoran desert. Found in Riverside, Imperial, and San Diego Counties. Flowering period: April to June. Elevation: 30 to 3,280 feet (10 to 1,000 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	--/-- CRPR 1B.2 County List A	Perennial shrub. Occurs in chaparral and cismontane woodland. Found in Santa Barbara, Orange, Riverside, and San Diego Counties. Flowering period: April to June. Elevation: 95 to 2,590 feet (30 to 790 meters).
Small-flowered morning-glory (*Convolvulus simulans*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs on clay soils and serpentinite seeps in openings within chaparral, coastal scrub, and native grassland. Found within the San Francisco Bay area, San Joaquin Valley, western Sierra Nevada foothills, along the coast of southern California, the Channel Islands, and the western Transverse and Peninsular Ranges. Flowering period: April to June. Elevation: 95 to 2,430 feet (30 to 740 meters).
small-flowered bird's-beak (*Cordylanthus parviflorus*)	--/-- CRPR 2B.3	Annual (hemiparasitic) herb. Occurs within Joshua tree woodland, Mojave desert scrub, and pinyon-juniper woodland. Found in San Bernardino and San Diego Counties. Flowering period: August to October. Elevation: 2,295 to 7,220 feet (700 to 2,200 meters).
San Diego sand aster (*Corethrogyne filaginifolia* var. *incana*)	--/-- CRPR 1B.1 County List A	Perennial herb. Occurs within grasslands, coastal bluff scrub, coastal scrub, and chaparral in San Diego County. Flowering period: June to September. Elevation: 5 to 375 feet (3 to 115 meters).
Del Mar Mesa sand aster (*Corethrogyne filaginifolia* var. *linifolia*)	--/-- CRPR 1B.1 MSCP Covered	Perennial herb. Found on sandy soils and disturbed areas within southern maritime chaparral, coastal sage scrub, and coastal bluffs. Found in San Diego County. Flowering Period: May to September. Elevation: 45 to 490 feet (15 to 150 meters).
Gander's cryptantha (*Cryptantha ganderi*)	--/-- CRPRP 1B.1 County List A	Annual herb. Grows in desert dunes and sandy areas within Sonoran desert scrub. Found in Imperial and San Diego Counties. Flowering period: February to May. Elevation: 520 to 1310 feet (160 to 400 meters).
Wiggins' croton (*Croton wigginsii*)	--/SR CRPR 2B.2 County List C	Perennial shrub. Grows in sand dunes and sandy soils of desert scrub in the southeastern portion of Sonoran Desert. Found in Los Angeles, Riverside, Imperial, and San Diego Counties. Flowering period: February to June. Elevation: 65 to 900 feet (20 to 275 meters).
Snake cholla (*Cylindropuntia californica* var. *californica*)	--/-- CRPR 1B.1 County List A MSCP Covered NE	Perennial succulent. Occurs within coastal sage scrub and coastal chaparral communities in San Diego County. Flowering period: April to May. Elevation: 95 to 490 feet (30 to 150 meters).
pink teddy-bear cholla (*Cylindropuntia fosbergii*)	--/-- CRPRP 1B.3	Perennial succulent. Occurs within Sonoran desert scrub in San Diego County. Flowering period: March to May. Elevation: 275 to 2,790 feet (85 to 850 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Otay tarplant (*Deinandra conjugens*)	FT/SE CRPR 1B.1 County List A MSCP Covered NE	Annual herb. Grows in clay soils within coastal scrub openings and grasslands in San Diego County. Flowering period: May to June. Elevation: 80 to 985 feet (25 to 300 meters).
Tecate tarplant (*Deinandra floribunda*)	--/-- CRPR 1B.2 County List A	Annual herb. Occurs within coastal sage scrub and chaparral in San Diego County. Flowering period: August to October. Elevation: 225 to 4,005 feet (70 to 1,220 meters).
Mojave tarplant (*Deinandra mohavensis*)	--/SE CRPR 1B.3 County List A	Annual herb. Grows in mesic areas of coastal scrub, chaparral, and riparian scrub. Found in Inyo, Tulare, Keren, Los Angles, San Bernardino, Riverside, and northern San Diego Counties. Flowering period: June to October. Elevation: 2,095 to 5,250 feet (640 to 1,600 meters).
Paniculate tarplant (*Deinandra paniculata*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs in vernally mesic areas, sometimes sandy soils, in coastal scrub, valley and foothill grassland, and vernal pools with sandy soil. Found along the coastal regions from San Luis Obispo County south to San Diego County and east to western San Bernardino and Riverside Counties. Flowering Period: March to December. Elevation: 80 to 3,100 feet (25 to 940 meters).
Cuyamaca larkspur (*Delphinium hesperium* ssp. *cuyamacae*)	--/SR CRPR 1B.2 County List A	Perennial herb. Grows in vernal pools and other mesic areas of meadows and seeps and lower montane coniferous forests. Found in Riverside and San Diego Counties. Flowering period: May to July. Elevation: 4,000 to 5,350 feet (1,220 to 1,631 meters).
Colorado Desert larkspur (*Delphinium parishii* ssp. *Subglobosum*)	--/-- CRPR 4.3 County List D	Perennial herb. Occurs within chaparral, cismontane woodlands, pinyon-juniper woodland, and Sonoran desert scrub. Found in Riverside, Imperial, and San Diego Counties. Flowering period: March to June. Elevation: 1,970 to 5,905 feet (600 to 1,800 meters).
Western dichondra (*Dichondra occidentalis*)	--/-- CRPR 4.2 County List D	Perennial herb. Found among rocks and shrubs within grasslands, coastal sage scrub, chaparral, and oak woodlands. Often proliferates on recently burned slopes. Found along the coastal regions from San Luis Obispo County south to San Diego County. Flowering period: March to July. Elevation: 165 to 1,640 feet (50 to 500 meters).
Orcutt's bird's-beak (*Dicranostegia orcuttiana*)	--/-- CRPR 2B.1 County List B MSCP Covered	Annual herb. Found coastally within coastal sage scrub in San Diego County. Flowering period: April to July. Elevation: below 30 to 1,150 feet (10 to 350 meters).
Mt. Laguna aster (*Dieteria asteroides* var. *lagunensis)*	--/SR CRPR 2B.1 County List B	Perennial herb. Occurs within cismontane woodlands and lower montane coniferous forests in San Diego County. Flowering period: July to August. Elevation: 2,590 to 7,875 feet (790 to 2,400 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Arizona cottontop (*Digitaria californica* var. *california*)	--/-- CRPR 2B.3	Perennial herb. Grows on rocky hillsides within Mojave and Sonoran desert scrub. Found within San Bernardino, Imperial, and San Diego Counties. Flowering period: July to November. Elevation: below 5,250 feet (1,500 meters).
low bush monkeyflower (*Diplacus aridus*)	--/-- CRPR 4.3 County List D	Perennial shrub. Grows in rocky areas of chaparral and Sonoran desert scrub. Found within Imperial and San Diego Counties. Flowering period: April to July. Elevation: 2,460 to 3,940 feet (750 to 1,200 meters).
Cleveland's bush monkeyflower (*Diplacus clevelandii*)	--/-- CRPR 4.2 County List D	Perennial herb. Grows on rocky and gabbroic soils within openings of chaparral, cismontane woodland, and lower montane coniferous forests. Often in disturbed places. Found in Orange, Riverside and San Diego Counites. Flowering period: April to July. Elevation: 1,475 to 6,560 feet (450 to 2,000 meters).
California ditaxis (*Ditaxis serrata* var. *californica*)	--/-- CRPR 3.2 County List C	Perennial herb. Occurs within Sonoran desert scrub in San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: March to December. Elevation: feet 95 to 3,280 feet (30 to 1,00 meters).
Cuyamaca Lake downingia (*Downingia concolor* var. *brevior*)	--/SE CRPR 1B.1 County List A	Annual herb. Grows in vernal pools and other vernally mesic areas of meadows and seeps within San Diego County. Flowering period: May to July. Elevation: 3,375 to 4,920 feet (1,030 to 1,500 meters).
Orcutt's dudleya (*Dudleya attenuata* ssp. *attenuata*)	--/-- CRPR 2B.1 County List B	Perennial herb. Grows on rocky or gravelly soils within coastal bluff scrub, coastal scrub, and chaparral. Found in San Diego County. Flowering period: May to July. Elevation: 5 to 165 feet (3 to 50 meters).
Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*)	--/-- CRPR 1B.1 County List A MSCP Covered	Perennial herb succulent. Grows on open, rocky slopes, often on serpentine or clay dominated soils in coastal sage scrub and valley grassland communities. Found along the coast from San Luis Obispo south to San Diego County. Flowering period: April to June. Elevation: 15 to 1,475 feet (5 to 450 meters).
Santa Rosa Island dudleya (*Dudleya blochmaniae* ssp. *insularis*)	--/-- CRPR 1B.1	Perennial herb. Occurs within coastal bluff scrub of San Diego County and Santa Rosa Island. Flowering period: March to April. Elevation: 5 to 35 feet (3 to 10 meters).
Short-leaved dudleya (*Dudleya brevifolia*)	--/SE CRPR 1B.1 County List A MSCP Covered NE	Perennial herb. Occurs in open areas and sandstone bluffs of coastal scrub, maritime chaparral, and Torrey pine forest. Found in San Diego County. Flowering Period: April to May. Elevation: 95 to 820 feet (30 to 250 meters).
Many-stemmed dudlyea (*Dudleya multicaulis*)	--/-- CRPR 1B.2 County List A	Perennial herb. Found in clay soils and sandstone outcrops associated with coastal sage scrub, chaparral, and valley grasslands. Found in along the coastal regions from Los Angeles south to San Diego County, and western Riverside and San Bernardino Counties. Flowering Period: April to July. Elevation: 45 to 2,590 feet (15 to 790 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Variegated dudleya (*Dudleya variegata*)	--/-- CRPR 1B.2 County List A MSCP Covered NE	Perennial herb succulent. Occurs on clay soils of dry hillsides and mesas within chaparral, valley grassland, foothill woodland and coastal sage scrub communities. Found in San Diego County. Flowering period: April to June. Elevation: 5 to 1,905 feet (3 to 580 meters).
Sticky dudleya (*Dudleya viscida*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial herb. Occurs in rocky areas within coastal bluffs, coastal sage scrub, chaparral, and woodlands. Grows primarily on very steep north-facing slopes. Found in Orange, Riverside, and San Diego Counties. Flowering period: May to June. Elevation: 30 to 1,805 feet (10 to 550 meters).
Harwood's eriastrum (*Eriastrum harwoodii*)	--/-- CPRP 1B.2	Annual herb. Grows on desert dunes within San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: March to June. Elevation: 410 to 3,000 feet (125 to 915 meters).
Laguna Mountains goldenbush (*Ericameria cuneata* var. *macrocephala*)	--/-- CRPR 1B.3	Perennial shrub. Grows on granitic soils within chaparral in San Diego County. Flowering period: September to December. Elevation: 3,920 to 6,070 feet (3,920 to 6,070 meters).
Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*)	--/-- CRPR 1B.1 County List B MSCP Covered NE	Perennial Shrub. Grows in mesic areas within coastal sage scrub and chaparral in San Diego County. Flowering period: September to November. Elevation: 95 to 1,960 feet (30 to 600 meters).
sessile-leaved yerba stanta (*Eriodictyon sessilifolium*)	--/-- CRPR 1B.2 2B.1	Perennial shrub. Occurs within coastal sage scrub in San Diego County. Flowering period: July. Elevation: 560 feet (170 meters).
vanishing wild buckwheat (*Eriogonum evanidum*)	--/-- CRPR 1B.1 County List A	Annual herb. Grows in gravelly and sandy areas of chaparral, pinyon-juniper woodland, cismontane woodland, lower montane coniferous forests. Found in San Bernardino, Riverside, and San Diego Counties. Flowering period: July to October. Elevation: 3,605 to 7,300 feet (1,100 to 2,225 meters).
Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*)	--/-- CRPR 1B.1	Annual to perennial herb. Grows within vernal pools. Found in the San Francisco Bay and South Coast Ranges; not known from San Diego County. Flowering period: July. Elevation: 5 to 150 feet (3 to 45 meters).
San Diego button celery (*Eryngium aristulatum* var. *parishii*)	FE/SE CRPR 1B.1 County List A MSCP Covered	Annual or perennial herb. Grows in vernal pools and other mesic areas, such as marshes. Found in Los Angeles, Orange, Riverside, and San Diego Counties. Flowering period: April to June. Elevation: 65 to 2,035 feet (20 to 620 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Pendleton button-celery (*Eryngium pendletonense*)	--/-- CRPR 1B.1 County List A	Perennial herb. Grows in vernal pools and on clay soils within vernally mesic areas of grasslands and coastal bluff scrub. Found in San Diego County. Flowering period: April to June. Elevation: 45 to 360 feet (15 to 110 meters).
Sand-loving wallflower (*Erysimum ammophilum*)	--/-- CRPR 1B.2 MSCP Covered	Perennial herb. Found in open areas and sandy soils within coastal dunes, coastal strand, coastal sage scrub, and maritime chaparral. Found within northern Monterey County, San Diego County, and the northern Channel Islands. Flowering Period: February to June. Elevation: below 195 feet (60 meters).
Palomar monkeyflower (*Erythranthe diffusua*)	--/-- CRPR 4.3 County List D	Annual herb. Grows in sandy or gravelly areas within chaparral and lower montane coniferous forests. Found in Riverside, Orange, and San Diego Counties. Flowering period: April to June. Elevation: 4,000 to 6,005 feet (1,220 to 1,830 meters).
annual rock-nettle (*Eucnide rupestris*)	--/-- CRPR 2B.2 County List B	Annual herb. Occurs within Sonoran desert scrub in Imperial and San Diego Counites. Flowering period: December to April. Elevation: 1,640 to 1,970 feet (500 to 600 meters).
Abrams' spurge (*Euphorbia abramsiana*)	--/-- CRPR 2B.2	Perennial shrub. Grows in rocky areas of coastal bluffs, coastal sage scrub, and Mojave desert scrub. Found in San Bernardino, Riverside, Imperial and San Diego Counties. Flowering period: December to August. Elevation: below 4,300 feet (1,310 meters).
Arizona spurge (*Euphorbia arizonica*)	--/-- CRPR 2B.3 County List B	Perennial herb. Grows in sandy soils of Sonoran desert scrub. Found in Riverside, Imperial, and San Diego Counties. Flowering period: March to April. Elevation: 160 to 985 feet (50 to 300 meters).
Cliff spurge (*Euphorbia misera*)	--/-- CRPR 2B.2 County List B	Perennial shrub. Found in rocky areas of coastal bluffs, coastal sage scrub, and Mojave desert scrub. Found along in Riverside, Orange, and San Diego Counties and the Channel Islands. Flowering period: December to August. Elevation: 30 to 1,640 feet (10 to 500 meters).
Flat-seeded spurge (*Euphorbia platysperma*)	--/-- CRPR 1B.2 County List A	Annual herb. Grows on desert dunes and sandy areas within Sonoran desert scrub. Found in San Bernardino, Riverside, Imperial and San Diego Counties. Flowering period: February to September. Elevation: 210 to 330 feet (65 to 100 meters).
Revolute spurge (*Euphorbia revoluta*)	--/-- CRPR 4.3 County List D	Annual herb. Grows in rocky areas of Mojave desert scrub. Found in San Bernardino, Riverside, and San Diego Counties. Flowering period: August to September. Elevation: 3,590 to 10,170 feet (1,095 to 3,100 meters).
San Diego barrel cactus (*Ferocactus viridescens*)	--/-- CRPR 2B.1 County List B MSCP Covered	Perennial (stem succulent) shrub. Grows in sandy to rocky areas within chaparral, valley grassland and coastal sage scrub communities. Found in San Diego County Flowering period: May to June. Elevation: 5 to 492 feet (3 to 450 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Palmer's frankenia (*Frankenia palmeri*)	--/-- CRPR 2B.1 County List B	Perennial herb. Found in coastal salt marshes and swamps, playas, and coastal dunes. Found in San Diego County. Flowering period: May to July. Elevation: below 35 feet (10 meters).
Chaparral ash (*Fraxinus parryi*)	--/-- CRPR 2B.2	Perennial shrub. Grows in canyons, slopes, margins of mixed chaparral. Found I San Diego County. Flowering period: March to May. Elevation: 695 to 2,035 feet (213 to 20 meters).
Mexican flannelbush (*Fremontodendron mexicanum*)	FE/SR CRPR 1B.1 County List A	Perennial shrub. Occurs on gabbroic, metavolcanic, and serpentinite soils within chaparral, foothill woodland and closed-cone pine forest communities. Found in San Diego County. Flowering period: March to June. Elevation: 30 to 2,350 feet (10 to 716 meters).
Chocolate lily (*Fritillaria biflora* var. *biflora*)	--/-- County List D	Perennial herb. Grows on grassy slopes, mesas, and serpentine barrens. Found along the coastal regions from primarily form Mendocino County south to San Diego County. Flowering period: March to May. Elevation: below 4,265 feet (1,300 meters)
Roderick's chocolate lily (*Fritillaria roderickii*)	--/-- CRPR 1B.1	Perennial herb. Occurs within coastal prairies, grasslands, and coastal bluff scrub. Found along the coast form Mendocino County south to San Diego County. Flowering period: March to May. Elevation: 50 to 1,315 feet (15 to 400 meters).
Utah vine milkweed (*Funastrum utahense*)	--/-- CRPR 4.2 County List D	Perennial herb. Grows on gravelly or sandy soils within Mojave and Sonoran desert scrub. Found within San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: April to June. Elevation: feet 325 to 4,710 feet (100 to 1,435 meters).
Borrego bedstraw (*Galium angustifolium* ssp. *borregoense*)	--/SR CRPR 1B.3 County List A	Perennial herb. Grows in rocky areas of Sonoran desert scrub. Found in Imperial and San Diego Counties. Flowering period: March. Elevation: 1,145 to 4,100 feet (350 to 1,250 meters).
San Jacinto Mountains bedstraw (*Galium angustifolium* ssp. *jacinticum*)	--/-- CRPR 1B.3 County List A	Perennial herb. Grows in lower montane coniferous forests within Riverside and San Diego Counties. Flowering period: June to August. Elevation: 4,425 to 6,890 feet (1,350 to 2,100 meters).
desert bedstraw (*Galium proliferum*)	--/-- CRPR 2B.2	Annual herb. Grows on rocky, carbonate, and limestone soils within Joshua tree woodland, Mojave desert scrub, and pinyon-juniper woodland. Found within San Bernardino and San Diego Counties. Flowering period: March to June. Elevation: 3,900 to 5,350 feet (1,190 to 1,630 meters).
Fremont's gentian (*Gentiana fremontii*)	--/-- CRPR 2B.3	Annual herb. Grows in mesic areas of meadows and seeps and upper montane coniferous forests. Found within San Bernardino and San Diego Counties. Flowering period: June to August. Elevation: 7,870 to 8,860 feet (2,400 to 2,700 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Campbell's liverwort (*Geothallus tuberosus*)	--/-- CRPR 1B.1	Liverwort. Grows in vernal pools and mesic areas of coastal scrub. Found in Riverside and San Diego Counties. Flowering period: none. Elevation: 30 to 1,970 feet (10 to 600 meters).
sticky geraea (*Geraea viscida*)	--/-- CRPR 2B.2 County List B	Perennial herb. Often grows in disturbed areas of chaparral within Imperial and San Diego Counties. Flowering period: May to June. Elevation: 1,475 to 5,575 feet (450 to 1,700 meters).
El Paso gilia (*Gilia mexicana*)	--/-- CRPR 2B.3	Annual herb. Grows within pinyon-juniper woodland in San Diego County. Flowering period: May. Elevation: 4,840 feet (1,475 meters).
Mission Canyon bluecup (*Githopsis diffusa* ssp. *filicaulis*)	--/-- CRPR 3.1 County List C	Annual herb. Grows in mesic and disturbed areas within chaparral. Found in Riverside and San Diego Counties. Flowering period: April to June. Elevation: 1,475 to 2,300 feet (450 to 700 meters).
San Diego gumplant (*Grindelia hallii*)	--/-- CRPR 1B.2 County List A	Perennial herb. Typically occurs with sunny openings of chaparral and lower montane coniferous forests. Also grows in meadows and seeps, and grasslands. Prefers very wet locales in early spring, although such places usually dry quickly as spring turns to summer. Found in San Diego County Flowering Period: May to October. Elevation: 605 to 5,725 feet (185 to 1,745 meters).
Palmer's grapplinghook (*Harpagonella palmeri*)	--/-- CRPR 4.2 County List D	Annual herb. Found in clay soils in annual grasslands and coastal sage scrub. Flowering Period: March to May. Elevation: 65 to 3,100 feet (20 to 955 meters).
Orcutt's hazardia (*Hazardia orcuttii*)	--/ST CRPR 1B.1 County List A	Perennial shrub. Often grows on clay soils within coastal sage scrub and southern maritime chaparral. Found in San Diego County. Flowering period: August to October. Elevation: 260 to 280 feet (80 to 85 meters).
Algodones Dunes sunflower (*Helianthus niveus* ssp. *tephrodes*)	--/SE CRPR 1B.2	Perennial herb. Grows on desert dunes within Imperial and San Diego Counties. Flowering period: September to May. Elevation: 160 to 330 feet (50 to 100 meters).
curly herissantia (*Herissantia crispa*)	--/-- CRPR 2B.3 County List B	Annual to perennial herb. Occurs within Sonoran desert scrub in San Diego County. Flowering period: August to September. Elevation: 2,295 to 2,380 feet (700 to 725 meters).
Tecate cypress (*Hesperocyparis forbesii*)	--/-- CRPR 1B.1 County List A MSCP Covered	Perennial tree. Occurs within closed-cone coniferous forest and chaparral on clay, gabbroic, or metavolcanics soils. Found within Orange, Riverside, and San Diego Counties. Flowering period: none. Elevation: 260 o 4,920 feet (80 to 1,500 meters).
Cuyamaca cypress (*Hesperocyparis stephensonii*)	--/-- CRPR 1B.1 County List A	Perennial Tree. Grows on gabbroic soils within chaparral, riparian forests, cismontane woodland, and closed-cone coniferous forests in San Diego County. Flowering period: none. Elevation: 3,395 to 5,595 feet (1,035 to 1,705 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Beach goldenaster (*Heterotheca sessiliflora* ssp. *sessiliflora*)	--/-- CRPR 1B.1 County List D	Perennial herb. Occurs in coastal chaparral, coastal dunes, and coastal scrub. Found in San Bernardino and San Diego Counites. Flowering Period: March to December. Elevation: below 4,020 feet (1,225 meters).
Laguna Mountains alumroot (*Heuchera brevistaminea*)	--/-- CPRP 1B.3 County List A	Perennial herb. Occurs in rocky areas of chaparral, riparian forest, cismontane woodland, and upland forests. Found in San Diego County. Flowering period: April to July. Elevation: 4,490 to 6,560 feet (1,370 to 2,000 meters).
San Diego County alumroot (*Heuchera rubescens* var. *versicolor*)	--/-- CRPR 3.3 Count List B	Perennial herb. Occurs within rocky areas of chaparral and lower montane coniferous forests in San Diego County. Flowering period: May to June. Elevation: 4,920 to 13,125 feet (1,500 to 4,000 meters).
Graceful tarplant (*Holocarpha virgata* ssp. *elongata*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs in grasslands, coastal scrub, chaparral, and cismontane woodland. Found along the southern coast of California and Peninsular Ranges. Flowering period: May to November. Elevation: 195 to 3,600 feet (60 to 1,100 meters).
Vernal barley (*Hordeum intercedens*)	--/-- CRPR 3.2 County List C	Annual herb. Occurs in vernal pools, alkaline flats, and dry, saline streambeds. Also found in saline flats and depressions within grasslands. Found in the San Joaquin Valley, South Coast and Peninsular Ranges, San Jacinto Mountains, and southern coast of California. Flowering period: March to June. Elevation: below 3,280 feet (1,000 meters).
Mesa horkelia (*Horkelia cuneata* var. *puberula*)	--/-- CRPR 1B.1 County List A	Perennial herb. Occurs in sandy or gravelly soils of maritime chaparral, coastal sage scrub, and woodlands. Found along the southern coast of California, Coast and Peninsular Ranges, and San Jacinto mountains. Flowering Period: February to July. Elevation: 225 to 2,655 feet (70 and 810 meters).
Ramona horkelia (*Horkelia truncata*)	--/-- CRPR 1B.3 County List A	Perennial herb. Occurs on clay and gabbroic soils within chaparral and woodlands in San Diego County. Flowering period: May to June. Elevation: 1,310 to 4,265 feet (400 to 1,300 meters).
Newberry's velvet-mallow (*Horsfordia newberryi*)	--/-- CRPR 4.3 County List D	Perennial shrub. Occurs within rocky areas of Sonoran desert scrub in Riverside, Imperial, and San Diego Counties. Flowering period: February, April, November, December. Elevation: below 2,625 feet (800 meters).
Otay Mountain lotus (*Hosackia crassifolia* var. *otayensis*)	--/-- CRPR 1B.1 County List A	Perennial herb. Occurs on metavolcanic soils within chaparral; often in disturbed areas. Found in San Diego County. Flowering period: May to August. Elevation: 1,245 to 3,295 feet (380 to 1,005 meters).
San Diego sunflower (*Hulsea californica*)	--/-- CRPR 1B.3 County List A	Perennial herb. Occurs within openings and burned areas of chaparral and montane coniferous forests. Found in Riverside and San Diego Counties. Flowering period: April to June. Elevation: 3,000 to 9,565 feet (915 to 2,915 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Mexican hulsea (*Hulsea mexicana*)	--/-- CRPR 2B.3 County List B	Annual to Perennial herb. Occurs within volcanic soils of chaparral, often on burns or disturbed areas. Found in Imperial and San Diego Counites. Flowering period: April to June. Elevation: 3,395 feet (1,200 meters).
Beautiful helsea (*Hulsea vestita* ssp. *callicarpha*)	--/-- CRPR 4.2 County List D	Perennial herb. Grows on rocky, gravelly, and granitic soils within chaparral and cismontane woodland. Found in Riverside and San Diego Counties. Flowering period: May to October. Elevation: 3,000 to 10,005 feet (915 to 3,050 meters).
Wright's hymenothrix (*Hymenothrix wrightii*)	--/-- CPRP 4.3 County List D	Perennial herb. Occurs within grasslands, cismontane woodland, and lower montane coniferous forests within San Diego County. Flowering period: June to October. Elevation: 4,595 to 5,085 feet (1,400 to 1,550 meters).
slender-leaved ipomopsis (*Ipomopsis tenuifolia*)	--/-- CRPR 2B.3 County List B	Perennial herb. Grows on rocky or gravelly soils within chaparral, Sonoran desert scrub, and pinyon-juniper woodland. Found in Imperial and San Diego Counties. Flowering period: March to May. Elevation: 325 to 3,935 feet (100 to 1,200 meters).
Decumbent goldenbush (*Isocoma menziesii* var*. decumbens*)	--/-- CRPR 1B.2 County List A	Perennial shrub. Occurs in sandy soil and disturbed areas on the inland side of dunes, hillsides, and arroyos within coastal sage scrub and chaparral communities. Found in along the coast of southern California, Peninsular Ranges, and Channel Islands. Flowering period: July to November. Elevation: below 656 feet (200 meters).
San Diego marsh-elder (*Iva hayesiana*)	--/-- CRPR 2B.2 County List B	Perennial herb. Found in alkaline flats, depressions, and streambanks within wetland communities in San Diego County. Flowering period: April to October. Elevation: 30 to 1,640 feet (10 to 500 meters).
Ribbed cryptantha (*Johnstonella costata*)	--/-- CRPR 4.3 County List D	Annual herb. Grows on desert dunes and sandy areas within Mojave and Sonoran desert scrub. Found in Inyo, San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: February to May. Elevation: below 1,640 feet (500 meters).
Winged cryptantha (*Johnstonella holoptera*)	--/-- CRPR 4.3 County List D	Annual herb. Grows within Mojave and Sonoran desert scrub. Found in Inyo, San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: March to April. Elevation: 325 to 5,545 feet (100 to 1,690 meters).
Southern California black walnut (*Juglans californica*)	--/-- CRPR 4.2 County List D	Perennial tree. Grows in alluvial soils within coast sage scrub, chaparral, riparian woodlands, and cismontane woodlands. Found along the southern California coast; Coast , western Transverse, and Peninsular Ranges; and San Gabriel and San Jacinto mountains. Flowering period: March to August. Elevation: 165 to 2,955 feet (50 to 900 meters).
Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)	--/-- CRPR 4.2 County List D	Perennial herb. Found in moist saline environments such as alkaline seeps and meadows, and coastal salt marshes and swamps. Found along the coastal regions from San Luis Obispo south to San Diego County. Flowering period: May to June. Elevation: below 984 feet (300 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Cooper's rush (*Juncus cooperi*)	--/-- CRPR 4.3 County List D	Perennial herb. Occurs within mesic, alkaline, and saline meadows and seeps. Found within Inyo, San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: April to May. Elevation: 850 to 5,810 feet (260 to 1,770 meters).
Santa Lucia dwarf rush (*Juncus luciensis*)	--/-- CRPR 1B.2	Annual herb. Found on wet, sandy soils of seeps, meadows, streams, and roadsides. Also occurs within vernal pools. Found in northeastern California in the Cascade and northern Sierra Nevada Ranges, Modoc Plateau, and Warner Mountains; and along the Coast, Transverse and Peninsular Ranges of central and southern California. Flowering period: April to July. Elevation: 980 to 6,695 feet (300 to 2,040 meters).
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	--/-- CRPR 1B.1 County List A	Annual herb. Grows in vernal pools, playas, and saline habitats within alkali sinks, coastal salt marshes, and wetland communities. Found along the Coast, Sierra Nevada, and Peninsular Ranges; Sacramento and San Joaquin Valleys; central and southern coasts; Mojave Desert, and north Channel Islands. Flowering period: April to May. Elevation: below 4,005 feet (1,220 meters).
Pride-of-California (*Lathyrus splendens*)	--/-- CRPR 4.3 County List D	Perennial herb. Found within chaparral. Found along the coast and Peninsular Ranges of southern California. Flowering period: March to June. Elevation: 650 to 5,000 feet (200 to 1,525 meters).
heart-leaved pitcher sage (*Lepechinia cardiophylla*)	--/-- CRPR 1B.2 County List A MSCP Covered NE	Perennial shrub. Occurs within chaparral, cismontane woodland, and close-cone coniferous forests within Orange, Riverside, and San Diego Counties. Flowering period: April to July. Elevation: 1,705 to 4,495 feet (520 to 1,370 meters).
Gander's pitcher sage (*Lepechinia ganderi*)	--/-- CRPR 1B.3 County List A MSCP Covered NE	Perennial shrub. Occurs on gabbroic or metavolcanic soils within coastal sage scrub, chaparral, coniferous forest, and grasslands in San Diego County. Flowering period June to July. Elevation: 1,000 to 3,295 feet (305 to 1,005 meters).
Blair Valley pepper-grass (*Lepidium flavum* var. *felipense*)	--/-- CRPR 1B.2 County List A	Annual herb. Grows in sandy areas of Sonoran desert scrub and pinyon-juniper woodland in San Diego County. Flowering period: March to May. Elevation: 1,490 to 2,755 feet (455 to 840 meters).
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	--/-- CRPR 4.3 County List A	Annual herb. Grows in openings of sage scrub and chaparral at the coastal and foothill elevations throughout California. Typically observed in relatively dry, exposed locales rather than beneath a shrub canopy. Also, found in disturbed areas. Flowering period: March to June. Elevation: below 9,186 feet (2,800 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Santa Rosa Mountains leptosiphon (*Leptosiphon floribundus* ssp. *hallii*)	--/-- CRPR 1B.3 County List A	Perennial herb. Occurs within Sonoran desert scrub and pinyon-juniper woodland in Riverside and San Diego Counties. Flowering period: May to July. Elevation: 3,280 to 6,560 feet (1,000 to 2,000 meters).
Sea dahlia (*Leptosyne maritima*)	--/-- CRPR 2B.2 County List B	Perennial herb. Occurs within coastal scrub and coastal bluffs scrub in San Diego County. Flowering period: March to May. Elevation: below 490 feet (150 meters).
Warner Springs lessingia (*Lessingia glandulifera* var. *tomentosa*)	--/-- CRPR 1B.1 County List A	Annual herb. Grows in sandy areas of chaparral in San Diego County. Flowering period: August and October. Elevation: 2,850 to 4,005 feet (870 to 1,220 meters).
short-sepaled lewisia (*Lewisia brachycalyx*)	--/-- CRPR 2B.2 County List B	Perennial herb. Grows in meadows and seeps and mesic areas of lower montane coniferous forests. Found in San Bernardino and San Diego Counties. Flowering period: April to June. Elevation: 4,490 to 7,545 feet (1,370 to 2,300 meters).
ocellated Humboldt litly (*Lilium humboldtii* ssp. o*cellatum*)	--/-- CRPR 4.2 County List D	Perennial herb. Grows in openings of coastal scrub, chaparral, riparian woodlands, cismontane woodland, and coniferous forests. Found along the coastal regions from Santa Barbara County south to San Diego County, western Riverside and San Bernardino Counties, and the northern Channel Islands. Flowering period: March to July. Elevation: 98 to 5,905 feet (30 to 1,800 meters).
lemon lily (*Lilium parryi*)	--/-- CRPR 1B.2 County List A	Perennial herb. Occurs within meadows and seeps and mesic areas of riparian forests and montane coniferous forests. Found in the San Gabriel, San Bernardino, and San Jacinto mountains, and western Transverse and Peninsular Ranges. Flowering period: July to August. Elevation: 4,000 to 9,005 feet (1,220 to 2,745 meters).
Parish's meadowfoam (*Limnanthes alba* ssp. *parishii*)	--/SE CRPR 1B.2 County List A	Annual herb. Occurs within vernal mesic areas including vernal pools and meadows and seeps. Found within the Riverside and San Diego Counties. Flowering period: April to June. Elevation: 1,965 to 6,560 feet (600 to 2,000 meters).
desert beauty (*Linanthus bellus*)	--/-- CRPR 2B.1 County List B	Annual herb. Occurs within sandy areas of chaparral in San Diego County. Flowering period: April to May. Elevation: 3,280 to 4,595 feet (1,000 to 1,400 meters).
Jacumba Mountains linanthus (*Linanthus maculatus* ssp. *emaculatus*)	--/-- CRPR 1B.1	Annual herb. Occurs on the edges of desert dunes and Sonoran desert scrub. Associated with sandy or course, opaque-white, decomposed granite soils of washes and on flats near wash margins. Found in Imperial and San Diego Counites. Flowering period: April. Elevation 1,295 to 1,920 feet (395 to 585 meters).
Orcutt's linanthus (*Linanthus orcuttii*)	--/-- CRPR 1B.3 County List A	Annual herb. Grows in the openings of chaparral, lower montane coniferous forests, and pinyon-juniper woodland. Found within the Mojave and Sonoran Deserts, San Jacinto Mountains, and Peninsular Ranges. Flowering period: May to June. Elevation: 3,000 to 7,035 feet (915 to 2,145 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Mountain Springs bush lupine (*Lupinus albifrons* var. *medius*)	--/-- CRPR 1B.3 County List A	Perennial shrub. Occurs within Sonoran desert scrub and pinyon-juniper woodland. Found within San Diego and Imperial Counties. Flowering period: March to May. Elevation: 1,390 to 4,495 feet (425 to 1,370 meters).
California box-thorn (*Lycium californicum*)	--/-- CRPR 4.2 County List D	Perennial shrub. Occurs within coastal bluff and coastal sage scrub. Found along the coast from Los Angeles County south to San Diego County, western Riverside and San Bernardino Counties, and the Channel Islands. Flowering period: March to August. Elevation: below 495 feet (150 meters).
Parish's desert-thorn (*Lycium parishii*)	--/-- CRPR 2B.3 County List B	Perennial shrub. Occurs within coastal scrub and Sonoran desert scrub. Found within San Bernardino, Riverside, San Diego, and Imperial Counties. Flowering period: March to April. Elevation: 440 to 3,280 feet (135 to 1,000 meters).
Palmer's lyrepod (*Lyrocarpa coulteri*)	--/-- CRPR 4.3 County List D	Perennial herb. Grows in gravelly or rocky areas within Sonoran desert scrub. Found in Imperial and San Diego Counties. Flowering period: December to April. Elevation: 390 to 2,610 feet (120 to 795 feet).
Indian Valley bush-mallow (*Malacothamnus aboriginum*)	--/-- CRPR 1B.2 County List A	Perennial shrub. Occurs in rocky and granitic soils within chaparral and cismontane woodland. Often occurs in burned areas. Found within around the San Francisco Bay area and Monterey, and San Diego Counties. Flowering period: April to October. Elevation: 490 to 5,580 feet (150 to 1,700 meters).
brown turbans (*Malperia tenuis*)	--/-- CRPR 2B.3 County List B	Annual herb. Occurs on sandy or gravelly soils within Sonoran desert scrub. Found within San Diego and Imperial Counties. Flowering period: March to April. Elevation: 45 to 1,100 feet (15 to 335 meters).
Spearleaf (*Matelea parvifolia*)	--/-- CRPR 2B.3 County List B	Perennial herb. Occurs within rocky areas of Mojave and Sonoran desert scrub. Found within San Bernardino, Riverside, San Diego, and Imperial Counties. Flowering period: March to May. Elevation: 1,440 to 3,595 feet (440 to 1,095 meters).
hairy stickleaf (*Mentzelia hirsutissima*)	--/-- CRPR 2B.3 County List B	Annual herb. Occurs within rocky soils of Sonoran desert scrub. Found in San Diego and Imperial Counties. Flowering period: March to May. Elevation: below 2,295 feet (700 meters).
spiny-hair blazing star (*Mentzelia tricuspis*)	--/-- CRPR 2B.1	Annual herb. Grows on sandy or gravelly slopes and washes within Mojave desert scrub. Found within the Mojave and Sonoran Deserts and desert mountains. Flowering period: March to May. Elevation: 490 to 4,200 feet (150 to 1,280 meters).
creamy blazing star (*Mentzelia tridentata*)	--/-- CRPR 1B.3	Annual herb. Grows on sandy, gravelly, or rocky soils within Mojave desert scrub. Found within the Mojave Desert and desert mountains. Flowering period: March to May. Elevation: 2,295 to 3,855 feet (700 to 1,175 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Small-flowered microseris (*Microseris douglasii* ssp. *platycarpha*)	--/-- CRPR 4.2 County List D	Annual herb. Found on clay soils within coastal sage scrub, woodlands, and grasslands. Often near vernal pools or serpentine outcrops. Found within Los Angeles, Orange, Riverside, and San Diego Counties and the Channel Islands. Flowering period: March to May. Elevation: 49 to 3,510 feet (15 to 1,070 meters).
slender-lobed four o'clock (*Mirabilis tenuiloba*)	--/-- CRPR 4.3 County List D	Perennial herb. Occurs within Sonoran desert scrub within San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: March to May. Elevation: 755 to 3,595 feet (230 to 1,095 meters).
intermediate monardella (*Monardella hypoleuca* ssp. *intermedia*)	--/-- CRPR 1B.3	Perennial herb. Usually occurs within the understory of chaparral, cismontane woodland, and lower montane coniferous forests within Orange, Riverside, and San Diego Counties. Flowering period: April to September. Elevation: 1,310 to 4,100 feet (400 to 1,250 meters).
Felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial herb. Occurs on rocky, granitic slopes or hilltops within chaparral and woodlands. Found within Orange and San Diego Counties. Flowering period: June to August. Elevation: 980 to 5,165 feet (300 to 1,575 meters).
Hall's monardella (*Monardella macrantha* ssp. *hallii*)	--/-- CRPR 1B.3 County List A	Perennial herb. Occurs within grasslands, chaparral, woodlands, and forests. Found in the San Bernardino and San Jacinto Mountains, and Peninsular Ranges of southern California. Flowering period: June to October. Elevation: 2,395 to 7,200 feet (730 to 2,195 meters).
San Felipe monardella (*Monardella nana* ssp. *leptosiphon*)	--/-- CRPR 1B.2 County List A	Perennial herb. Occurs within chaparral and lower montane coniferous forests within Riverside and San Diego Counties. Flowering period: June to July. Elevation: 3,935 to 6,085 feet (1,200 to 1,855 meters).
Jennifer's monardella (*Monardella stoneana*)	--/-- CRPR 1B.2 County List A	Perennial herb. Usually grows in rocky intermittent streambeds within coastal scrub, chaparral, riparian scrub, or close-cone coniferous forests. Found within San Diego County. Flowering period: June to September. Elevation: 30 to 2,590 feet (10 to 790 meters).
Willowy monardella (*Monardella viminea*)	FE/SE CRPR 1B.1 County List A MSCP Covered NE	Perennial herb. Associated with riparian scrub, usually at sandy locales in seasonally dry washes. Generally, there is no canopy cover and river cobbles may lie in close proximity. Found in San Diego County Flowering period: June to August. Elevation: 160 to 740 feet (50 to 225 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
California spineflower (*Mucronea californica*)	--/-- CRPR 4.2 County List D	Annual herb. Grows in sandy areas of coastal dunes, grasslands, coastal scrub, chaparral, and cismontane woodland. Found along the central and southern coasts; San Francisco Bay area; South Coast, western Transverse, and Peninsular Ranges; San Gabriel, San Bernardino, and San Jacinto mountains; and Channel Islands. Flowering period: March to July. Elevation: below 4,595 feet (1,400 meters).
appressed muhly (*Muhlenbergia appressa*)	--/-- CRPR 2B.2	Annual herb. Grows on rocky soils in grasslands, coastal scrub, and Mojave desert scrub. Found in San Bernardino, Riverside, and San Diego Counties and the Channel Islands. Flowering period: April to May. Elevation: 65 to 5,250 feet (20 to 1,600 meters).
Little mousetail (*Myosurus minimus* ssp. *apus*)	--/-- CRPR 3.1 County List C	Annual herb. Occurs in alkaline vernal pools within native grassland. Flowering period: March to June. Found within San Joaquin Valley south to San Diego County and east to western Riverside and San Bernardino Counties. Elevation: 65 to 2,100 feet (20 to 640 meters).
Mud nama (*Nama stenocarpa*)	--/-- CRPR 2B.2 County List B	Annual herb. Occurs in intermittently wet areas such as streambanks and muddy lake edges. Found in the San Joaquin Valley, southern coast, Peninsular Ranges, Sonoran Desert, and Channel Islands. Flowering period: January to July. Elevation: 15 to 1,640 feet (5 to 500 meters).
Gambel's water cress (*Nasturtium gambelii*)	FE/ST CRPR 1B.1 County List A	Perennial herb. Occurs within freshwater or brackish marshes and swamps. Found along the central and southern coasts from the San Francisco Bay area south to San Diego County. Flowering period: April to October. Elevation: 15 to 1,085 feet (5 to 330 feet).
Spreading navarretia (*Navarretia fossalis*)	FT/-- CRPR 1B.1 County List A	Annual herb. Occurs in vernal pools, vernal swales, roadside depressions, playas, marshes and swamps, and chenopod scrub. Population size is strongly correlated with rainfall. Depth of pool appears to be a significant factor as this species is rarely found in shallow pools. Found in the Mojave Desert, desert mountains, Channel Islands, and the Transverse and Peninsular Ranges. Flowering period: April to June. Elevation: 98 to 4,265 feet (30 to 1,300 meters).
Baja navarretia (*Navarretia peninsularis*)	--/-- CRPR 1B.2 County List A	Annual herb. Grows within the openings of chaparral, meadows and seeps, lower montane coniferous forest, and pinyon-juniper woodland. Found in the Tehachapi, San Gabriel, San Bernardino, and San Jacinto mountains, and the western Transverse and Peninsular Ranges. Flowering period: June to August. Elevation: 4,920 to 7,545 feet (1,500 to 2,300 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Prostrate navarretia (*Navarretia prostrata*)	--/-- CRPR 1B.1 County List A MSCP covered	Annual herb. Occurs in mesic soil within vernal pools in coastal scrub, meadows, seeps, valleys, and foothill grasslands. Grows at mid-levels within the deeper pools to the basin bottoms of the shallower pools. Found in along the central and southern coasts, San Francisco Bay Area, San Joaquin Valley, and the South Coast and Peninsular Ranges. Flowering period: April to July. Elevation: 5 to 3,970 feet (3 to 1,210 meters).
Coast woolly-heads (*Nemacaulis denudata* var. *denudata*)	--/-- CRPR 1B.2 County List A	Annual herb. Occurs within coastal dunes; seems to prefer the back dunes in mildly protected areas. Flowering Period: April to September. Elevation: below 330 feet (100 meters).
slender cottonheads (*Nemacaulis denudata* var. *gracilis*)	--/-- CRPR 2B.2 County List B	Annual herb. Grows on desert dunes and sandy areas of Sonoran desert scrub within San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: April to May. Elevation: below 1,310 feet (400 meters).
Twisselmann's nemacladus (*Nemacladus twisselmannii*)	--/SR CRPR 1B.2	Annual herb. Grows on sandy, rocky, granitic soils within upper montane coniferous forests. Found in Tulare, southern San Luis Obispo, and San Diego Counties. Flowering period: July. Elevation: 7,345 to 8,040 feet (2,240 to 2,450 meters).
chaparral nolina (*Nolina cismontana*)	--/-- CRPR 1B.2 County List A	Perennial shrub. Grows on sandstone or gabbro soils within coastal scrub and chaparral. Found in the coastal regions of southern California from Ventura south to San Diego County and extreme western Riverside County. Flowering period: May to July. Elevation: 455 to 4,185 feet (140 to 1,275 meters)
Dehesa nolina (*Nolina interrata*)	--/SE CRPR 1B.1 County List A MSCP Covered NE	Perennial herb. Grows on gabbroic, metavolcanics, or serpentine soils within chaparral. Found in San Diego County. Flowering period: June to July. Elevation: 605 to 2,805feet (185 to 855 meters).
California adder's-tongue (*Ophioglossum californicum*)	--/-- CRPR 4.2 County List D	Perennial herb. Grows on the marginals of vernal pools and mesic areas within grasslands and chaparral. Found within the Sacramento and San Joaquin Valleys, Sierra Nevada and Peninsular Ranges, and along the central and southern coasts. Flowering period: January to June. Elevation: 195 to 1,725 feet (60 to 525 meters)
California Orcutt grass (*Orcuttia californica*)	FE/SE CRPR 1B.1 County List A MSCP Covered	Annual herb. Occurs in vernal pools. Tends to grow in wetter portions of the vernal pool basins but does not show much growth until the basins become somewhat desiccated. Found in the coastal regions of southern California from Ventura County south to San Diego county and in western Riverside County. Flowering period: April to August. Elevation: 45 to 2,165 feet (15 to 660 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Baja California birdbush (*Ornithostaphylos oppositifolia*)	--/SE CRPR 2B.1 County List B	Perennial shrub. Grow in chaparral within San Diego County. Flowering period: January to April. Elevation: 180 to 2,625 feet (55 to 800 meters).
short-lobed broomrape (*Orobanche parishii* ssp. *brachyloba*)	--/-- CRPR 4.2 County List D	Perennial (parasitic) herb. Grows on shrubs such as *Isocoma menziesii* found on sandy oils within coastal dunes, coastal buff scrub, and coast scrub. Found within southwestern San Diego County and Channel Islands. Flowering period: April to October. Elevation: below 1,000 feet (305 meters).
Gander's ragwort (*Packera ganderi*)	--/SR CRPR 1B.2 County List A MSCP Covered	Perennial herb. Occurs on gabbroic soils within the understory of chaparral and recently burned chaparral slopes. Found in Riverside and San Diego Counties. Flowering period: April to June. Elevation: 1,310 to 3,935 feet (400 to 1,200 meters).
Baja pectocarya (*Pectora peninsularis*)	--/-- County List D	Annual herb. Grows in washes, roadsides, and clearings within Sonoran desert scrub. Found within San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: February to April. Elevation: 98 to 985 feet (30 to 300 meters).
San Jacinto beardtongue (*Penstemon clevelandii* var. *connatus*)	--/-- CRPR 4.3 County List D	Perennial herb. Occurs within rocky areas of chaparral, pinyon-juniper woodland, and Sonoran desert scrub. Found within Riverside, Imperial, and San Diego Counties. Flowering Period: March to May. Elevation: 1,310 to 4,925 feet (400 to 1,500 meters)
Thurber's beardtongue (*Penstemon thurberi*)	--/-- CRPR 4.2 County List D	Perennial herb. Occurs within chaparral, Joshua tree woodland, pinyon-juniper woodland, and Sonoran desert scrub. Found within San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering Period: May to July. Elevation: 1,640 to 4,005 feet (500 to 1,220 meters)
Golden-rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*)	--/-- CRPR 4.2 County List D	Annual herb. Occurs in grassy areas within coastal scrub, chaparral, cismontane woodland, lower montane coniferous forest, riparian woodland. Found within Riverside and San Diego Counties. Flowering period: March to July. Elevation: 260 to 6,100 feet (80 and 1,850 meters).
Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*)	--/-- CRPR 4.2 County List D	Perennial herb. Grows in vernal pools and other vernally mesic places within grasslands, chaparral, and upland forests. Found along the coast and the North Coast Ranges in northwestern California. Flowering period: June to October. Elevation: below 2,000 feet (610 feet).
narrow-leaf sandpaper-plant (*Petalonyx linearis*)	--/-- CRPR 2B.3	Perennial shrub. Grows in sandy or rocky canyons within Mojave and Sonoran desert scrub. Found within San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering Period: March to May. Elevation: below 3,660 feet (1,115 meters)
Santiago Peak phacelia (*Phacelia keckii*)	--/-- CRPR 1B.3	Annual herb. Occurs within chaparral and closed-cone coniferous forests within Orange, Riverside, and San Diego Counties. Flowering period: May to June. Elevation: 1,780 to 5,250 feet (545 to 1,600 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Brand's star phacelia (*Phacelia stellaris*)	--/-- CRPR 1B.1 County List A	Annual herb. Occurs in sandy openings within coastal dunes and coastal scrub. Found within Los Angeles, Orange, and San Diego Counties, and western San Bernardino and Riverside Counties. Flowering Period: March to June. Elevation: below 1,310 feet (400 meters).
Arizona pholistoma (*Pholistoma auritum* var. *arizonicum*)	--/-- CRPR 2B.3	Annual herb. Grows within Mojave desert scrub within San Bernardino, Imperial, and San Diego Counties. Flowering period: March. Elevation: 900 to 2,740 feet (275 to 835 meters).
Thurber's pilostyles (*Pilostyles thurberi*)	--/-- CRPR 4.3 County List D	Perennial (parasitic) herb. Occurs within Sonoran desert scrub within Riverside, Imperial, and San Diego Counties. Grows inside the stems of *Psorothamnus*, especially *P. emoryi*; flowers on the stems of its host. Flowering period: December to April. Elevation: below 1,200 feet (365 meters).
Torrey pine (*Pinus torreyana* ssp. *torreyana*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial evergreen tree. Grows on sandstone soils within chaparral and closed-cone coniferous forest. Found in San Bernardino and San Diego Counties. Flowering period: none. Elevation: 95 to 525 feet (30 to 160 meters).
Chaparral rein orchid (*Piperia cooperi*)	--/-- CRPR 4.2 County List D	Perennial herb. Typically grows on dry sites within grasslands, chaparral, and cismontane woodland. Found along the coast, San Gabriel and San Jacinto Mountains, Peninsular Ranges of southern California and the Channel Islands. Flowering period: March to June. Elevation: 50 to 5,200 feet (15 to 1,585 meters).
Narrow-petaled rein orchid (*Piperia leptopetala*)	--/-- CRPR 4.3 County List D	Perennial herb. Grows on generally dry sites within cismontane woodland and coniferous forests. Found in the Coast, Klamath, Cascade, and Sierra Nevada Ranges and associated foothills; Tehachapi mountains; San Francisco Bay area; South Coast, western Transverse, and Peninsular Ranges; and the San Gabriel, San Bernardino, and San Jacinto mountains. Flowering period: May to July. Elevation: feet (380 to 2,225 meters).
San Bernardino blue grass (*Poa atropurpurea*)	FE/-- CRPR 1B.2 County List A	Perennial herb. Occurs within mesic areas of meadows and seeps within San Bernardino and San Diego Counties. Flowering Period: April to August. Elevation: 4,460 to 8,055 feet (1,360 to 2,455 meters).
San Diego mesa mint (*Pogogyne abramsii*)	FE/SE CRPR 1B.1 County List A MSCP Covered	Annual herb. Occurs within vernal pools of San Diego County. Flowering period: March to July. Elevation: 295 and 665 feet (90 to 200 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Otay mesa mint (*Pogogyne nudiuscula*)	FE/SE CRPR 1B.1 County List A MSCP Covered	Annual herb. Grows in vernal pools of San Diego County. Flowering period: May to July. Elevation: 295 to 820 feet (90 to 820 meters).
thorny milkwort (*Polygala acanthoclada*)	--/-- CRPR 2B.3	Perennial shrub. Occurs within chenopod scrub, Joshua tree woodland, and pinyon-juniper woodland. Found in San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: May to August. Elevation: 2,490 to 7,495 feet (760 to 2,285 meters).
Fish's milkwort (*Polygala cornuta* var. *fishiae*)	--/-- CRPR 4.3 County List D	Perennial shrub. Occurs within chaparral and oak woodlands. Found along the coastal regions from Santa Barbara County south to San Diego County. Flowering period: May to August. Elevation: 320 to 3,280 feet (100 to 1,000 meters).
desert unicorn plant (*Proboscidea althaeifolia*)	--/-- CRPR 4.3 County List D	Perennial herb. Grows on gently sloping sandy flats and washes within Sonoran desert scrub. Found in San Bernardino, Riverside, Imperial, and San Diego Counties. Flowering period: May to September. Elevation: 275 to 3,280 feet (85 to 1,000 meters)
White rabbit-tobacco (*Pseudognaphalium leucocephalum*)	--/-- CRPR 2B.2 County List B	Perennial herb. Occurs on sandy or gravelly soils of benches, dry stream bottoms, and canyon bottoms within coastal scrub, chaparral, cismontane woodland, and riparian woodland. Found within southern California from Ventura County south to San Diego County and western Riverside and San Bernardino Counties. Flowering period: July to November. Elevation: below 6,890 feet (2,100 meters).
Deep Canyon snapdragon (*Pseudorontium cyathiferum*)	--/-- CRPR 2B.3	Annual herb. Found in rocky areas of Sonoran desert scrub within Riverside, Imperial, and San Diego Counties. Flowering period: February to April. Elevation: below 2,625 feet (800 meters).
Cedros Island oak (*Quercus cedrosensis*)	--/-- CRPR 2B.2 County List B	Perennial tree. Occurs within closed-cone coniferous forest, chaparral, and coastal scrub of San Diego County. Flowering period: April to May. Elevation: 835 to 3,150 feet (255 to 960 meters).
Nuttall's scrub oak (*Quercus dumosa*)	--/-- CRPR 1B.1 County List A	Perennial shrub. Occurs on sandy or clay loam soils near the coast within coastal scrub, chaparral, cismontane woodland, and riparian woodland. Found along the coast, San Jacinto Mountains, and Peninsular Ranges of southern California. Flowering period: March to May. Elevation: below 1,310 feet (400 meters).
Engelmann oak (*Quercus engelmannii*)	--/-- CRPR 4.2 County List D	Perennial tree. Occurs on slopes and foothills within grasslands, chaparral, oak woodland, and riparian woodlands. Found from Los Angeles County south to San Diego County, western Riverside and San Bernardino Counties, and the Channel Islands. Flowering period: March to June. Elevation: 160 to 4,300 feet (50 to 1,300 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
single-leaved skunkbrush (*Rhus aromatica* var. *simplicifolia*)	--/-- CRPR 2B.3 County List B	Perennial shrub. Occurs on granitic soils within pinyon-juniper woodlands of San Diego County. Flowering Period: March to April. Elevation: 4,000 to 4,495 feet (1,220 to 1,370 meters).
Moreno currant (*Ribes canthariforme*)	--/-- CRPR 1B.3 County List A	Perennial shrub. Occurs within chaparral and riparian scrub. Flowering period: February to April. Elevation: 1,115 to 3,935 feet (340 to 1,200 meters).
Santa Catalina Island currant (*Ribes viburnifolium*)	--/-- CRPR 1B.2 County List A	Perennial shrub. Occurs in chaparral and cismontane woodland. Found in southwestern San Diego County and the Channel Islands. Flowering period: February to April. Elevation: 95 to 1,150 feet (30 to 350 meters).
Coulter's matilija poppy (*Romneya coulteri*)	--/-- CRPR 4.2 County List D	Perennial herb. Occurs in dry washes and canyons coastal scrub chaparral, often in burned areas. Fond along the coastal regions from San Luis Obispo County south San Diego County and east to western Riverside and San Bernardino Counties. Flowering period: March to August. Elevation: 65 to 3,900 feet (20 to 1,200 meters).
small-leaved rose (*Rosa minutifolia*)	--/SE CRPR 2B.1 County List B MSCP Covered	Perennial shrub. Occurs within coastal sage scrub and chaparral of San Diego County. Flowering period: January to June. Elevation: 490 to 525 feet (150 to 160 meters).
Cuyamaca raspberry (*Rubus glaucifolius* var. *ganderi*)	--/-- CRPR 3.1 County List A	Perennial shrub. Occurs on gabbroic soils within lower montane coniferous forests in San Diego County. Flowering period: May to June. Elevation: 3,935 to 5,495 feet (1,200 to 1,675 meters).
Parish's California tea (*Rupertia rigida*)	--/-- CRPR 4.3 County List D	Perennial herb. Occurs within pebble plan, grasslands, meadows and seeps, chaparral, cismontane woodland, and lower montane coniferous forests. Found in Los Angeles, San Bernardino, Riverside, and San Diego Counties. Flowering period: 2,295 to 8,205 feet (700 to 2,500 meters).
desert sage (*Salvia eremostachya*)	--/-- CRPR 4.3 County List D	Perennial shrub. Grows on gravelly or rocky soils within Sonoran desert scrub. Found in Riverside and San Diego Counties. Flowering period: March to May. Elevation: feet 2,295 to 4,595 feet (700 to 1,400 meters).
Munz's sage (*Salvia munzii*)	--/-- CRPR 2B.2 Count List B	Perennial shrub. Occurs within chaparral and coastal scrub of San Diego County. Flowering period: February to April. Elevation: 370 and 3,500 feet (115 to 1,065 meters).
southern mountains skullcap (*Scutellaria bolanderi* ssp. *austromontana*)	--/-- CRPR 1B.2 County List A	Perennial herb. Occurs in mesic areas of chaparral, cismontane woodland, and lower coniferous forests from Los Angeles County south to San Diego and east to Riverside and San Bernardo counties. Flowering period: June to August. Elevation: 1,390 to 6,560 feet (200 to 1,295 feet).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
blueish spike-moss (*Selaginella asprella*)	--/-- CRPR 4.3 County List D	Perennial herb. Grows on rocky and granitic soils within cismontane woodland, coniferous forests, and pinyon-juniper woodland. Found in Tulare, Kern, Los Angeles, Orange, San Diego, Riverside, and San Diego Counties. Flowering period: July. Elevation: 5,250 to 8,860 feet (1,600 to 2,700 meters).
Ashy spike-moss (*Selaginella cinerascens*)	--/-- CRPR 4.1 County List D	Perennial herb. Grows in sunny spots or under shrubs within coastal sage scrub and chaparral. Often associated with "red clay" soils. Found in coastal regions from southern Los Angeles County south to San Diego County. Flowering period: none. Elevation: below 1,804 feet (550 meters).
desert spike-moss (*Selaginella eremophila*)	--/-- CRPR 2B.2 County List B	Perennial herb. Occurs in gravelly or rocky areas of chaparral and Sonoran desert scrub. Found in Riverside and San Diego Counties. Flowering period: May to July. Elevation: 655 to 4,250 feet (200 to 1,295 meters).
Chaparral ragwort (*Senecio aphanactis*)	--/-- CRPR 2B.2 County List B	Annual herb. Occurs on alkali flats and dry, open, rocky areas within grasslands, coastal scrub, and cismontane woodland. Found along the coastal regions from San Francisco Bay south to San Diego County and eastern Riverside and San Bernardino Counties. Flowering period: February to May. Elevation: 45 to 2,625 feet (15 to 800 meters).
Coves' cassia (*Senna covesii*)	--/-- CRPR 2B.2 County List B	Perennial herb. Occurs in dry, sandy desert washes and slopes within Sonoran desert scrub. Found in eastern San Bernardino County southwest to eastern San Diego County. Flowering Period: March to June (August). Elevation: 735 to 4,250 feet (225 to 1,295 meters).
Hammitt's clay-cress (*Sibaropsis hammittii*)	--/-- CRPR 1B.2 County List A	Annual herb. Occurs on clay soils grasslands and openings of chaparral. Found within Riverside and San Diego Counties. Flowering period: March to April. Elevation: 2,360 to 3,495 feet (720 to 1,065 feet).
Salt spring checkerbloom (*Sidalcea neomexicana*)	--/-- CRPR 2B.1 County List B	Perennial herb. Occurs within chaparral, lower montane coniferous woodland, Mojave desert scrub, playas, and coastal scrub Found within Mojave Desert and desert mountains, and along the coast and Transverse and Peninsular Ranges of southern California. Flowering period: March to June. Elevation: 50 and 5,020 feet (15 to 1,530 meters).
Purple nightshade (*Solanum xanti*)	--/-- MSCP Covered	Perennial herb or shrub. Occurs within coastal scrub, chaparral, oak and pine woodlands, and coniferous forests. Found along the entire coast of California; Klamath, North and South Coast Ranges; Sierra Nevada, western Transverse, and Peninsular Ranges; Tehachapi, San Gabriel, San Bernardino, and San Jacinto Mountains and the Channel Islands. Flowering period: February to June. Elevation: below 8,860 feet (2,700 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Hellhole scaleseed (*Spermolepis infernensis*)	--/-- CRPR 1B.2 County List B	Annual herb. Grows on sandy or rocky soils within Sonoran desert scrub in San Diego County. Flowering period: March to April. Elevation: 750 to 2,200 feet (230 to 670 meters).
western bristly scaleseed (*Spermolepis lateriflora*)	--/-- CRPR 2A County List B	Annual herb. Grows on sandy or rocky soils within Sonoran desert scrub within San Diego and Los Angeles Counties. Flowering period: March to April. Elevation: 1,195 to 2,200 feet (365 to 670 meters).
bottle liverwort (*Sphaerocarpos drewei*)	--/-- CRPR 1B.1	Liverwort. Occurs in the opening of coastal scrub and chaparral within Riverside and San Diego Counties. Flowering period: none. Elevation: 295 to 1,970 feet (90 to 600 meters).
prairie wedge grass (*Sphenopholis obtusata*)	--/-- CRPR 2B.2	Perennial herb. Occurs in wet meadows, streambanks, and ponds. Found in the Sierra Nevada, White and Inyo Mountains, and great basin region of central-east California and along the south coast, San Bernardino Mountains, and Peninsular Ranges of southern California. Flowering period: April to July. Elevation: 980 to 6,560 feet (300 to 2,000 meters).
Purple stemodia (*Stemodia durantifolia*)	--/-- CRPR 4.2 County List B	Perennial herb. Grows on wet sand or rocks and drying streambeds within riparian habitats. Found in the San Jacinto Mountains and Peninsular Ranges of southern California and Sonoran Desert. Flowering period: year-round. Elevation: 590 to 985 feet (180 to 300 meters).
Laguna mountain jewelflower (*Streptanthus bernardinus*)	--/-- CRPR 4.3 County List D	Perennial herb. Occurs within chaparral and lower montane coniferous forests in San Bernardino, Riverside, and San Diego Counties. Flowering period: May to August. Elevation: 2,200 to 8,200 feet (670 to 2,500 meters).
southern jewelflower (*Streptanthus campestris*)	--/-- CRPR 1B.3 County List A	Perennial herb. Occurs in open, rocky areas of chaparral, lower montane coniferous forests, and pinyon-juniper woodlands. Found in the western Transverse and Peninsular Ranges, and San Gabriel, San Bernardino, and San Jacinto Mountains of southern California. Flowering period: April to July. Elevation: 2,950 to 7,545 feet (900 to 2,300 meters).
San Diego County needle grass (*Stipa diegoensis*)	--/-- CRPR 4.2 County List D	Perennial herb. Occurs in rocky, mesic soils near streams or along the coast within coastal scrub and chaparral. Found in Santa Barbara, Orange, and San Diego Counties and the Channel Islands. Flowering period: February to June. Elevation: 30 to 2,600 feet (10 and 800 meters).
Oil neststraw (*Stylocline citroleum*)	--/-- CRPR 1B.2 County List A	Annual herb. Occurs on clay soils within coastal scrub, chenopod scrub, valleys, and foothill grasslands. Found in western Kern County and southern San Diego County. Flowering Period: March to April. Elevation: 160 and 1,310 feet (50 to 1,310 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
Estuary seablite (*Suaeda esteroa*)	--/-- CRPR 1B.2 County List A	Perennial herb. Found in coastal salt marshes and swamps from Ventura County south to San Diego County. Flowering period: May to October. Elevation: below 15 feet (5 meters).
Woolly seablite (*Suaeda taxifolia*)	--/-- CRPR 4.2 County List D	Shrub. Occurs in the margins of coastal salt marshes, coastal dunes, and coastal bluff scrub from San Luis Obispo County south San Diego County. Flowering period: all year. Elevation: below 49 feet (15 meters).
San Bernardino aster (*Symphyotrichum defoliatum*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial herb. Occurs near ditches, streams, and springs within grasslands, meadows, coastal scrubs, cismontane woodland, and lower montane coniferous forests. Also grows in disturbed areas. Found in southern California from San Luis Obispo County south to San Diego County and east to Kern and western San Bernardino and Riverside Counties. Flowering period July to November. Elevation: 2 to 6,695 feet (2 to 2,040 meters).
Parry's tetracoccus (*Tetracoccus dioicus*)	--/-- CRPR 1B.2 County List A MSCP Covered	Perennial shrub. Occurs on dry slopes within coastal sage scrub and chaparral within southern Orange County and San Diego County. Usually, conditions are quite xeric with only limited annual growth. Flowering period: April to May. Elevation: 540 to 3,280 feet (165 to 1,000 meters).
velvety false lupine (*Thermopsis californica* var. *semota*)	--/-- CRPR 1B.2 County List A	Perennial herb. Occurs within meadows and seeps, grasslands, cismontane woodlands, and lower montane coniferous forests within San Diego County. Flowering period: March to June. Elevation: 3,280 to 6,135 feet (1,000 to 1,870 meters).
rigid fringepod (*Thysanocarpus rigidus*)	--/-- CRPR 1B.2	Annual herb. Grows on dry rocky slopes within pinyon-juniper woodlands. Found in southern California from Los Angeles County south to San Diego County and east into San Bernardino County. Flowering period: February to May. Elevation: 1,965 to 7,200 feet (600 to 2,220 meters).
California screw-moss (*Tortula californica*)	--/-- CRPR 1B.2	Moss. Occurs within sandy soils of grasslands and chenopod scrub. Found within southern California from Kern County south to San Diego County and the Channel Islands. Flowering period: none. Elevation 30 to 4,790 feet (10 to 1,460 meters).
coastal triquetrella (*Triquetrella californica*)	--/-- CRPR 1B.2	Moss. Found within coastal bluff scrub and coastal scrub. Mainly found along the coast from Del Norte County south to San Mateo County; also reported from San Diego County. Flowering period: none. Elevation: 30 to 330 feet (10 to 100 meters).
La Purisima viguiera (*Viguiera purisi*mae)	--/-- CRPR 2B.3 County List A	Perennial shrub. Occurs within coastal bluff scrub and chaparral of the Peninsular Ranges. Found on Marine Corps Air Station Camp Pendleton in northwestern San Diego County. Flowering period: April to September. Elevation: 1,195 to 1,395 feet (365 to 425 meters).

Appendix A (cont.)
Special Status Plant Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habit, Ecology and Life History
golden violet (*Viola purpurea* ssp. *aurea*)	--/-- CRPR 2B.2 County List B	Perennial herb. Occurs on sandy slopes within great basin scrub and pinyon-juniper woodland. Found within the Mojave Desert, desert mountains, White and Inyo Mountains, and east of the Sierra Nevada. Flowering period: April to June. Elevation: 3,280 to 8,200 feet (1,000 to 2,500 meters).
Palmer's jackass clover (*Wislizenia refracta* ssp. *palmeri*)	--/-- CRPR 2B.2	Perennial shrub. Grows in sandy washes and desert dunes within chenopod scrub and Sonoran desert scrub. Found within San Diego and Riverside Counties. Flowering period: January to December. Elevation: below 985 feet (300 meters).
Rush-like bristleweed (*Xanthisma junceum*)	--/-- CRPR 4.3 County List D	Perennial herb. Grows on dry hillsides within coastal sage scrub and chaparral within San Diego County. Flowering period: May to January. Elevation: 785 to 3,280 feet (240 to 1,000 meters).
Orcutt's woody-aster (*Xylorhiza orcuttii*)	--/-- CRPR 1B.2 County List A	Perennial herb. Occurs in arid canyons and baren slopes within creosote bush scrub and Sonoran desert scrub. Found within eastern San Diego County and western Imperial County with scattered individuals reported from Riverside County. Flowering Period: March to April. Elevation: below 1,200 feet (365 meters).

[1] Listing codes as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; R = Rare

CRPR = California Native Plant Society Rare Plant Rank: 1A – presumed extirpated in California and either rare or extinct elsewhere; 1B – rare, threatened, or endangered in California and elsewhere; 2A – presumed extirpated in California, but more common elsewhere; 2B – rare, threatened, or endangered in California, but more common elsewhere; 3 – more information needed; 4 – watch list for species of limited distribution. Extension codes: .1 – seriously endangered; .2 – moderately endangered; .3 – not very endangered.

County of San Diego Sensitivity Status: Plant species are divided into Lists A through D on the County Rare Plant List. **Lists A and B** Plants include those that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met. **Lists C and D** Plants include those species that are becoming less common but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types.

MSCP Covered Species: Covered Species under County of San Diego Multiple Species Conservation Plan (MSCP) Subarea Plan; NE = Narrow Endemic Species.

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Appendix B

Special Status Animal Species with Potential to Occur within the VCP Service Area

Appendix B
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
INVERTEBRATES		
Peninsular Ranges metalmark (*Apodemia virgulti peninsularis*)	--/-- County Group 1	Found within the San Jacinto Mountains in Riverside County and the Laguna and Palomar Mountains of San Diego County. Occurs within large, open, dry meadows areas surrounding by sparse Jeffrey pine forest.
Palomar banana slug (*Ariolimax columbianus stramineus*)	--/-- County Group 2	Small, isolated southern-most population found in the Palomar Mountain Range of San Diego County, specifically within Palomar Mountain State Park. Occurs within moist forests habitats seeking shelter beneath trees and detritus.
Crotch bumble bee (*Bombus crotchii*)	--/SCE	Found throughout southwestern California from the Central Valley south to the U.S./Mexico border. Inhabits open grasslands and scrub habitats. Primarily nests underground and forages on a wide variety of flowers, but a short tongue renders it best suited to open flowers with short corollas. Most commonly observed on flowering species in the Fabaceae, Asteraceae, and Lamiaceae families. Occurrence has also been linked to habitats containing *Asclepias, Chaenactis, Lupinus, Medicago, Phacelia,* and *Salvia* genera.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT/--	Restricted to cool water vernal pools or other ephemeral basins from Tehama County in northern California south to the Central Valley. Disjunct populations also found within Riverside County and the Coastal Ranges. Though found over a large geographical range, has a sporadic distribution and is seldom abundant where found, especially where it co-occurs with other large branchiopod species.
San Diego fairy shrimp (*Branchinecta sandiegonensis*)	FE/-- County Group 1 MSCP Covered NE	Restricted to vernal pools and other ephemeral basin in southern California from coastal Orange County south to San Diego County. Found in seasonally astatic pools which occur in tectonic swales or earth slump basins and other areas of shallow, standing water often in patches of grassland and agriculture interspersed in coastal sage scrub and chaparral.
Belkin's dune tabanid fly (*Brennania belkini*)	--/-- County Group 2	Found within sand dunes of California.
Thorne's hairstreak (*Callophrys gryneus thornei*)	--/-- County Group 1 MSCP Covered NE	Occupies Tecate cypress forests, which larvae exclusively feed upon. Tecate cypress (*Hesperocyparis forbesii*) is a relict species from a time when southern California's climate was cooler and wetter. There are five remaining populations of the species, all are located in the Otay Mountain wilderness of southern San Diego County.
Western tidal-flat tiger beetle (*Cicindela gabbii*)	--/-- County Group 2	Occurs on mudflats and dry saline flats of estuaries along the southern California coast.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
INVERTEBRATES (cont.)		
Sandy beach tiger beetle (*Cicindela hirticollis gravida*)	--/-- County Group 2	Found in moist sand near the ocean, such as swales behind dunes or upper beaches above the average high tide, along the immediate coast of California from Marin County south to San Diego County.
Western beach tiger beetle (*Cicindela latesignata latesignata*)	--/-- County Group 2	Inhabits mudflats and beaches in coastal San Diego County.
Senile tiger beetle (*Cicindela senilis frosti*)	--/-- County Group 2	Occurs within western California, as far north as Sonoma and Lake Counties, south San Diego County. Currently known in from only a few protected coastal populations and two interior population (one near Lake Elsinore in western Riverside County and one near Jacumba in San Diego County). Occurs in coastal salt marshes and tidal mud flats, as well as interior mud flats.
Mudflat tiger beetle (*Cicindela trifasciata sigmoidea*)	--/-- County Group 2	Occurs along the Pacific coast of southern California. Most common at salt water-edge habitats close the coast but also found in tidal mudflats, marshes, bays, and inlets. Can occur hundred of miles inland in freshwater environments.
Sandy beach tiger beetle (*Cicindela hirticollis gravida*)	--/-- County Group 2	Limited to sandy beaches along the Pacific coast within southern California.
Oblivious tiger beetle (*Cicindela latesignata obliviosa*)	--/-- County Group 2	Occurs along the coast of southern California occupying salt marshes, mud flats, and other estuarine habitats, usually near beaches.
Globose dune beetle (*Coelus globosus*)	--/-- County Group 1	Occurs in low beach foredunes and coastal strand. Lives and feeds on dead vegetation that accumulates in sand under plants. Cannot survive under dune grass (*Ammophila arenaria*).
Monarch (*Danaus plexippus*)	--/-- County Group 2	Population west of the Rocky Mountains migrates to, and overwinters, along the coast of central and southern California. Inhabits a wide variety of open habitats including fields, meadows, marshes, and roadsides and roosting on wind-protected tree groves (such as eucalyptus [*Eucalyptus* spp.], Monterey pine [*Pinus radiata*], cypress [*Hesperocyparis* sp.]), with nectar and water sources nearby. Breeds in areas that have a suitable abundance of their host plant, milkweed (*Asclepias* sp.).

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
INVERTEBRATES (cont.)		
Quino checkerspot butterfly (*Euphydryas editha quino*)	FE/-- County Group 1 NE	Occurs in California from western Riverside County southwards to southern San Diego County. Inhabits open and sparsely vegetated areas that contain larval host plant species (principally dot-seed plantain [*Plantago erecta*], woolly plantain [*Plantago patagonia*] but also Coulter's snapdragon [*Antirrhinum coulterianum*], Chinese houses [*Collinsia* spp.], and rigid bird's beak [*Cordylanthus rigidus*]) and nectar sources. Often found on rounded hilltops, ridgelines, and occasionally rocky outcrops. Occurs within a wide range of open-canopied habitats including vernal pools, sage scrub, chaparral, grassland, and open oak and juniper woodland communities.
Harbison's dun skipper (*Euphyes vestris harbisoni*)	--/-- County Group 1 NE	Occurs in the foothills of San Diego County, extreme western Riverside County, and southern Orange County. Prefers oak woodlands but is also found within chaparral or riparian areas that have narrow canyons or drainages where the species host plant, San Diego sedge (*Carex spissa*), is found. Generalist feeder with a preference for milkweeds and thistle. Nectaring resources include morning glory (*Calystegia macrostegia*), red thistle (*Cirsium occidentale*), loosestrife (*Lythrum californicum*), and less frequently golden yarrow (*Eriophyllum confertiflorum*) and black mustard (*Brassica nigra*).
Mesa shoulderedband snail (*Helminthoglypta traskii*)	--/-- County Group 2	Only known from a few locations in coastal San Diego County. Found beneath bark and rotten logs, in rock slides, and among coastal vegetation.
Hilda Blue (*Icaricia saepiolus hilda*)	--/-- County Group 1	Occurs near streams and in wet meadows within Orange, San Bernardino, Riverside, and San Diego Counties.
California linderiella (*Linderiella occidentalis*)	--/-- County Group 1	Currently known to occur in a wide range of vernal pool habitats in the Central Valley and Coast Ranges of California as far north as Shasta County and as far south as Monterey County with isolated occurrences in Santa Barbara and Ventura Counties. Likely historically present in available vernal pool habitats in Riverside, Los Angeles, Ventura, and Orange Counties. Found within vernal pools up to elevations of 3,800 feet.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
INVERTEBRATES (cont.)		
Hermes copper butterfly (*Lycaena hermes*)	FC/-- County Group 1	Found in coastal sage scrub and southern mixed chaparral habitats of San Diego County where mature specimens of its larval host plant, spiny redberry (*Rhamnus crocea*), are present. Ranges from Pine Valley west to the coastal mesas of southwestern San Diego County, and northeast towards Bonsall. Appears to utilize redberry stands growing in deeper, well drained soils of canyon bottoms and north-facing hillsides. Nectaring resources include California buckwheat (*Eriogonum fasciculatum*), chamise (*Adenostoma fasciculatum*), and California sunflower (*Encelia californica*), among others. Typically, a sedentary species with limited movement capabilities.
Harbinson's giant skipper (*Megathymus yuccae harbisoni*)	--/-- County Group 2	Occurs throughout San Diego County extending north into Riverside County and east to the eastern slopes of the Santa Rosa Mountains. Occurs within dry desert scrubs and chaparral on east facing slopes where their host plant, yucca (*Hesperoyucca* spp.; *Yucca* ssp.), is present.
Two-tailed tiger swallowtail (*Papilio multicaudata pusillus*)	--/-- County Group 1	Found near streams in dry montane canyons within Tulare, Kern, San Bernardino, Ventura, Los Angeles, Imperial, and San Diego Counties.
Wandering (saltmarsh) skipper (*Panoquina errans*)	--/-- County Group 1 MSCP Covered	Occurs along coastal southern California. Inhabits salt marshes that contain its larval host plant salt grass (*Distichlis spicata)*. May be observed on ocean bluffs, salt marshes, or open areas along the ocean.
Robinson's rain scarab beetle (*Phobetus robinsoni*)	--/-- County Group 2	Only known from three localities in San Diego (Scissor's crossing) and Orange County (O'Neill Park and Laguna Beach).
Alkali skipper (*Pseudocopaeodes eunus eunus*)	--/-- County Group 1	Occurs within riparian areas where host plant, salt grass, is present. Nectars on heliotrope (*Heliotropium* spp.) flowers. Currently found near the South Fork of the Kern River. Previously documented along the Mojave River near Victorville in San Bernardino County and Puite Ponds in Los Angeles County. Extirpated from San Diego County.
Laguna Mountains skipper (*Pyrgus ruralis lagunae*)	FE/--	Historically found in meadow habitats of the Laguna and Palomar Mountains of San Diego County. Currently known from four occurrences on Palomar Mountain: Doane Valley, French Valley, Mendenhall Valley, and the Pine Hills. Occurs in bare to open mountain meadows with sufficient populations of the species' primary larval host plant, Cleveland's horkelia (*Horkelia clevelandii*).

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
INVERTEBRATES (cont.)		
Riverside fairy shrimp (*Streptocephalus woottoni*)	FE/-- County Group 1 MSCP Covered NE	In California, occurs from Los Angeles County south to coastal San Diego County, and east to western Riverside County. Found in deep seasonal vernal pools, ephemeral ponds, stock ponds, and other human modified depressions at least 30 centimeters deep. Associated with grasslands, which may be interspersed through chaparral or coastal sage scrub vegetation.
Blaisdell trigonoscuta weevil (*Trigonoscuta blaisdelli*)	--/-- County Group 2	Occurs within coastal, inland, and desert dunes of California.
Mimic tryonia (*Tryonia imitator*)	--/-- County Group 2	Very small water snail occurring along coastal California from Sonoma County south to San Diego County. Inhabits brackish waters of coastal lagoons, creeks, sloughs, and marshes.
VERTEBRATES		
Fish		
Desert pupfish (*Cyprinodon macularius*)	FE/SE County Group 2	In California, historically occurred in several springs, seeps and slow-moving streams in the Salton Sink Basin, as well as in backwaters and sloughs along the lower Colorado River. Naturally occurring populations are currently restricted to the Salton Sea and nearby shoreline pools, freshwater ponds, and irrigation drains, as well as in portions of creeks and washes that are tributary to the Salton Sea. Habitats generally consist of shallow, clear water with soft substrates found within springs, small streams, shoreline pools, irrigation drains and ditches, and pond margins at elevations below 5,200 feet.
Tidewater goby (*Eucyclogobius newberryi*)	FE/SSC County Group 1 NE	Occurs along the California coast from Tillas Slough near the Oregon border south to Agua Hedionda Lagoon in northern San Diego County. Inhabits discrete locations of brackish water including coastal lagoons, estuaries, and estuaries, typically where water is less than one meter deep. Generally, occupies habitat in the upper estuary within the fresh-saltwater interface, though may occur upstream a short distance into freshwater.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Fish (cont.)		
Unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*)	FE/SE, FP County Group 2	Historically found throughout the Los Angeles, San Gabriel, and Santa Ana Rivers, but have since been extirpated from much of its former range. Currently restricted to three localities: (1) upper Santa Clara River and associated tributaries in northern Los Angeles County; (2) San Antonio Creek drainage on Vandenberg Air Force Base in Santa Barbara County; and (3) Shay Creek vicinity including Shay Pond, Sugarloaf Pond, Juniper Springs, Motorcycle Pond, Shay Creek, Wiebe Pond, and Baldwin Lake in San Bernardino County. Transplanted population (moved from Soledad Canyon in Los Angeles County in 1981) occurs in eastern San Diego County along San Felipe Creek. Inhabits slow-moving reaches and creeks preferring areas shaded by vegetation.
Arroyo chub (*Gila orcutti*)	--/SSC County Group 1	Found in streams and rivers of southern California including the Los Angeles, San Gabriel, San Luis Rey, Santa Ana, and Santa Margarita Rivers, Malibu, and San Juan Creeks. Historic range has been expanded through the introduction to streams along the coast as far north as Chorro Creek in San Luis Obispo County. Additional introductions have occurred within the Santa Ynez, Ventura, Santa Maria, Cuyama, Santa Clara, and Mojave River systems. Habitats include slow-moving or backwater environments with mud or sand substrates, though can also occur in pools habitats with gravel, cobble, or boulder substrates.
Rainbow trout - steelhead form (*Oncorhynchus mykiss irideus*)	FE/-- County Group 1	This distinct population segment includes naturally occurring populations inhabiting coastal stream networks from the Santa Maria River system in Santa Barbara County south to the U.S./Mexico Border. Highly migratory species travelling from the ocean to freshwater lakes and streams where individuals spawn and then migrate back to the ocean. Offspring typically spend time rearing within freshwater for one to three years before migrating to the ocean where they spend several more years maturing before returning to freshwater to spawn. Requires cool water free of contaminants, places to rest and hide from predators, and rearing and migration corridors which allow for passage to various habitats required to complete their life cycle. Adults exhibit high site fidelity migrating to their natal streams to spawn, though some individuals stray from their non-natal streams. Individuals may also complete their life history cycle (incubating, hatching, rearing, maturing, reproducing, and dying) completely in freshwater.
Mohave tui chub (*Siphateles bicolor mohavensis*)	FE/SE, FP	Endemic to the Mojave River in San Bernardino and Kern Counties. Inhabits deep pools and slough-like areas. Extirpated from much of its former range, currently occurring in highly modified refuge sites in San Bernardino County.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Amphibians		
Arroyo toad (*Anaxyrus californicus*)	FE/SSC County Group 1 MSCP Covered NE	Inhabits low gradient, medium to large streams and rivers with intermittent and perennial flow in coastal and desert drainages of central and southern California. Breeding habitat specialists that require slow-moving streams composed of sandy soils with sandy streamside terraces. In some areas, may occupy first-order streams, although most populations inhabit second-sixth-order streams that have extensive braided channels and sediment deposits of sand, gravel, or pebbles that are occasionally redistributed by flooding. Utilizes shallow pools (at least 1-inch deep) for breeding, egg-laying, and tadpole development. Vulnerable to habitat destruction and alteration due to changes in hydrology, including construction of dams and water diversions, and further impacted by the presence of non-native predators such as American bullfrog (*Lithobates catesbeianus*).
Desert slender salamander (*Batrachoseps major aridus*)	FE/SE County Group 1	Rare species historically known from only two canyons in Riverside County: Hidden Palm Canyon located within the Santa Rosa Mountains, and Guadalupe Canyon located in the San Jacinto Mountains National Monument area. Lungless amphibian that requires adequate moisture to absorb all the oxygen it needs through its skin. Inhabits rock crevices and holes in moist soils of canyon walls, and the talus on the canyon floor during wetter months. Associated with shaded areas that do not get much direct sunlight.
Large-blotched ensatina (*Ensatina eschscholtzii klauberi*)	--/WL County Group 1	Occurs in the Peninsular Ranges of southern California and part of the eastern San Bernardino Mountains. Lungless amphibian that conducts respiration through its skin and the tissues lining the mouth which requires them to live in damp environments. Suitable habitat includes moist shaded forests and woodlands with lots of coarse woody debris. Typically found beneath rocks, logs, and other debris, especially peeled off bark.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Amphibians (cont.)		
California red-legged frog (*Rana draytonii*)	FT/SSC County Group 1 MSCP Covered NE	Has been extirpated from 70 percent of its former range within California which historically included coastal drainages from Marin County south to San Diego County, and isolated drainages in the Sierra Nevada, northern Coast Ranges, and northern Transverse Ranges at elevations below 5,000 feet. Currently known from only a few drainages in the Sierra Nevada foothills. In southern California, has been extirpated from the Los Angeles area south to the U.S./Mexican border; only known population in Los Angeles County is in San Francisquito Canyon on the Angeles National Forest. Inhabits a variety of aquatic habitats including sheltered backwaters of ponds, marshes, springs, streams, and reservoirs. Optimal habitat consists of deep pools with dense stands of overhanging willows (*Salix* spp.) bordered by cattails (*Typha* spp.).
Southern mountain yellow-legged frog (*Rana muscosa*)	FE/SE, WL County Group 1	Historically found within creeks and drainages in the San Gabriel, San Bernardino, San Jacinto, and Palomar Mountains of Los Angeles, San Bernardino, Riverside, and San Diego counties at elevations between 1,200 and 7,500 feet. Extirpated from much of its former range and is currently known to occupy only nine locations within the San Gabriel, San Bernardino, and San Jacinto Mountains. Inhabits rocky and shaded streams with an open to semi-open riparian canopy. Individuals most often found in drainages with permanent (perennial) water in at least some portion of the reach. Occupied streams vary from having steep gradients with numerous pools, rapids, and small waterfalls, to low gradients with slow flows, marshy edges, and sod banks. Favors large clear pools up to three feet deep.
Western spadefoot toad (*Spea hammondii*)	--/SSC County Group 2	Occurs from northern California southward to San Diego County, west of the Sierra Nevada, at elevations below 4,500 feet. Terrestrial species requiring temporary pools for breeding. Suitable upland habitats include coastal sage scrub, chaparral, and grasslands. Most common in grasslands with vernal pools or mixed grassland-coastal sage scrub areas. Breeds in temporary pools formed by heavy rains but may also be found in riparian habitats with suitable water resources. Breeding pools must lack exotic predators such fish, bullfrogs, and crayfish for the species to successfully reproduce. Estivates in burrows within upland habitats adjacent to potential breeding sites.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Amphibians (cont.)		
California newt (*Taricha torosa*)	--/SSC County Group 2	Found along the coast and coastal range mountains from Mendocino County south to San Diego County; species endemic to California. Populations appear to be highly fragmented. An isolated population occurs in the southern Sierra Nevada from the Kaweah River in Tulare County south to Breckenridge Mountain in northern Kern County. Inhabits wet forests, oak woodlands, grasslands, and chaparral at elevations below 4,200 feet.
Reptiles		
Southwestern Pond Turtle (*Actinemys pallida*)	--/SSC County Group 1 MSCP Covered NE	In California, occurs in most major coast-facing drainages below 4,700 feet from the San Francisco Bay area south to San Diego County, including the Mojave River (San Bernardino County) and Andreas Canyon (Riverside County). Habitat generalist that occurs within many types of aquatic habitats from freshwater to brackish environments and permanent to intermittent waterbodies. Inhabit creeks, slow moving rivers, marshes, ponds, lakes, reservoirs, vernal pools, canals and even sewage treatment plants. Prefers habitats with slow flowing water, particularly where basking sites (such as rocks, downed logs, or emergent vegetation), deep water retreats, and egg laying areas are readily available. Leaves water and travels to surrounding upland habitats to nest, over-winter, and aestivate.
San Diegan legless lizard (*Anniella stebbinsi*)	--/SSC County Group 2	Found throughout southern California from the Transverse Ranges south to the U.S./Mexico border. Occurs in sparsely vegetated areas with moist warm, loose soil with plant cover; moisture is essential. Common in several habitats but especially in beach dunes, coastal scrub, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces. Found primarily in areas with sandy or loose organic soils or where there is plenty of leaf litter. Sometimes found in suburban gardens.
California glossy snake (*Arizona elegans occidentalis*)	--/SSC	Occurs along the coastal regions of California from San Francisco south to San Diego County; though it is absent along the central coast. Inhabits arid scrub, rocky washes, grasslands, and chaparral. Prefers open areas and areas with soils loose enough for easy burrowing.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Reptiles (cont.)		
Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*)	--/WL County Group 2 MSCP Covered	Found within the southwestern portion of California in southern San Bernardino, western Riverside, Orange, and San Diego Counties on the western slopes of the Peninsular Ranges at elevations below 3,500 feet. Suitable habitat includes coastal sage scrub, chaparral, juniper woodland, oak woodland, and grasslands along with alluvial fan scrub and riparian areas. Occurrence of the species correlated with the presence perennial plants which provides a food base for its major food source, termites.
San Diego tiger whiptail (*Aspidoscelis tigris stejnegeri*)	--/SSC County Group 2	Occurs along the coastal region of southern California from San Luis Obispo south to San Diego County. Inhabits a wide variety of habitats, primarily in hot and dry open areas with sparse vegetation, from sea level up to 4,900 feet. Suitable habitat includes coastal sage scrub, chaparral, riparian areas, woodlands, and rocky areas with sandy or gravelly substrates.
Green Sea Turtle (*Chelonia mydas)*	FT/--	Found world-wide in tropical waters but uncommon along the California coast. More often seen along the California coast during El Niño years when the ocean temperature is higher than normal. A small population previously took up residence in the San Diego Bay near a warm water effluent channel off the San Diego Gas & Electric power plant; however, the plant was shut down in 2013. Inhabits shallow waters of lagoons, bays, estuaries, mangroves, eelgrass and seaweed beds preferring areas with abundant aquatic vegetation, such as pastures of sea grasses and algae.
Switak's banded gecko (*Coleonyx switaki*)	--/ST, SSC County Group 2	In California, found on desert slopes of the eastern side of the Peninsular Ranges from Borrego Springs of San Diego County south to the U.S./Mexico border. An isolated population also occurs in the Coyote Mountains of Imperial County. Inhabits arid rocky areas on flatlands and canyons, especially where large boulders and rock outcrops are present and vegetation is sparse.
San Diego banded gecko (*Coleonyx variegatus abbotti*)	--/SSC County Group 1	Occurs in the coastal regions of southern California from interior Ventura County south to San Diego County, although the species is absent from the extreme outer coast. Inhabits coastal sage scrub and chaparral habitats, most often occurring in granite or rocky outcrops.
Baja California coachwhip (*Coluber fuliginosus*)	--/SSC	Occurs from extreme southern San Diego County at elevations below 7,700 feet. Habitat generalist found in open terrain but more common in grasslands, scrublands, and coastal sand dunes.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Reptiles (cont.)		
Red diamond rattlesnake (*Crotalus ruber*)	--/SSC County Group 2	Occurs in the southwestern California from San Bernardino County south to San Diego County at elevations below 5,000 feet. Has a wide tolerance for varying environments including the desert, dense foothill chaparral, warm inland mesas and valleys, and cool coastal zones. Most commonly found near heavy brush with large rocky microhabitats. Chamise and red shank chaparral associations may offer better structural habitat for refuges and food resources.
San Diego ring-necked snake (*Diadophis punctatus similis*)	--/-- County Group 2	This subspecies is found mainly along the coast to the west of the mountain and desert regions of San Diego County, and in extreme southwestern Riverside County. Prefers moist habitats and is often found near intermittent streams. Suitable habitat includes wet meadows, rocky hillsides, farmland, grassland, chaparral, mixed coniferous forests, and woodlands. Usually found under the cover of rocks, wood, boards and other surface debris, but occasionally seen moving on the surface on cloudy days, dusk, or at night.
Cope's leopard lizard (*Gambelia copeii*)	--/SSC	In California, found around Cameron Corner, Campo, and Portero in southern San Diego County. Inhabits coastal sage scrub, chaparral, and oak woodland preferring open areas.
Mohave desert tortoise (*Gopherus agassizii*)	FT/ST	In California, found throughout the Mojave and Sonoran Deserts of southern California at elevations below 3,500 feet. Generally, occurs north and west of the Colorado River and along the east side of the Salton Basin; absent from Coachella Valley. Occupies a variety of habitats including creosote scrub flats, rocky foothills, riverbanks, washes, alluvial fans, sandy dunes, canyon bottoms, and desert oases where suitable sandy or gravelly soils for den construction occur. Spends up to 95 percent of life within underground burrows which they dig. Most active during the spring when they mate and forage for food.
Coast mountain kingsnake (*Lampropeltis multifasciata*)	--/-- County Group 2	In California, occurs in the coastal mountain ranges from Monterey Bay south through the Peninsular and Transverse Ranges of southern California; also found on Catalina Island. Occupies a variety of habitats including forests, oak and riparian woodlands, coastal sage scrub, and chaparral. Most common near streams or lakeshores with rock outcrops, talus, or rotting logs.
Rosy boa (*Lichanura orcutti*)	--/-- County Group 2	Occurs within southern California from Los Angeles County south to San Diego County, from the coast east towards the Mojave and Colorado deserts; though absent from most of Imperial County. Inhabits arid scrublands, semi-arid shrublands, rocky shrublands, rocky deserts, canyons, and other rocky areas. Common in riparian areas but does not require permanent water.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Reptiles (cont.)		
Blainville's horned lizard (*Phrynosoma blainvillii*)	--/SSC County Group 2 MSCP Covered	In California, predominately occurs from Kern County south to San Diego County, west of the desert at elevations below 8,000 feet. Inhabits a wide variety of vegetation types including sagebrush scrub, chaparral, grasslands, forests, and woodlands but is restricted to areas with suitable sandy, loose soils with open areas for basking. Diet primarily composed of native harvester ants (*Pogonmyrmex* spp.) and are generally excluded from areas invaded by Argentine ants (*Linepithema humile*).
Flat-tailed Horned Lizard (*Phrynosoma mcallii*)	--/SSC County Group 1	Occurs throughout the Colorado Desert in southeastern California from Coachella Valley (San Bernardino County) south through Imperial Valley (Imperial County) at elevations below 1,000 feet. Specialized sand-dweller found in a variety of desert scrub habitats with shifting sand and scattered sparse vegetation of low species diversity; rarely occurs on sand dunes. Most common in areas with a high density of harvester ants.
Coronado skink (*Plestiodon skiltonianus interparietalis*)	--/WL County Group 2	Occurs in coastal and inland portions of southern San Diego County; though can occur up into Riverside County where it intergrades with Skilton's skink (*Plestiodon skiltonianus skiltonianus*). Suitable habitats include grassland, woodlands, pine forests, and chaparral, especially in open sunny areas such as clearings and edges of creeks or rivers. Prefers rocky areas near streams with lots of vegetation but can also be found in areas away from water. Occasionally seen foraging in leaf litter but more commonly found underneath surface objects, such as bark or rocks, where it lives in extensive burrows.
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	--/SSC County Group 2	Occurs in the coastal regions of California from the northern Carrizo Plains in San Luis Obispo County south to San Diego County at elevations below 7,000 feet. Inhabits semi-arid shrubby areas such as chaparral and desert scrub. Also found along washes, sandy flats, canyons, and rocky areas. Takes refuge and overwinters in burrows and woodrat nests.
Chuckwalla (*Sauromalus ater*)	--/-- County Group 2	In California, occurs within the Mojave and Colorado Deserts as far north as the White Mountains in Mono County and then south through Owens Valley and east to the Colorado River. Inhabits rocky flats and hillsides, lava flows, and large rock outcrops.
Southern sagebrush lizard (*Sceloporus vandenburgianus*)	--/-- County Group 2	Found in the Transverse and Peninsular Ranges of southern California between elevations of 500 to 10,500 feet. Occupies chaparral and forests preferring open areas with scattered shrubs and lots of sun.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Reptiles (cont.)		
Two-striped garter snake (*Thamnophis hammondii*)	--/SSC County Group 1	Found in California from Monterey County south along the coast to San Diego County at elevations below 7,000 feet. Commonly inhabits perennial and intermittent streams with rocky beds bordered by riparian habitats dominated by willows and other dense vegetation. Has also been found in stock ponds, and other artificially created aquatic habitats, if bordered by dense vegetation and potential prey, such as amphibians and fish, are present.
South Coast garter snake (*Thamnophis sirtalis infernalis*)	--/SSC County Group 2	This unformal subspecies occurs within scattered localities of California from Ventura County south San Diego County at elevations below 2,880 feet. Inhabits marsh and uplands habits near permanent water sources and suitable riparian habitats.
Colorado desert fringe-toed lizard (*Uma notata*)	--/SSC County Group 1	Occurs in the Colorado and Sonoran Deserts of southern California from the Salton Sea and Imperial sand dunes east to the Colorado River. Suitable habitats include sparsely vegetated arid areas with fine wind-blown sand such as flats with sandy hummocks, dunes, washes, and riverbanks. Requires fine, loose sand for burrowing.
Mojave fringe-toed lizard (*Uma scoparia*)	--/SSC	Occurs within the Mojave Desert from the southern end of Death Valley south to the Colorado River around Blythe in Riverside County. Inhabits sparsely vegetated arid areas with fine windblown sand including dunes, flats with sandy hummocks, washes, and riverbanks. Requires fine, loose sand for burrowing.
Sandstone Night Lizard (*Xantusia gracilis*)	--/SSC	Endemic species to California only known to occur in the Anza-Borrego Desert near the Truckhaven Rocks area at elevations between 790 and 1,000 feet. Inhabits sandstone and mudstone areas.
Birds		
Cooper's Hawk (*Accipiter cooperii*)	--/WL County Group 1 MSCP Covered	In California, breeds from Siskiyou County south to San Diego County and eastwards to Owens Valley at elevations below 9,000 feet. Inhabits forests, riparian areas, and more recently suburban and urban areas. Nests within dense woodlands and forests and isolated trees in open areas.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Northern Goshawk (*Accipiter gentilis*)	--/SSC	Year-round resident of California from the Oregon border south through the Cascade and Sierra Nevada Ranges, west along the Coast Ranges, and south into the Transverse and Peninsular Ranges. Southern-most breeding record is located in the Cuyamaca Mountains of San Diego County from 1937, though the species is extremely rare in southern California. Nests in mature and old-growth forests in both lowlands and mountainous areas up to 10,000 feet.
Sharp-shinned Hawk (*Accipiter striatus*)	--/WL County Group 1	Primarily winters and migrates throughout California. Breeding records located in the northern and central portions of the state, but breeding range in California is poorly known. Breeds within most closed-canopy woodlands and forests, including riparian habitats, from sea level to near alpine elevation nesting in trees near openings. Wintering habitat similar to breeding habitat but more expansive to include suburban and agricultural areas.
Western Grebe (*Aechmophorus occidentalis*)	--/-- County Group 1	Occurs throughout California where suitable lakes for breeding are present. Breeding habitat includes freshwater lakes and marshes with extensive areas of open water bordered by emergent vegetation. Winters along the Pacific coast from British Columbia south through Baja California and Mexico, though coastal California represents the species' core wintering area. Wintering habitat includes bays, estuaries, and sheltered seacoasts as well as freshwater lakes and occasionally rivers.
Tricolored Blackbird (*Agelaius tricolor*)	BCC/SCE, SSC County Group 1 MSCP Covered	Highly colonial, nomadic species occurring as a year-round resident of California from Sonoma County to San Diego. Common locally in the Central Valley and sporadically throughout the state. Breeds in dense colonies. Breeding habitat typically characterized by emergent freshwater marsh dominated by tall, dense cattails and bulrush (*Schoenoplectus* spp.; *Scirpus* ssp.), though also utilizes willows, blackberries (*Rubus* spp.), thistles (*Cirsium* and *Centaurea* spp.), nettles (*Urtica* sp.), and agricultural crops. Forages in grasslands and cropland habitats adjacent to breeding areas.
Southern California Rufous-crowned Sparrow (*Aimophila ruficeps canescens*)	--/WL County Group 1 MSCP Covered	Year-round resident of southwestern California occurring from Santa Barbara County south to San Diego County at elevations below 5,000 feet. Generally found on moderate to steep slopes vegetated with grassland, coastal sage scrub, and chaparral. Prefer areas with California sagebrush (*Artemisia californica*). Generally absent from areas with dense stands of coastal sage scrub or chaparral. May occur on steep grassy slopes without shrubs if rock outcrops are present.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Grasshopper Sparrow (*Ammodramus savannarum*)	--/SSC County Group 1	Occurs west of the Cascade and Sierra Nevada Ranges from Mendocino County south to San Diego County at elevations below 5,000 feet. Prefers moderately open grasslands and prairies with scattered shrubs, generally avoiding grasslands with extensive shrub cover.
Snow Goose (*Anser caerulescens*)	--/-- County Group 2	In California, primarily present as a winter visitor, though isolated breeding records occur at Tule Lake in northern California just south of the Oregon border. Winters in the Sacramento, San Joaquin, Imperial, and Lower Colorado River Valleys, and rarely along the coast of southern California. Wintering habitat includes estuaries, marine inlets and bays, shallow tidal waters, freshwater and brackish marshes, and croplands.
Lesser Sandhill Crane (*Antigone canadensis canadensis*)	--/SSC County Group 2	Winter resident and migrant in California generally present from mid-September through early April. Winters in the San Joaquin and Imperial Valleys. Wintering habitat includes pastures, moist grasslands, alfalfa fields, and shallow wetlands.
Greater Sandhill Crane (*Antigone canadensis tabida*)	--/ST, SSC, FP County Group 2	Occurs as a summer and winter resident in California. Breeds in northeastern California (Lassen, Modoc, Plumas, Shasta, Sierra, and Siskiyou Counties) and winters in Sacramento and San Joaquin Valleys from Tehama County south to Kings County, and along the Lower Colorado River in Imperial County. Nests in wet meadows and shallows lakes with emergent wetland vegetation. Wintering habitat includes grasslands, moist croplands (such as rice or corn), and open, emergent wetlands.
Golden Eagle (*Aquila chrysaetos*)	BCC/WL, FP County Group 1 MSCP Covered NE	Uncommon year-round resident and migrant throughout California, except the center of the Central Valley. More common in southern California than in northern regions. Inhabits a variety of habitats over rugged terrain. Nests on cliffs or trees. Forages over plains, grasslands, and low and open shrublands including chaparral and coastal sage scrub. Typically absent from heavily forested areas or on the immediate coast, and almost never detected in urbanized environments.
Great Blue Heron (*Ardea herodias*)	--/-- County Group 2	Year-round resident of California occurring throughout most of the state in saline and freshwater wetlands and shallow estuaries. Nests as single pairs and in small colonies. Nests located on the ground, in trees and bushes, and on artificial structures that are usually adjacent to water and secluded from human disturbance. Forages in a wide range of habitats including various wetlands, water bodies, and occasionally uplands.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Bell's sparrow (*Artemisiospiza belli belli*)	BCC/WL County Group 1	Non-migratory year-round resident on the coastal ranges of California and western slopes of the central Sierra Nevada mountains. Occurs year-round in southern California. Breeds in dry coastal sage scrub and chaparral, desert scrub, and similar other open, scrubby habitats. In foothill chaparral, tends toward younger, less dense stands that are recovering from recent fires; less common in older, taller stands that have remained unburned.
Short-eared Owl (*Asio flammeus*)	--/SSC County Group 2	Year-round resident in certain areas of California. Small resident populations occur in northeastern California and locally in the Sacramento–San Joaquin River Delta. Also breeds in Sacramento Valley, San Joaquin Valley, and coastal central California. Breeding in southern California rare. Inhabits open areas such as salt and freshwater marshes, alfalfa and grain fields, grasslands, and pastures. Nests on the ground within marshes and grasslands.
Long-eared Owl (*Asio otus*)	--/SSC County Group 1	Occurs throughout California, particularly in the Central Valley and southern California deserts. Found in dense riparian habitats and oak woodlands adjacent to open foraging areas. Typically nests in abandoned raptor nests in willows and oaks, and atop woodrat nests and accumulations of debris trapped in the crotches of large oaks. Winters in communal roosts in dense willow thickets, tamarisk groves, palo verde, and conifers.
Burrowing Owl (*Athene cunicularia*)	BCC/SSC County Group 1 MSCP Covered NE	Found from central California east to the Mojave Desert and south to coastal San Diego County. Primarily a grassland species that prefers areas with level to gentle topography and well-drained soils. Also occupies agricultural areas, vacant lots, and pastures. Requires underground burrows for nesting and roosting that are typically dug by other species such as the California ground squirrel (*Spermophilus beecheyi*). Will also utilize natural rock cavities, debris piles, culverts, and pipes for nesting and roosting.
Redhead (*Aythya americana*)	--/SSC County Group 2	Occurs year-round in California breeding in northeastern California, the Central Valley, southern California coast, and southern deserts. Nests in freshwater emergent wetlands where dense stands of marsh habitat are interspersed with areas of deep, open water.
Oak Titmouse (*Baeolophus inornatus*)	BCC/--	Year-round resident of California occurring throughout most of state but generally absent from the northwestern coastal region and San Joaquin Valley. Inhabits dry oak and oak-pine woodlands. May also use scrub oaks and other scrub habitat near woodlands, and juniper woodlands and open pine forests.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Marbled Murrelet (*Brachyramphus marmoratus*)	FT/SE	In California, occurs along the Pacific coast from the Oregon border south to central California. Forages in nearshore marine environments but flies inland to breed. Nests on large tree branches within mature and old-growth conifer forests at elevations up to 5,020 feet. Suitable breeding habitat characterized by large trees, moderate to high canopy cover, and multiple stories. Some wintering birds found in southern California.
Brant (*Branta bernicla*)	--/SSC	Winters along the California coast within well-protected, shallow marine waters such as bays and estuaries. Feeds primarily on eel-grass (*Zostera marina*). Also winters at Salton Sea in Imperial Valley where it feeds primarily on bulrush.
Canada Goose (*Branta canadensis*)	--/-- County Group 2 MSCP Covered	Winters in southern California within mixed fresh and brackish water habitats with low grass or succulent leaves. Typically roosts on open water of lakes or ponds. Feeds mainly on cultivated grains, wild grasses, and forbs, but also aquatic plants. Often seen in flocks.
Barrow's Goldeneye (*Bucephala islandica*)	--/SSC County Group 2	Uncommon winter resident along the central California coast. Winters primarily in San Francisco Bay and surrounding areas, Marin and Sonoma Counties, and along the Colorado River in southern California. Occurs within estuaries, lagoons, and bays. Also wintering locally on rivers and lakes. Historically nested on high lakes in the southern Cascades and Sierra Nevada Ranges, but there have been breeding records of the species since 1940.
Red-shouldered Hawk (*Buteo lineatus*)	--/-- County Group 1	Year-round resident in California, occurs to the west of Sierra Nevada occupying mature oak and riparian woodlands, eucalyptus groves, and suburban areas near forested areas. Nests in trees, both native and non-native, often located near a water source such as stream or pond.
Ferruginous Hawk (*Buteo regalis*)	BCC/WL County Group 1 MSCP Covered	Occurs as a winter visitor in California. Found within open grasslands at lower elevations within the Modoc Plateau, Central Valley, and Coast Ranges. Fairly common in grasslands and agricultural areas in southwestern California. Suitable wintering habitat includes grasslands, shrub habitats, and deserts over flat or rolling terrain.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Swainson's Hawk (*Buteo swainsoni*)	BCC/ST County Group 1 MSCP Covered	Uncommon breeding resident and migrant within California. Migrates from breeding grounds in North American to wintering areas in South America and forages in flocks, sometimes numbering up into the thousands. In California, breeds locally in the Central Valley and Great Basin regions within Shasta Valley, Owens Valley, and the Mojave Desert. Inhabits open grasslands and shrub habitats as well as canyons, foothills, and smaller interior valleys in otherwise mountainous regions. Increasingly becoming more dependent on agriculture, especially alfalfa crops. Nests in stands with few trees, often on the edge of riparian habitats, though also uses lone trees in agriculture fields and pastures, and along roadsides with suitable foraging habitat nearby.
Green Heron (*Butorides virescens*)	--/-- County Group 2	Year-round resident of California found generally west of the Sierra Nevada and within the southern deserts. Occurs in a wide variety of wetland habitats such as swamps, marshes, ponds, lake edges, man-made ditches, canals, and riparian habitat along creeks and streams. Prefers thick vegetation generally avoiding open areas.
Costa's Hummingbird (*Calypte costae*)	BCC/--	Occurs year-round in deserts and xeric habitats of southern California. Breeds along the coast in sage scrub and chaparral habitats from Santa Barbara County south to San Diego County, and east to desert regions of Inyo County and south to Imperial County. Breeding habitat includes desert scrub, coastal sage scrub, and chaparral.
Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*)	BCC/SSC (San Diego and Orange Counties) County Group 1 MSCP Covered NE	One of seven subspecies occurring restricted to southern California from southern Orange County and San Diego County. Occupies native scrub vegetation with thickets of mature cacti consisting of cholla (*Cylindropuntia* spp.) or prickly-pear cactus (*Opuntia littoralis*). Cacti must be tall enough to support and protect the bird's nest (typically 3 feet or more in height). Surrounding vegetation usually consists of coastal sage scrub habitat with shrubs normally below the level of nest placement.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Turkey Vulture (*Cathartes aura*)	--/-- County Group 1	In California, occurs as a year-round resident along the coastal regions breeding throughout the entire state. Preferred habitat includes farmland and forests. Also found at pastures and agricultural areas in the west and has an increased presence in urban areas during the winter. Nests in partly forested to forested areas isolated from humans on rock outcrops, fallen trees, and abandoned buildings. Roosts communally preferring stands of large trees or hilly areas, usually away from human disturbance. Opportunistic feeders of domestic and wild carrion, primarily mammals but also non-mammals, foraging and locating food through both sight and smell.
Rhinoceros Auklet (*Cerorhinca monocerata*)	--/WL County Group 2	Winter visitor in marine pelagic waters off the northern and central California coasts, and south of the Channel Islands. Small portion of wintering population remain in California to breed. Breeding has been confirmed at Castle rock and Price Island off Del Norte County and the Farallon Islands off San Francisco. Suspected breeding off Humboldt County, Sonoma County, San Mateo County, and Santa Barbara County. Breeds colonially on undisturbed forested or unforested islands in burrows and cliff caves. At sea, found mainly in continental-shelf waters along the continental slope; rarely close to land.
Vaux's Swift (*Chaetura vauxi*)	--/SSC	Occurs as a migrant and summer resident of California occurring along a narrow coast belt from the Oregon border south to Santa Cruz County, and in the Cascades and Sierra Nevada Ranges. Found in redwood and Douglas-fire forest habitats. Nests in tree cavities but can also be found on artificial structures such as chimneys. Fairly common spring and fall migrant throughout the state, though a few individuals may winter irregularly in the coastal lowlands of southern California.
Mountain Plover (*Charadrius montanus*)	BCC/SSC County Group 2 MSCP Covered	Winters visitor in central and southern California, primarily in the Central and Imperial Valleys. Strongly associated with short-grass habitats such as fallow, grazed, or burned areas. Rare in San Diego County.
Western Snowy Plover (*Charadrius nivosus nivosus*)	FT, BCC/SSC County Group 1 MSCP Covered	Breeds and winters along the coast of California. Nesting habitat includes sand spits, dune-backed beaches, beaches at creek and river mouths, and salt pans at lagoons and estuaries within 50 miles of the ocean. Usually prefer sand, silt or dry mud with even surface, avoiding rocky or broken ground. Exhibits high breeding site fidelity. In winter, found on many of the beaches used for nesting, as well as others where they do not nest. Also occurs in man-made salt ponds and on estuarine sand and mud flats.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Black Tern (*Chlidonias niger*)	--/SSC County Group 2	Occurs as migrant and summer resident in California breeding in the Modoc Plateau region and mountain valleys of northeastern California and lowlands of the Central Valley. Nests semi-colonially in marshes with emergent vegetation and flooded agricultural fields (such as rice fields). A large portion of the population migrates through the Salton Sea in Imperial Valley.
Northern Harrier (*Circus cyaneus*)	--/SSC County Group 1 MSCP Covered	Occurs as a year-round resident in California breeding throughout most of the state at elevations below 9,000 feet; though generally absent from the eastern desert regions. Inhabits open areas including wetlands, marshes, marshy meadows, grasslands, riparian woodlands, desert scrub, and pastures and agricultural areas. Nests on the ground in wetlands and uplands within patches of dense, often tall, vegetation in undisturbed areas. Breeding populations in southern California occurring from Ventura County to San Diego County are highly fragmented with many local populations extirpated, mostly likely as a result of habitat loss and degradation.
Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)	FT, BCC/SE County Group 1 NE	Uncommon summer resident of California. Current breeding range is restricted to isolated sites in Sacramento, Amargosa, Kern, Santa Ana, and Colorado River Valleys. Riparian obligates that nest in riparian woodlands with native broadleaf trees and shrubs, such as cottonwoods (*Populus* ssp.) and willows at least 50 acres or more in size within arid to semiarid landscapes. Most likely found in patches of riparian habitat greater than 200 acres.
Olive-sided Flycatcher (*Contopus cooperi*)	BCC/SSC County Group 2	Occurs as a migrant and summer resident in California breeding in conifer forests at elevations up to 9,400 feet. Breeding range extends from the Oregon border south along the coast and near-coastal mountains west of the Central Valley to Santa Barbara County, Modoc Plateau and Cascade Range in northeastern California, south along the Sierra Nevada Range to Tulare County, east to the White Mountains, and in higher elevations of the Transverse and Peninsular Ranges south to San Diego County. Suitable habitat consists of late-successional conifer forests with open canopies.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Yellow Rail (*Coturnicops noveboracensis*)	BCC/SSC	Extremely rare year-round resident in California. Breeds locally in the northeastern interior of the state with recent records at Cowhead Slough in Modoc County and Mt. Shasta in Siskiyou County; historical records also occur at Long and Bridgeport Valleys in Mono County. Historically wintered along the central California Coast from Humboldt County south to Newport Bay in Orange County. Recent records suggest that a small number currently winter in a few coastal marshes and the Suisun Marsh region in Solano County. Additional inland winter records occur in San Joaquin Valley, near Corona in Riverside County, and Santee in San Diego County. Inhabits densely vegetated marshes. Breeds in sedge marshes and meadows with moist soils or shallow standing water. Winters in wet meadows and coastal tidal marshes.
Black Swift (*Cypseloides niger*)	BCC/SSC County Group 2	Occurs as a migrant and summer resident in California. Breeds locally along the central coast in Santa Cruz, San Mateo, Monterey, and San Luis Obispo Counties; along the Cascade and Sierra Nevada Ranges; and within the San Gabriel, San Bernardino, and San Jacinto Mountains of southern California. Nests behind or besides permanent or semi-permanent waterfalls, on cliffs near water, and in sea caves.
Fulvous Whistling-Duck (*Dendrocygna bicolor*)	--/-- County Group 2	Occurs as a migrant and summer resident in California. Historically bred at the south end of San Francisco Bay in Santa Clara County and in the San Joaquin and Imperial Valleys, and coastal slope of southern California. Currently restricted to the southern end of the Salton Sea in Imperial Valley at Finney and Ramer Lakes and the Alamo River Delta. Wintering birds occasionally seen in the Central Valley and annually in Imperial Valley. Suitable habitat includes freshwater and coastal marshes, rice fields, and tall grass flooded areas.
Reddish Egret (*Egretta rufescens*)	--/-- County Group 2 MSCP Covered	Rare wintering visitor San Diego County representing the northern-most limit of the species' known range. Occurs in coastal wetlands with two to three individuals typically occurring annually.
White-tailed Kite (*Elanus leucurus*)	--/FP County Group 1	Year-round resident of California residing along the coasts and valleys west of the Sierra Nevada foothills and southeast deserts; has also been documented breeding in arid regions east of the Sierra Nevada and within Imperial County. Inhabits low elevation grasslands, wetlands, oak woodlands, open woodlands, and is often associated with agricultural areas. Breeds in riparian areas adjacent to open spaces nesting in isolated trees or relatively large stands.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	FE/SE County Group 1 MSCP Covered NE	In California, breeds from the central portion of the state in Owens Valley (Inyo County) south to San Diego County. Riparian obligates that breed in relatively dense riparian habitats along rivers, streams, or other wetlands where surface water is present, or soils are very saturated. Breeding habitat can consist of monotypic stands of willows, a mixture of native broadleaf trees and shrubs, monotypic stands of exotics such as tamarisk (*Tamarix* spp.) or Russian olive (*Elaeagnus angustifolia*), or mixture of native broadleaf trees and shrubs with exotics. Restricted in San Diego County to two modest colonies at San Luis Rey River and Santa Margarita River, with a few scattered pairs.
California Horned Lark (*Eremophila alpestris actia*)	--/WL County Group 2	In California occurs along the coastal ranges of from San Joaquin Valley south to U.S./Mexico border. Inhabits a wide variety of open habitats with low, sparse vegetation where trees and large shrubs are generally absent. Suitable habitats include grasslands along the coast, deserts within the inland regions, shrub habitat at higher elevations, and agricultural areas.
Merlin (*Falco columbarius*)	--/WL County Group 2	Uncommon winter migrant in California occurring from September to May at elevations below 5,000 feet. Often found in open woodland, grasslands, cultivated fields, marshes, estuaries and seacoasts; rarely found in heavily wooded areas or over open deserts.
Prairie Falcon (*Falco mexicanus*)	BCC/WL County Group 1	Uncommon permanent resident and migrant of California ranging from the Sierra Nevada southwest along the inner coastal mountains and east to the southeastern deserts but absent from northern coastal fog belt. Primary habitats include grasslands, savannahs, alpine meadows, some agricultural fields during the winter season, and desert scrub areas where suitable cliffs or bluffs are present for nest sites. Requires sheltered cliff ledges for cover and nesting which may range in height from low rock outcrops of 30 feet to cliffs up to and higher than 400 feet.
American Peregrine Falcon (*Falco peregrinus anatum*)	BCC/FP County Group 1 MSCP Covered NE	In California, breeds and winters throughout the state except for desert areas. Active nesting sites are known from along the coast north of Santa Barbara, in the Sierra Nevada, and other mountains of northern California. Few nest sites are known anecdotally for southern California mostly at coastal estuaries and inland oases. Inhabits a large variety of open habitats including marshes, grasslands, coastlines, and woodlands. Typically nest on cliff faces in remote rugged sites where adequate food is available nearby, but the species can also be found in urbanized areas nesting on man-made structures.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Tufted Puffin (*Fratercula cirrhata*)	--/SSC County Group 2	Occurs year-round off the coast central and northern California from the Oregon border south to the Channel Islands. Largest breeding colonies are found on the Farallon Islands off San Francisco and Castle Rock off Del Norte County. Breeds on offshore rocks and islands, and rarely on steep mainland cliffs, free from human disturbance and mammalian predators. Nest in earthen burrows or rock crevices on steep slopes, cliffs, or cliff stops. Rare in southern California with most individuals occurs in midwinter and spring.
Common Loon (*Gavia immer*)	--/SSC County Group 2	Overwinters along the California coast within estuaries and subtidal marine habitats avoiding river mouths and turbid waters. Uncommon on large lakes, reservoirs, and rivers in valleys and foothills; rarely observed far from shore. Historically breed in the northern portion of the state in mountain lakes east of Mt. Lassen in Shasta and Lassen Counties but has since been extirpated.
Gull-billed Tern (*Gelochelidon nilotica*)	BCC/SSC	Occurs as a summer resident within southern California; rarely observed in the winter. Breeding colonies occur at Salton Sea in Imperial and Riverside Counties, and San Diego Bay in San Diego County. Nesting habitat includes small, bare islets of fine clay within impoundments at the Salton Sea or isolated sections of earthen levees at the salt works in south San Diego Bay.
California Condor (*Gymnogyps californianus*)	FE/SE, FP	Occurs year-round within semi-arid, rugged mountain ranges of California. Current distribution includes the Coast Range from Santa Clara County south to Los Angeles County, southern San Joaquin Valley, Transverse Range and Tehachapi Mountains of southern California, and southern Sierra Nevada. Nests in caves, crevices, behind rocks slabs, or on large ledges on high cliffs at elevations between 2,000 and 6,500 feet. Roosts on cliff ledges and cavities and in large trees and snags. Forages over wide-open areas of rangeland, grasslands, and chaparral.
Bald Eagle (*Haliaeetus leucocephalus*)	FE, BCC/SE, FP County Group 1 MSCP Covered	Occurs as a permanent resident or uncommon winter migrant within California. Breeds primarily in northern California (Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties) but also nests in scattered locations in the Sierra Nevada mountains and foothills, in several locations from the central coast to inland southern California, and on Santa Catalina Island. Associated with large bodies of waters including estuaries, rivers, lakes, and reservoirs. Nests in mature, old growth forests adjacent to large bodies of water development.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Caspian Tern (*Hydroprogne caspia*)	BCC/--	In California, occurs commonly to very commonly along the coast and at scattered inland locations. Primarily a summer visitor but may also winter and occur year-round in southern California regions. Nests in dense colonies at a wide variety of habitats ranging from coastal estuarine, salt marsh, and barrier islands to beaches and freshwater islands in inland rivers and salt lakes. Breeding adults often fly substantial distances to forage at rivers lakes, and fresh or saltwater wetland habitats. Nesting colonies occur at Humboldt Bay, San Francisco Bay, San Pablo Bay, San Diego Bay, Elkhorn Slough, and several lakes in Modoc and Lassen Counties. Present in large numbers at the Salton Sea during the breeding season, no longer nests there.
Yellow-breasted Chat (*Icteria virens*)	--/SSC County Group 1	In California, occurs as a migrant and summer resident breeding from the coastal regions in northern California, east of the Cascades, and throughout the central and southern portions of the state. Breeds in early successional riparian habitats with well-developed shrub layer and an open canopy nesting on the borders of streams, creeks, rivers, and marshes.
Least Bittern (*Ixobrychus exilis*)	BCC/SCC County Group 2	Primarily a summer resident in California breeding in the Sacramento Valley, San Joaquin Valley, Central Valley, Salton Sink, lower Colorado River Valley, and coastal Orange and San Diego counties. Occurs year-round in the southern California. Breeds in low-lying areas associated with large rivers, ponds, lakes, and estuaries and is largely absent from higher elevations. Inhabits freshwater and brackish marshes with dense, tall growths of aquatic or semiaquatic vegetation such as cattails, sedges (*Carex* ssp.), bulrush, and arrowhead (*Sagittaria* ssp.) interspersed with clumps of woody vegetation and open water, although they also occasionally occur in salt marshes.
Gray-headed Junco (*Junco hyemalis caniceps*)	--/WL County Group 2	Occurs as a breeding and wintering species in the White and Grapevine Mountains of central-eastern California, and on Clark Mountains in southeastern California; rare but regulator visitor to San Diego County. Occurs within forests and woodlands in the mountains.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Loggerhead Shrike (*Lanius ludovicianus*)	BCC/SSC County Group 1	Found year-round within California throughout the foothills and lowlands with winter migrants found coastally north of Mendocino County. Inhabits a variety of habitats and forages over open ground within areas of short vegetation, pastures with fence rows, old orchards, mowed roadsides, cemeteries, golf courses, riparian areas, open woodland, agricultural fields, desert washes, desert scrub, grassland, broken chaparral and beach with scattered shrubs. Forages by perching to search for prey (such as large insects, small mammals, amphibians, reptiles, and fish) and using impaling as a means of handling prey.
California Gull (*Larus californicus*)	--/WL County Group 2	In California, winters along coastal regions with breeding populations localized at Mono Lake and southern San Francisco Bay. Breeding colonies nearly always occur on islands in natural lakes, rivers, or reservoirs. In the winter, the species is found along coastal California at beaches, rocky coasts, mudflats, coastal estuaries, and deltas of rivers and streams.
California Black Rail (*Laterallus jamaicensis coturniculus*)	BCC/ST, FP County Group 2 NE	In California, breeds in the Sacramento-San Joaquin River delta, San Francisco Bay area, Bolinas Lagoon and Tomales Bay in Marin County, Morro Bay in San Luis Obispo County, White Slough in San Joaquin County, the Salton Sea in Imperial County, and the Lower Colorado River Valley. Inhabits salt and freshwater marshes and wet meadows. Associated with pickleweed (*Salicornia* ssp.), bulrush, alkali heath (*Frankenia salina*), and cordgrass (*Spartina* ssp.). Requires dense cover of upland vegetation in tidal areas for protection when rails must leave marsh habitats during high tide events.
Lucy's Warbler (*Leiothlypis luciae*)	BCC/SSC County Group 1	Occurs as a breeding summer visitor in California but can also occur as a rare fall and winter vagrant. Breeds along the lower Colorado River Valley in eastern San Bernardino, Riverside, and Imperial Counties. Local populations also occur in Coachella Valley and Mojave Desert, Borrego Valley in San Diego County, and Furnace Creek Ranch (Death Valley) in Inyo County. Almost exclusively inhabits honey mesquite (*Prosopis glandulosa*) but also found within blue paloverde (*Parkinsonia florida*), desert ironwood (*Olneya tesota*), and riparian woodlands.
Laughing Gull (*Leucophaeus atricilla*)	--/WL County Group 2	Rare vagrant along the Pacific coast of California; also found at the Salton Sea in Imperial County. A few pairs previously nested at Salton Sea from 1928 to 1957 but no longer nest there. Non-breeding adults still summer at Salton Sea.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Gadwall (*Mareca strepera*)	--/-- County Group 2	Winters and breeds within California occupying interior valleys, wetlands, ponds, and streams. Nests in short, dense herbaceous habitats adjacent to suitable shallow water feeding areas, such as islands surrounded by open water.
Lewis's Woodpecker (*Melanerpes lewis*)	BCC/-- County Group 1	In California, breeds locally from Siskiyou and Modoc Counties south through the Warner Mountains, Cascades and Sierra Nevada Ranges; inner Coast Ranges from Tehama County south to central San Luis Obispo County; and occasionally south to San Bernardino Mountains and east to the Big Pine Mountains in Inyo County. Uncommon, winter visitor in the Central Valley, Modoc Plateau, and the Transverse and other Ranges in southern California. Occurs within open ponderosa pine forest, open riparian woodland dominated by cottonwood, and logged or burned pine forest. Breeding birds are also found in oak woodland, nut and fruit orchards, piñon pine-juniper woodland, pine and fir forests, and agricultural areas.
Gila Woodpecker (*Melanerpes uropygialis*)	BCC/SE	Permanent resident in southeast California in the Imperial and lower Colorado River Valleys. Inhabits desert with large cacti and trees, dry subtropical forests, and riparian woodlands at elevations below 5,300 feet. Prefers cottonwood-dominated habitat along lower Colorado River in winter and summer. Nests in cavities typically created in saguaro cacti (*Carnegiea gigantea*), mesquite, and fan palms (*Washingtonia* ssp.).
Wood Stork (*Mycteria americana*)	--/SSC County Group 2	Post-breeding visitor to southern California occurring from late-May to mid-September. Historical occurrences located primarily along the coast (mainly north to Ventura County), Salton Sea in Imperial Valley, and the lower Colorado River Valley north to Needles in San Bernardino County. Currently almost entirely limited to the southeastern portion of the Salton Sea with scattered occurrences in other locations. Though isolated pairs have attempted nesting in San Diego during the late 1980s early 1990s, none have been successful. Foraging habitat includes shallow bays, marshy areas, flooded fields, and canals.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Brown-crested Flycatcher (*Myiarchus tyrannulus*)	--/WL	Breeds locally in desert riparian habitats of southeast California along the Colorado River. A few pairs have nested at Morongo Valley in San Bernardino County and other mays nest locally at other desert oases and riparian habitats northwest to the Mojave River near Victorville. Vagrants have been recorded west to the South Fork Kern River in Kern County, north to Furnace Creek Ranch (Death Valley) in Inyo County, and on the Farallon Islands off San Francisco. Inhabits mature riparian woodland dominated by cottonwood, mesquite, and willow. Nests in cavities created by other species.
Long-billed Curlew (*Numenius americanus*)	BCC/WL County Group 2 MSCP Covered	Uncommon to fairly common breeder in northeastern California. Nests on elevated interior grasslands and wet meadows, usually adjacent to lakes or marshes, within Siskiyou, Modoc, and Lassen Counties. Locally common winter visitor along most of the California coast, and in Central and Imperial Valleys. Preferred wintering habitat includes estuaries, herbaceous areas, and croplands. Small numbers of non-breeding individuals remain along the coast in the summer, and larger numbers may remain in the Central Valley.
Fork-tailed Storm-Petrel (*Oceanodroma furcata*)	--/SSC County Group 2	Occur year-round in offshore waters of the California coast. Breeds on offshore rocks and islands largely free of mammalian predators off northern California. Nests in natural crevices and earthen burrows. Forages over waters of the continental slope and shelf break.
Ashy-tailed Storm-Petrel (*Oceanodroma homochroa*)	BCC/SSC County Group 2	Occurs year-round in waters off the California coast, just seaward of the continental slope. Breeds on offshore islands from Mendocino County south to San Diego County. Largest known colonies occur at the South Farallon, Santa Barbara, Prince, and Santa Cruz islands. Nests in crevices of talus slopes, rock walls, sea caves, cliffs, and driftwood.
Black Storm-Petrel (*Oceanodroma melania*)	--/SSC County Group 2	Occurs year-round in waters overlying the continental shelf off southern California. Found farther north in the fall. Breeds on offshore islands from San Barbara County south to San Diego County. Nests in cavities located on cliff crevices. Rarely seen inland.
Mountain Quail (*Oreortyx pictus*)	--/-- County Group 2	Year-round resident found throughout California at elevations below 10,000 feet. Inhabits shrublands including chaparral, mixed desert scrub, and occasionally woodlands if shrubs are present.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Osprey (*Pandion haliaetus*)	--/WL County Group 1	Within California, breeding populations reside in the Cascade and Sierra Nevada Ranges, though small numbers of the species also breed within San Diego County. Although widely seen on the coast, rare transients can occur in the interior portions of southern California. Restricted to large water bodies such as rivers, lakes, and reservoirs supporting fish with suitable nesting habitat such as rocky pinnacles or large trees and snags. Build their large nests, often in dead tops of older trees and man-made structures.
Harris's Hawk (*Parabuteo unicinctus*)	--/WL	Occurs irregularly in southeastern California. Inhabits semi-open desert scrub, grassland, and wetland habitats. Breeds in groups of two to seven hawks which includes a dominant breeding pair with both related and unrelated helpers. In San Diego County, nesting and breeding activity has been documented within the McCain Valley and Anza-Borrego Desert.
Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*)	--/SE County Group 1 MSCP Covered NE	Year-round resident of coastal salt marshes within southern California from Santa Barbara County south to San Diego County. Particularly associated with salt marsh habitat dominated by dense pickleweed within which most nests are found.
Large-billed Savannah Sparrow (*Passerculus sandwichensis rostratus*)	--/SSC County Group 2 MSCP Covered	Non-breeding visitor of southern California occurring in small pockets along the coast from San Luis Obispo County south to San Diego County, and east at the Salton Sea in Imperial County. Wintering habitat almost entirely restricted to shorelines occurring at beaches and salt marshes and can be numerous along constructed seawalls and rocky shoreline outcroppings. At Salton Sea, found in low halophytic scrub, dominated by iodine bush (*Allenrolfea occidentalis*) and saltbush (*Atriplex* spp.), and in introduced stands of young tamarisk.
American White Pelican (*Pelecanus erythrorhynchos*)	--/SSC County Group 2	Mainly an overwintering visitor to California along the coast and lowlands of central California, although also winters at the Salton Sea in Imperial County. Breeds at lakes and marshes in the Klamath Basin, Modoc Plateau, and Great Basin Desert in the northeastern California. Nests in colonies on isolated islands of freshwater lakes and overwinters at marine estuaries and inland lakes where suitable habitat for feeding, loafing, and roosting is present.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
California Brown Pelican (*Pelecanus occidentalis californicus*)	FD/SD,FP County Group 2 MSCP Covered	Found year-round in estuarine, marine subtidal, and marine pelagic waters along the California coast. Rare to uncommon visitor at the Salton Sea in Imperial County from July to September. Nests on undisturbed islands adjacent to marine fishing areas. Rests on water or inaccessible rocks offshore or on the mainland, but also uses mudflats, sandy beaches, wharfs, and jetties.
Double-crested Cormorant (*Phalacrocorax auritus*)	--/WL County Group 2	Year-round resident along the entire coast of California also occurring east of the coast within the Central Valley, lower Colorado River, and Salton Sea. Inhabits fresh and saltwater estuaries, and inland lakes requiring suitable places for feeding, resting, loafing, and nighttime roosts. Breeds in colonies safe from predators and adjacent to feeding areas such as rocky or sandy islands, bridges, docks, nesting towers, trees, emergent marsh vegetation, and on the ground.
Hepatic Tanager (*Piranga flava*)	--/WL	Rare summer resident of California breeding in the arid mountain ranges of the San Bernardo Mountains and eastern Mojave Desert. Nests in forests dominated by piñon pine (*Pinus edulis*), Jeffrey pine (*Pinus jeffreyi*), and white fir (*Abies concolor*); also found in mature piñon-pine woodland. Winter and fall vagrant in San Diego County.
Summer Tanager (*Piranga rubra*)	--/SSC County Group 2	In California, occurs along the lower Colorado River from the Nevada state line south to the U.S./Mexican border. Inhabits mature riparian woodland dominated by cottonwood and willow at lower elevations, and mesquite and tamarisk at higher elevations. Tends to occur in broader riparian zones over narrower ones.
White-faced Ibis (*Plegadis chihi*)	--/WL County Group 1 MSCP Covered	Uncommon summer resident in sections of southern California, rare visitor in the Central Valley, and local wintering visitor along coast. Prefers to feed in fresh emergent wetlands, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded pastures and croplands. Nests in dense, fresh emergent wetland. In San Diego County, two nesting colonies have been documented at Guajome Lake and at a pond along the San Luis Rey River located near Keys Canyon.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Coastal California Gnatcatcher (*Polioptila californica californica*)	FT/SSC County Group 1 MSCP Covered	Year-round resident of California occurring from Ventura County south to San Diego County, and east to the western portions of San Bernardino and Riverside Counties. Typically occurs in arid, open sage scrub habitats on gently slopes hillsides to relatively flat areas at elevations below 3,000 feet. Composition of sage scrub in which gnatcatchers are found varies though California sagebrush present as dominant or co-dominant species. Mostly absent from areas dominated by black sage (*Salvia mellifera*), white sage (*Salvia apiana*), or lemonade berry (*Rhus integrifolia*), though may occur more regularly in inland regions dominated by black sage.
Black-tailed Gnatcatcher (*Polioptila melanura*)	--/WL	Year-round resident of California ranging from southern Inyo County south through Imperial County and west to Barstow and Morongo Valley San Bernardino County, San Gorgonio Pass Riverside County, and Anza-Borrego Desert in San Diego County. Inhabits semiarid and desert scrub communities below elevations of 6,900 feet. Prefers nesting and foraging in densely lined arroyos and washes dominated by creosote bush (*Larrea tridentata*) and salt bush with scattered bursage (*Ambrosia dumosa*), ocotillo (*Fouquieria splendens*), and various cacti species. Tends to avoid areas composed of the introduced tamarisk and has become less common in irrigated agricultural areas of the Coachella, Imperial, and Lower Colorado River Valleys.
Purple Martin (*Progne subis*)	--/SSC County Group 1	Occurs as a summer resident and migrant throughout California at elevations below 5,900 feet. Widely but irregularly distributed. Breeds locally west of the Cascades and Sierra Nevada Ranges and interior foothills; rare in the Transverse and Peninsular Ranges of southern California. Inhabits forest and woodlands areas. Nests in cavities in a variety of substrates where canopy cover is low at the nest height.
Flammulated Owl (*Psiloscops flammeolus*)	BCC/--	In California, occurs as a summer resident throughout the Cascade and Sierra Nevada Ranges, interior coast ranges, and other mountain areas of southern California where suitable habitat is present at elevation between 6,000 and 10,000 feet. Inhabits open, mature to old ponderosa pine (*Pinus ponderosa*) forests or other mixed coniferous forests. Nests in previously excavated cavities and will also occupy nest boxes.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Cassin's Auklet (*Ptychoramphus aleuticus*)	BCC/SSC	In California, occurs on offshore island located along the coast. Nests in burrows, rocky crevices, debris piles, cracks under buildings, and large caves located on both steep cliffs and level ground. At sea, associated with the subarctic waters of the inner California current, where features are influenced by seasonal upwellings, and waters of the outer continental shelf and slope.
Vermilion Flycatcher (*Pyrocephalus rubinus*)	--/SSC County Group 1	Scare breeding records occur in southern California with a few individuals wintering regularly along the coast from Ventura County south to San Diego County. Suitable habitat includes arid scrub, farmlands, parks, golf courses, desert, savanna, cultivated lands, and riparian woodland, usually near water. Wintering individuals can be found in open and semi-open areas with hedges, scattered trees and bushes, and often near water. The species is known to both breed and winter at selected sites within San Diego County.
Light-footed Ridgway's Rail (*Rallus obsoletus levipes*)	FE/SE, FP County Group 1 MSCP Covered NE	One of six recognized subspecies occurring as a resident in coastal salt marshes and lagoons from Santa Barbara County south to Baja California. The species is found primarily in tall, dense cordgrass and occasionally pickleweed in the low marsh zone. Also found in freshwater marshes in winter.
Yuma Ridgway's Rail (*Rallus obsoletus yumanensis*)	FE/ST, FP	One of six subspecies occurring from southeastern California and southwestern Arizona along the lower Colorado River and tributaries (Virgin River, Bill Williams River, lower Gila River) and Salton Sea in California. Inhabits freshwater marshes dominated by cattails and bulrush.
Bank Swallow (*Riparia riparia*)	--/ST County Group 1	In California, occurs as a locally common to uncommon breeding resident in northern and central California. Extirpated from historical breeding sites in southern California. Breeds in lowland areas along the coast, rivers, streams, lakes, reservoirs, and wetlands. Nesting colony sites occur on vertical banks, bluffs, or cliffs in alluvial, friable soils suitable for burrowing.
Black Skimmer (*Rynchops niger*)	BCC/SSC County Group 1	Year-round resident in southern California breeding in localized areas along coast from San Francisco Bay south to San Diego County, and east at the Salton Sea. Nests in mixed species colonies on open sandy areas, or gravel and shell bars, with sparse vegetation. In winter, roosts communally on urban beaches or on mud flats in estuaries. In San Diego County, primarily observed in Mission Bay during winter and at salt works in San Diego Bay during summer.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Rufous Hummingbird (*Selasphorus rufus*)	BCC/--	Spring and summer migrant in California, though may occur as a rare winter visitor in southern California. Travels through the state, primarily between March and April, as part of the species annual migration route between its wintering grounds in Mexico and breeding grounds up north. Often confused with the visually similar Allen's Hummingbird (*Selasphorus sasin*). No confirmed breeding records of the species occur within California.
Yellow Warbler (*Setophaga petechia*)	BCC/SSC County Group 2	Common to locally abundant species breeding throughout California at elevations below 8,500 feet; excluding most of the Mojave Desert and all of the Colorado Desert. Breeds in riparian areas dominated by willows and cottonwoods, near rivers, streams, lakes, and wet meadows. Also breeds in montane shrub and conifer forests in higher elevation areas.
Western Bluebird (*Sialia mexicana*)	--/-- County Group 2 MSCP Covered	Common year-round resident throughout California but absent from the higher mountains and eastern deserts. Breeds in open woodlands, riparian habitats, grasslands, and farmlands. Nests and roosts in cavities of trees and snags, often in holes previously created by woodpeckers, and nest boxes. Winters in a wider variety of habitats.
Lawrence's Goldfinch (*Spinus lawrencei*)	BCC/--	Resident of California breeding from Tehama, Shasta, and Trinity Counties to the foothills surrounding Central Valley, south through the southern Coast Range to Santa Barbara County continuing into San Diego County, and east to the western edge of the southern Mojave and Colorado Deserts. Found year-round in areas south of Kern County with wintering individuals observed further east into the desert regions and Colorado River Valley. Inhabits arid and open woodlands adjacent to scrub or chaparral habitats, grasslands or meadows, and water resources such as a stream, pond, or lake from sea level up to 10,000 feet. Highly nomadic species.
Brewer's Sparrow (*Spizella breweri*)	BCC/--	In California, breeds east of the Cascade and Sierra Nevada Ranges and in the mountains and high valleys of Mojave Desert. Breeding habitat includes shrublands often dominated by big sagebrush. Winters in open desert scrub habitat and croplands of southern Mojave and Colorado Deserts. Uncommon fall transient and rare spring transient in the coastal regions of southern California.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
California Least Tern (*Sternula antillarum browni*)	FE/SE, FP County Group 1 MSCP Covered NE	Occurs locally along California coastal regions breeding in colonies from San Francisco Bay south to San Diego County. Nests on relatively bare or sparsely vegetation beaches and mudflats near water. Forages in the bays and estuaries near their colonies, on the ocean near shore, and at inland lakes in the coastal lowland. In San Diego nesting sites occur at Aliso Creek, the Santa Margarita River mouth, Batiquitos Lagoon, San Elijo Lagoon, Mission Bay, Naval Training Center in the San Diego Bay, salt works, and Tijuana River mouth.
California Spotted Owl (*Strix occidentalis occidentalis*)	BCC/SSC	One of three subspecies occurring from the southern Cascade Range of northern California, south along the west slope of the Sierra Nevada to Kern County, coastal mountain ranges from Monterey County south to Santa Barbara County, and the Transverse and Peninsular Ranges of southern California. Found at elevations below 6,600 feet. Inhabits old-growth or late-seral-sage habitats with a complex structure such as large old trees and snags, multiple canopy layers, dense canopies, and downed wood debris. The presence of large, old trees is a key component to species' habitat. Nests in broken-top trees and tree cavities, and on platforms (abandoned raven and raptor nests, squirrel nests, mistletoe brooms, or debris accumulations in trees); rarely nests on cliffs.
Scripps's Murrelet (*Synthliboramphus scrippsi*)	FC, BCC/ST County Group 2	Nests on the Channel Islands (San Miguel, Santa Cruz, Anacapa, Santa Barbara, Santa Catalina, and San Clemente Islands) off the southern California coast. Largest breeding colonies occur on Santa Barbara Island. Nesting habitat includes sea slopes, canyons, and cliffs with a sparse cover of herbaceous and shrubby plants. Winters offshore along the California coast occupying warm pelagic waters and is rarely seen from the mainland.
Elegant Tern (*Thalasseus elegans*)	--/WL County Group 1 MSCP Covered	Migrates along the coastal regions of California with three known breeding colonies located in the extreme southwestern portion of the state: Los Angeles harbor (Los Angeles County), Bolsa Chica Ecological Reserve (Orange County), and San Diego Bay (San Diego County). Nests on generally low, flat, and sandy areas with little vegetation. Found in bays, harbors, estuaries, and inshore coastal waters. Rarely found inland.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Bendire's Thrasher (*Toxostoma bendirei*)	BCC/SSC County Group 2	In California, rare and irregular breeder in Mojave and northern Colorado Deserts of Inyo, Kern, San Bernardino, and Riverside Counties. Inhabits desert scrub dominated by yucca and cacti (*Opuntia* spp.) species. Generally, avoids areas with steep slopes and rocky terrain. In San Diego County, species occurs as an outlier with a single breeding occurrence near Ocotillo Wells within the Anza-Borrego Desert in 1993.
Crissal Thrasher (*Toxostoma crissale*)	--/SSC County Group 1	Permanent resident of the Mojave, Colorado, and Sonoran Deserts of southeastern California. Inhabits a large variety of desert riparian and scrub habitats from below 6,000 feet. Prefers areas of dense, low shrubby vegetation but has also been found foraging at agricultural edges (e.g., citrus orchards) when adjacent to native habitat patches.
LeConte's Thrasher (*Toxostoma lecontei*)	BCC/SSC County Group 2	Permanent resident found in the in southern California from San Joaquin Valley south through the Mojave and Colorado Desert to the U.S./Mexico border. Inhabits sparsely vegetated desert flats, dunes, alluvial fans, or gently rolling hills dominated by saltbush and cholla.
Barn Owl (*Tyto alba*)	--/-- County Group 2	Common, yearlong resident of California found in open habitats such as grassland, chaparral, riparian, and wetlands avoiding dense forests and open desert habitats. Also found in urban and suburban areas. Nest in sheltered areas of cliffs or man-made structures, on ledges, in crevices, culverts, nest boxes, and in cavities in trees. Roosts in dense vegetation, cliffs, and buildings and other man-made structures.
Least Bell's Vireo (*Vireo bellii pusillus*)	FE/SE County Group 1 MSCP Covered NE	In California, breeds along the coast and western edge of the Mojave Desert from Santa Barbara County south to San Diego County, and east to Inyo, San Bernardino, and Riverside Counties. Breeding habitat consists of early to mid-successional riparian habitat, often where flowing water is present, but also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover is required for nesting and foraging. Dominant species within breeding habitat includes cottonwood and willows with mule fat (*Baccharis salicifolia*), oaks (*Quercus* ssp.), and sycamore (*Platanus racemosa*), and mesquite and arrowweed (*Pluchea sericea*) within desert habitats. Can be tolerant of the presence of non-native species such as tamarisk.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Birds (cont.)		
Gray Vireo (*Vireo vicinior*)	BCC/SSC County Group 1	In California, breeds in arid montane habitats from Inyo County south to San Diego County. Prefers mixed juniper/pinon, oak scrub, and chaparral dominated by redshanks (*Adenostoma sparsifolium*), chamise, and ceanothus (*Ceanothus* spp.) in hot arid mountains and high plain scrublands with continuous shrub cover.
Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)	--/SSC	Migrant and summer resident of California. Breeds within the Klamath Basin and Modoc Plateau of northeastern California from the Oregon border south to Owens valley; Central Valley from Tehama County south to Kern County; east of the Sierra Nevada within Mono Basin and Owens Valley; and locally within southern California from Ventura County south San Diego County, western Riverside County, and Imperial County along lower Colorado River and Salton Sea. Winters in small numbers within southern Central Valley, and the Imperial and Colorado River Valleys of southern California. Nests almost exclusively in marshes with tall emergent vegetation preferring deep water wetlands. Breeding marshes often located at the edges of lakes, reservoirs, or larger ponds. Forages over adjacent wetlands, grasslands, or agricultural areas.
Mammals		
Pallid bat (*Antrozous pallidus*)	--/SSC County Group 2	Locally common species found at low elevations in California. Associated with arid and open habitats including grasslands, shrublands, woodlands, and forests, often with open water nearby. Prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging. Day roosts in caves, crevices, mines, and occasionally hollow trees and buildings. Appears to be intolerant of most human disturbances, being mostly absent from urban and suburban areas.
Ringtail (*Bassariscus astutus*)	--/FP County Group 2	Wide-ranging species found throughout California. Inhabits riparian areas and stands of most forest and shrub habitats in close association with rocky areas or riparian habitats.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Mammals (cont.)		
Dulzura pocket mouse (*Chaetodipus californicus femoralis*)	--/SSC County Group 2	Occurs in the foothills and mountains of San Diego County, although can also be found on the upper portions of mountain slopes extending into the desert regions. Ranges from the coastal regions (Oceanside to Del Mar, and possibly south to the Tijuana River Valley), eastwards to the Palomar and Cuyamaca Mountains, and extends to the desert slopes of San Felipe Valley, Cigarette Hills, and McCain Valley. Prefers gravelly substrates with sun exposure and can be found within open to dense vegetation. Inhabits chaparral habitats, but is occurs within coastal sage scrub, oak woodland, and at the edge of grasslands.
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	--/SSC County Group 2	Occurs throughout southwestern California from western Riverside County to northern Baja California at elevations below 6,000 feet. Inhabits coastal sage scrub, grasslands, and chaparral communities, and generally exhibits a strong microhabitat affinity for moderately gravelly and rocky substrates. Forages for seeds from California sagebrush, California buckwheat, lemonade berry, and grasses under shrub and tree canopies, or around rock crevices.
Pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*)	--/SSC County Group 2	Occurs on the desert slopes of San Diego County from Anza-Borrego Desert northwards to San Bernardino and San Gabriel Mountains into the Mojave Desert and Joshua Tree National Park. Prefers rocky habitat near shrubs but also inhabits grasslands and scrub habitats.
Mexican long-tongued bat (*Choeronycteris mexicana*)	--/SSC County Group 2	Found in southern California from Ventura County south to San Diego County. Occurs in arid habitats below 7,900 feet. Suitable habitats include grasslands, scrub, mixed forest, and canyons in mountain ranges rising from the desert. Primarily found in urban and suburban areas in San Diego County. Roosts in in caves and mines, and man-made structures such as garages, office buildings, under porches, and warehouses.
Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)	--/SSC County Group 2	Occurs throughout California but distribution is strongly correlated with the availability of caves and cave-like roosting habitat. Found in a variety of habitats with presence of caves or cave-like structures (such as buildings). In San Diego County, presumed absent from coastal areas being found more commonly in historic mining districts and boulder-strewn regions (i.e., Escondido, Lakeside, Dulzura, Jacumba, etc.).

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Mammals (cont.)		
Stephens' kangaroo rat (*Dipodomys stephensi*)	FE/ST County Group 1	Occurs in southern California within the San Jacinto Valley, western Riverside County, and southwestern San Bernardino County, and northwestern San Diego county at elevations between 4,100 feet. Inhabits native to open grasslands and sparse coastal sage scrub (less than 30 percent cover) on relatively flat or gently sloping ground. Dominant species include native and non-native herbaceous species such as filaree (*Erodium* spp.), non-native grasses (*Bromus* ssp.), California sagebrush, and California buckwheat.
Spotted bat (*Euderma maculatum*)	--/SSC County Group 2	In California, found in a small number of localities in the foothills, mountains, and desert regions at elevations below 10,000 feet. Inhabits rocky arid and semi-arid environments including forested mountains, open shrublands, and deserts. Roosts in rock crevices along cliffs adjacent to wide expanses of open habitat. Occasionally roosts in caves and buildings.
Western mastiff bat (*Eumops perotis californicus*)	--/SSC County Group 2	In California, occurs from Monterey County to San Diego County from the coast eastward to the Colorado Desert. Found in open, semi-arid to arid habitats including coastal and desert scrub, grasslands, woodlands, and palm oases. Prefers to roost in high situations above the ground on vertical cliffs, rock quarries, outcrops of fractured boulders, and occasionally tall buildings.
Mountain lion (*Felis concolor*)	--/-- County Group 2 MSCP Covered	Uncommon permanent resident found throughout California in nearly all habitats, expect xeric regions of Mojave and Colorado Deserts. Requires extensive riparian vegetation and brushy habitats with interspersed irregular terrain, rocky outcrops, and tree or brush edges. Main prey is mule deer.
Western red bat (*Lasiurus blossevillii*)	--/SSC County Group 2	In California, locally common occurring from Shasta County south to San Diego County and west of the Cascade and Sierra Nevada Ranges and deserts. Mainly occurs in riparian woodlands populated by willows, cottonwoods, sycamores, and oak trees but can be found in non-native vegetation such as tamarisk, eucalyptus, and orchards. Primarily roosts in trees preferring heavily shaded areas which are open underneath.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Mammals (cont.)		
Western yellow bat (*Lasiurus xanthinus*)	--/SSC	Occurs from southern California from in Los Angeles, San Bernardino, and San Diego Counties. In San Diego, commonly found in Anza-Borrego Desert but is also established west of the desert within rural to suburban areas including Escondido, Vista, Ramona, Lakeside, El Cajon, and La Mesa. Roosts primarily on dead palm frond skirts of native and non-native fan palms but has also been observed in cottonwoods and yuccas. Occurs within a variety of habitats where palms are present including desert riparian, desert washes, palm oasis, cottonwood-willow riparian forest, and developed areas.
Lesser long-nosed bat (*Leptonycteris yerbabuenae*)	FD/SSC	Primarily found within the desert regions of southwestern U.S. with only two locations reported in California: one in San Bernardino County and one in San Diego County. Roosts primarily in caves and cave-like structures. Feeds on flowers of various agave and cacti species. Species likely subsidized by landscaping with nectar-producing plants near man-made structures that function as cave-root analogs.
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	--/SSC County Group 2	Occurs along the coastal regions of southern California. Found in arid regions preferring grasslands, agricultural fields, and sparse scrub. Typically absent from areas with high-grass or dense brush, such as closed-canopy chaparral, primarily occupying short-grass and open scrub habitats.
California leaf-nosed bat (*Macrotus californicus*)	--/SSC County Group 2	In California, ranges from Ventura County south to the U.S./Mexico Border. Within San Diego County, primarily occurs as a desert species within the Anza-Borrego Desert, but has also been documented in the western foothills along the Santa Margarita River and inland valley of Dulzura. Uses caves and similar structures for roosting including buildings, bridges, and fallen palm trunks. Forages along desert washes and floodplains in the east, and sandy river valleys along the coast.
Small-footed myotis (*Myotis ciliolabrum*)	--/-- County Group 2	Found throughout California occurring in desert, chaparral, riparian areas, and forests. Presence of riparian areas and waters appears to be important in distribution. Strongly associated with chaparral and montane habitats in San Diego County. Roosts solitarily or in small numbers in rocky crevices, caves, mines, snags, buildings, and bridges.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Mammals (cont.)		
Long-eared myotis (*Myotis evotis*)	--/-- County Group 2	Widespread in California, but generally believed to be uncommon in most of its range. Avoids the arid Central Valley and hot deserts, occurring along the entire coast and in the Sierra Nevada, Cascades, and Coast Ranges below 9,000 feet. Occurs in riparian zones and chaparral but is found primarily in oak woodlands and pine forests in the foothills and mountains. It roosts in crevices and cavities in rocks and trees and is sometimes found in man-made structures such as buildings, bridges, and mines.
Yuma myotis (*Myotis yumanensis*)	--/-- County Group 2	Widespread in California but uncommon in the Mojave and Colorado Deserts, except in the mountain ranges bordering Colorado River Valley. Found in a variety of habitats including juniper and riparian woodlands, riparian forests, and desert regions where bodies of water (i.e., rivers, streams, ponds, lakes, etc.) are present. Closely associated with water which it uses for foraging and sources of drinking water. Roosts in caves, attics, buildings, mines, underneath bridges, and other similar structures.
San Diego Bryant's (formerly desert) woodrat (*Neotoma bryanti [formerly lepida] intermedia*)	--/SSC County Group 2	Occurs along the coastal regions of California from San Luis Obispo County south to San Diego County, and in the western portions of San Bernardino and Riverside Counties. Inhabits a variety of shrub and desert habitats such as coastal sagebrush scrub, chaparral, pinyon-juniper woodland, and Joshua tree woodland among others. Often associated with rock outcroppings, boulders, cacti patches, and areas with dense understories. Construct dens used for shelter, food storage, and nesting around rock outcroppings and cacti using various materials such as twigs, sticks, and other debris.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	--/SSC County Group 2	Rare in California occurring from Los Angeles County east to San Bernardino County and south to San Diego County. Closely associated with their preferred roosting habitats consisting of vertical cliffs, quarries, and rocky outcrops. Sometimes roosts under tiled roofs and observed utilizing bat boxes. Habitat generalists foraging in grasslands, shrublands, riparian areas, oak woodlands, forests, meadows, and ponds favoring larger water bodies for drinking.
Big free-tailed bat (*Nyctinomops macrotis*)	--/SSC County Group 2	Rare in California with species found in urban areas of San Diego County. Closely associated with their preferred roosting habitats consisting of vertical cliffs, quarries, and rocky outcrops. Also roosts in buildings and occasionally holes in trees. Associated with coastal and desert scrub, forests, riparian zones, and montane woodlands. Probably does not breed in California.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Mammals (cont.)		
Mule deer (*Odocoileus hemionus*)	--/-- County Group 2 MSCP Covered	Found throughout California lacking from only completely urbanized areas and the desert floor. Distribution determined by vegetation type, water availability, and quality and quantity of foraging habitat. Inhabits a wide array of habitats from grasslands, meadows, coastal sage scrub, chaparral, riparian and montane forests. Crepuscular activity and movements are along routes that provide the greatest amount of protective cover.
Southern grasshopper mouse (*Onychomys torridus ramona*)	--/SSC County Group 2	Ranges from the San Joaquin Valley of Los Angeles County south to northwest Baja California. Typically found in open valleys on the coastal side of the mountains but may extend a short distance onto the eastern desert slopes. Within San Diego County, has only been found on the eastern desert slopes within Dameron Valley, San Felipe Valley, and Scissors Crossing. Prefers open habitats with soft terrain and friable soils within grasslands, coastal sage scrub, alluvial fans, and desert scrub.
Peninsular bighorn sheep (*Ovis canadensis nelsoni*)	FE/ST, FP County Group 1	Found on east facing, lower elevation slopes of the Peninsular Ranges within Riverside, Imperial, and San Diego Counties at elevations below 4,600 feet along the northwestern edge of the Sonoran Desert. Found in steep, rugged, sparsely vegetation montane slopes where food and water resources are available but will also utilize alluvial fans, washes, and valley floors to forage, access water, and move between neighboring mountainous regions. Steep slopes are required for lambing and rearing habitat.
Palm Springs pocket mouse (*Perognathus longimembris bangsi*)	--/SSC	Found within the Anza-Borrego Desert region of San Diego County at elevations below 1,500 feet. Occupies dunes and sparse desert scrub environments dominated by creosote, saltbush, and mesquite.
Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)	--/SSC County Group 2	Historically occurred from the San Fernando Valley of Los Angeles County east to Cabazon in the San Gorgonio Pass and southeast to north-central San Diego County. Only known San Diego localities are in Dameron Valley and Warner Pass. Possibly intergrades with the Palm Springs pocket mouse in San Felipe Valley. Found in sandy washes, grasslands, disturbed sage scrub, and oak woodland habitats.

Appendix B (cont.)
Special Status Animal Species with Potential to Occur in the IVMP Service Area

Species	Status[1]	Habitat Associations
Mammals (cont.)		
Jacumba pocket mouse (*Perognathus longimembris internationalis*)	--/SSC County Group 2	Limited in range to the central and southern portions of San Diego County. Occurs on eastern mountain slopes leading to the desert within San Felipe Valley, Earthquake Valley, Blair Valley, Mason Valley, McCain Valley and Jacumba. Occupies higher elevation areas between 2,000 and 3,600 feet than other low desert subspecies. Occurs on steep and rock slopes, sandy washes and valley floors with low vegetative cover, and sites previously disturbed by grazing and cultivation.
Pacific pocket mouse (*Perognathus longimembris pacificus*)	FE/SSC County Group 1 NE	Historically occurred in coastal southern California from Los Angeles County south to San Diego County. Current distribution is within one mile of the coast with three known populations still present: Dana Point Headlands (Orange County, San Mateo Creek (northern San Diego County), and Camp Pendleton (southern San Diego County). Occurs on fine-grained, sandy or gravelly substrates in coastal strand, coastal dunes, river alluvium, and coastal sage scrub growing on marine terraces.
American badger (*Taxidea taxus*)	--/SSC County Group 2 MSCP Covered	Uncommon, permanent resident found through California, except for the extreme north coast areas. Associated with large blocks of undeveloped land composed of open valleys, alluvial fans, meadows, grasslands, and sandy desert. Dens function as sites for resting and parturition. Friable, easily crumbled soils are important for denning.

[1] Listing codes are as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; R = Rare; BCC = Federal Bird of Conservation Concern; SSC = State Species of Special Concern; FP = State Fully Protected; WL = Watch List

County of San Diego Sensitivity Status: Animals are divided into Groups 1 and 2 on the Sensitive Animal List. **Group 1** Animals include those that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met. **Group 2** Animals include those species that are becoming less common but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types.

MSCP Covered Species: Covered Species under County of San Diego Multiple Species Conservation Plan (MSCP) Subarea Plan; NE = Narrow Endemic Species under County's MSCP Subarea Plan.

Appendix C

Explanation of Status Codes for Plant and Animal Species

Appendix C
Explanation of Status Codes for Plant and Animal Species

FEDERAL AND STATE CODES

U.S. Fish and Wildlife Service (USFWS)

BCC	Bird of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
FC	Federal candidate species
FD	Federal delisted species
FE	Federally listed endangered
FPD	Federally proposed for delisting
FPE	Federally proposed endangered
FPT	Federally proposed threatened
FT	Federally listed threatened

USFWS Birds of Conservation Concern (BCC)

The primary legal authority for Birds of Conservation Concern (2008) is the Fish and Wildlife Conservation Act of 1980 (FWCA), as amended. Other authorities include the Endangered Species Act, Fish and Wildlife Act (1956) and 16 USC §701. A FWCA 1988 amendment (Public Law 100-653, Title VIII) requires the Secretary of the Interior through the USFWS to "identify species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." The 2008 BCC report is the most recent effort by the USFWS to carry out this proactive conservation mandate.

The BCC report aims to identify accurately the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the USFWS' highest conservation priorities and draw attention to species in need of conservation action. The USFWS hopes that by focusing attention on these highest priority species, the report will promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby ensuring the future of healthy avian populations and communities. Birds of Conservation Concern 2008 lists are available online at https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php.

USFWS Federal Candidate (FC) Species

Federal candidate species are those for which the USFWS has on file "sufficient information on biological vulnerability and threats to support a proposal to list as endangered or threatened, but for which preparation and publication of a proposal is precluded by higher-priority listing actions. [The USFWS] maintain[s] this list for a variety of reasons: to notify the public that these species are facing threats to their survival; to provide advance knowledge of potential listings that could affect decisions of environmental planners and developers; to provide information that may stimulate conservation efforts that will remove or reduce threats to these species; to solicit input from interested parties to help us identify those candidate species that may not require protection under the [Endangered Species Act] or additional species that may require the Act's protections; and to solicit necessary information for setting priorities for preparing listing proposals" (Federal Register 70:90 [May 11, 2005]).

Appendix C (cont.)
Explanation of Status Codes for Plant and Animal Species

USFWS Federal Proposed Endangered (FPE) Species

Any species the Service has determined is in danger of extinction throughout all or a significant portion of its range and the Service has proposed a draft rule to list as endangered. Proposed endangered species are not protected by the take prohibitions of section 9 of the ESA until the rule to list is finalized. Under section 7(a)(4) of the ESA, federal agencies must confer with the Service if their action will jeopardize the continued existence of a proposed species.

USFWS Federal Proposed Threatened (FPT) Species

Any species the Service has determined is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and the Service has proposed a draft rule to list as threatened. Proposed threatened species are not protected by the take prohibitions of section 9, consistent with any protective regulations finalized under section 4(d) of the ESA, until the rule to list is finalized. Under section 7(a)(4) of the ESA, federal agencies must confer with the Service if their action will jeopardize the continued existence of a proposed species.

USFWS Bald and Golden Eagle Protection Act (BGEPA)

In 1782, Continental Congress adopted the bald eagle as a national symbol. During the next one and a half centuries, the bald eagle was heavily hunted by sportsmen, taxidermists, fisherman, and farmers. To prevent the species from becoming extinct, Congress passed the Bald Eagle Protection Act in 1940. The Act was extremely comprehensive, prohibiting the take, possession, sale, purchase, barter, or offer to sell, purchase, or barter, export or import of the bald eagle "at any time or in any manner."

In 1962, Congress amended the Eagle Act to cover golden eagles, a move that was partially an attempt to strengthen protection of bald eagles, since the latter were often killed by people mistaking them for golden eagles. The golden eagle, however, is accorded somewhat lighter protection under the Act than the bald eagle. Another 1962 amendment authorizes the Secretary of the Interior to grant permits to Native Americans for traditional religious use of eagles and eagle parts and feathers.

California Department of Fish and Wildlife (CDFW)

SCE	State candidate for listing as endangered
SCT	State candidate for listing as threatened
SE	State listed endangered
SR	State listed rare
ST	State listed threatened
SSC	State species of special concern
WL	Watch List
FP	Fully Protected species refers to all vertebrate and invertebrate taxa of concern to the Natural Diversity Data Base regardless of legal or protection status. These species may not be taken or possessed without a permit from the Fish and Game Commission and/or CDFW.
Special Animal	Refers to all vertebrate and invertebrate taxa of concern to the Natural Diversity Database regardless of legal or protection status.

Appendix C (cont.)
Explanation of Status Codes for Plant and Animal Species

California Environmental Quality Act (CEQA)

For plants with no current federal or state legal standing, "CEQA" refers to the fact that under the Act, impacts to species may be found significant under certain circumstances (e.g., the species are regionally sensitive and/or are protected by a local policy, ordinance, or habitat conservation plan; or the impact involves interference with certain movements or migrations, with wildlife corridors or with nursery sites).

OTHER CODES AND ABBREVIATIONS

California Native Plant Society California Rare Plant Rank (CRPR) Codes

Lists

1A = Presumed extirpated in California and either rare or extinct elsewhere. Eligible for state listing.

1B = Rare, threatened, or endangered in California and elsewhere. Eligible for state listing.

2A = Presumed extirpated in California but common elsewhere. Eligible for state listing.

2B = Rare, threatened, or endangered in California but more common elsewhere. Eligible for state listing.

3 = Review List: Plants about which more information is needed. Some eligible for state listing.

4 = Watch List: Plants of limited distribution. Needs monitoring for changes in population status. Few (if any) eligible for state listing.

List/Threat Code Extensions

.1 = Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)

.2 = Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3 = Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

A "CA Endemic" entry corresponds to those taxa that only occur in California.

All List 1A (presumed extinct in California) and some List 3 (need more information; a review list) plants lacking threat information receive no extension. Threat Code guidelines represent only a starting point in threat level assessment. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Code.

Appendix C (cont.)
Explanation of Status Codes for Plant and Animal Species

County of San Diego

Plant Sensitivity

Group A Plants rare, threatened, or endangered in California and elsewhere
Group B Plants rare, threatened, or endangered in California but more common elsewhere
Group C Plants that may be quite rare but need more information to determine true rarity status
Group D Plants of limited distribution and are uncommon but not presently rare or endangered

Animal Sensitivity

Group 1 Animals that have a very high level of sensitivity either because they are listed as threatened or endangered or because they have very specific natural history requirements.

Group 2 Animal species that are becoming less common, but are not yet so rare that extirpation or extinction is imminent without immediate action. These species tend to be prolific within their suitable habitat types.

Multiple Species Conservation Program (MSCP) Covered

Multiple Species Conservation Program covered species for which the County of San Diego and City of San Diego have take authorization within the MSCP (South County) subarea and City of San Diego subarea.

MSCP Narrow Endemic

Narrow endemic species are native species that have “restricted geographic distributions, soil affinities, and/or habitats.” The MSCP participants’ subarea plans have specific conservation measures to ensure impacts to narrow endemics are avoided to the maximum extent practicable.