

Appendix 1.
Biological Technical Report

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Final
**Biological Technical Report for the
Valley - Ivyglen Transmission Line Project
Riverside County, California
(Volume I of II)**

Prepared for:

Southern California Edison Company
2244 Walnut Grove Avenue
Rosemead, California 91770

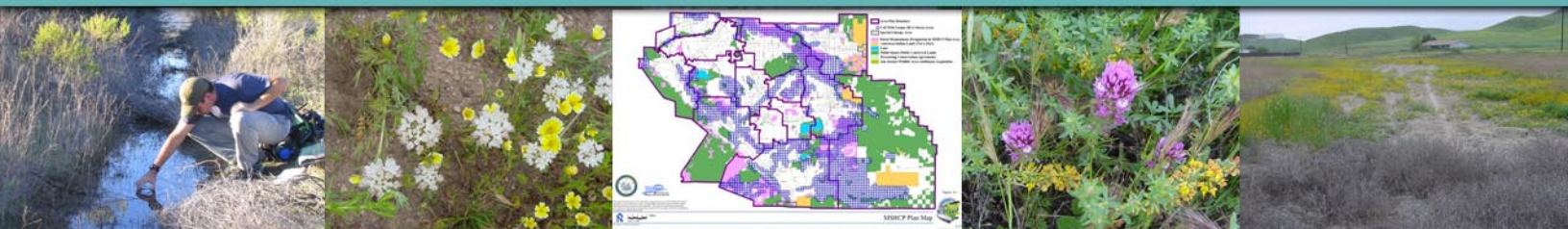
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October 2006

Project No. 6151000801-1001



FINAL
**BIOLOGICAL TECHNICAL REPORT FOR THE
VALLEY-IVYGLEN TRANSMISSION LINE
PROJECT
RIVERSIDE COUNTY, CALIFORNIA**

VOLUME I OF II

Prepared for:
Southern California Edison
2244 Walnut Grove Avenue
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ACRONYMS

BLM	Bureau of Land Management
CFGC	California Fish and Game Code
CDFG	California Department of Fish and Game
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CPUC	California Public Utilities Commission
CSC	California Special Concern Species
CWA	Clean Water Act
ESA	Endangered Species Act
EPD	Environmental Programs Department
FE	Federally Listed as Endangered
FSC	Federal Species of Concern
FT	Federally Listed Threatened
GPS	Geographic Position System
HCP	Habitat Conservation Plan
kV	Kilowatt
MBTA	Migratory Bird Treaty Act
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
NEPSS	Narrow Endemic Plant Species Survey
NOAA	National Oceanic and Atmospheric Administration
PEA	Proponent's Environmental Assessment
ROW	Right-of-Way
SCE	Southern California Edison
SE	State Listed as Endangered
ST	State Listed as Threatened
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

EXECUTIVE SUMMARY

Project: Valley-Ivyglen Transmission Line Project
Project Proponent: Southern California Edison
Principal Investigator: AMEC Earth & Environmental, Inc.
9210 Sky Park Court, Suite 200
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At the request of Southern California Edison (SCE), AMEC Earth & Environmental (AMEC) conducted a biological resources assessment for the proposed Valley-Ivyglen Transmission Line Project which is designed to improve reliability and meet projected electrical load requirements in the western Riverside County area. The Valley-Ivyglen Transmission Line Project involves the construction of a new 115kV transmission line which will connect the Valley Substation to the Ivyglen Substation. The Valley Substation is located in the southwest corner of an unincorporated area known as Romoland, adjacent to the city of Perris. The Ivyglen Substation is located in the southeastern portion of unincorporated Corona, along Temescal Canyon Road and near the Glen Ivy Hot Springs. The Ivyglen Substation is approximately 19 miles west of the Valley Substation.

The project area has been divided into one Preferred Route and ten alternative routes. The biological study area for the proposed project consists of a 200-foot wide corridor, 100 feet on each side of the proposed transmission line segments. The length of the biological study area is approximately 59 miles.

The project site is in the coverage area of the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP). The purpose of the biological resources assessment is to provide an overview-level assessment of the biological resources present and potentially present within the project area, evaluate consistency with the MSHCP, and to determine what focused sensitive species surveys or wetland/jurisdictional waters delineations may be necessary for further project review.

As a result of the biological resources assessment, it was determined that the following focused studies will be required for project consistency with the MSHCP:

- Focused surveys for MSHCP Narrow Endemic Plant Species, MSHCP Criteria Area Plant Species, and other California Native Plant Society (CNPS) listed species that are not covered by the MSHCP.
- Burrowing Owl Pre-Construction Surveys
- Delineations of jurisdictional waters/wetlands and MSHCP Riverine and Vernal Pool Habitats.

1.0 INTRODUCTION

1.1 Project Background

The purpose of this study is to document the biological resources associated with the Valley-Ivyglen Transmission Line Project which is designed to improve reliability and meet projected electrical load requirements in the western Riverside County area (Figure 1).

The proposed project is in the coverage area of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP is a comprehensive, multi-jurisdictional Habitat Conservation Plan (HCP) focusing on conservation of species and their associated habitats in western Riverside County.

1.2 Project Description

The Valley-Ivyglen Transmission Line Project involves the construction of a new 115kV transmission line which will connect the Valley Substation to the Ivyglen Substation. This transmission line will be installed in an existing right-of-way (ROW) where available, and new ROWs where none exist. The Valley Substation is located in the southwest corner of an unincorporated area known as Romoland, adjacent to the city of Perris. The Ivyglen Substation is located in the southeastern portion of unincorporated Corona, along Temescal Canyon Road and near the Glen Ivy Hot Springs (Figure 2). The Ivyglen Substation is approximately 19 miles west of the Valley Substation.

The majority of the transmission poles will be 75 feet high; however, 80-foot and 85-foot high poles may be installed for clearance purposes. Pole spacing (spanning) will be determined by ground clearance, overhead clearance, wind loading per California Public Utilities Commission (CPUC) standards, distance between angle points, and environmental constraints.

The project area has been divided into one Preferred Route and ten alternative routes. Each proposed route is illustrated in Volume II and described in Section 3.2 of this report. The biological study area for the proposed project consists of a 200-foot wide corridor, 100 feet on each side of the proposed transmission line segments. The length of the biological study area is approximately 59 miles.

SCE engineers will select transmission line routes based on well-located sites that will minimize or avoid any impacts to sensitive environmental resources. Route selection will influence equipment and construction, pole types, pole height, and other factors. Therefore, potential impacts may vary according to the routes which are selected for construction. The chosen routes will determine the transmission route alternatives for analysis in the required Proponent's Environmental Assessment (PEA).

The proposed Valley-Ivyglen Transmission Line Project would also require construction of a new communication path which would connect the Ivyglen Substation to the Valley Substation. This communication path is required for communication and monitoring of the substation and subtransmission line equipment. Along most of the telecommunication route, fiber optic cable

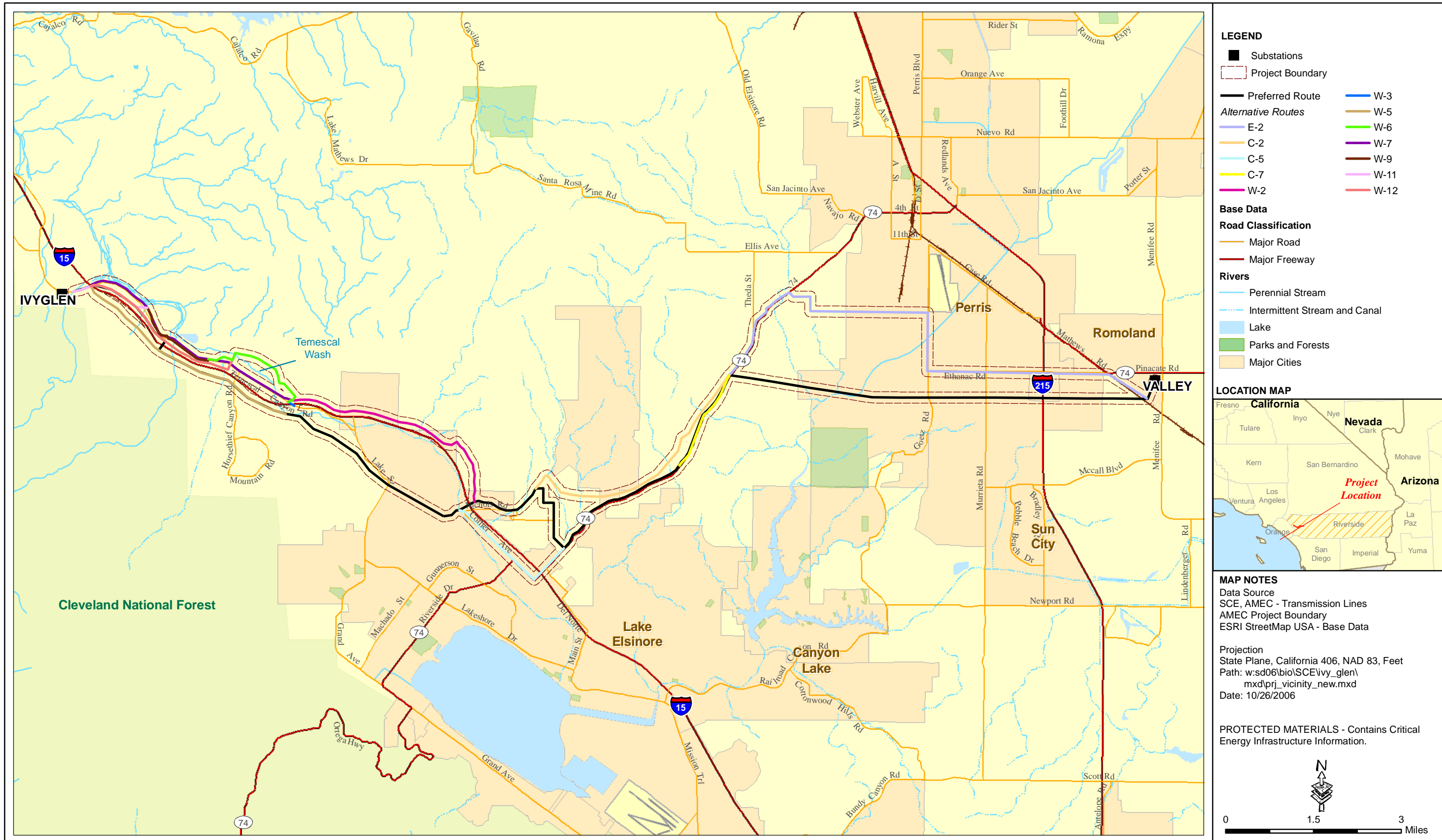


FIGURE

1



Regional Project Location
Valley - Ivyglen Transmission Line Project, California



LEGEND

- Substations
- ▭ Project Boundary
- Preferred Route
- Alternative Routes
- E-2
- C-2
- C-5
- C-7
- W-2
- W-3
- W-5
- W-6
- W-7
- W-9
- W-11
- W-12

Base Data

Road Classification

- Major Road
- Major Freeway

Rivers

- Perennial Stream
- Intermittent Stream and Canal
- Lake
- Parks and Forests
- Major Cities



MAP NOTES

Data Source
 SCE, AMEC - Transmission Lines
 AMEC Project Boundary
 ESRI StreetMap USA - Base Data

Projection
 State Plane, California 406, NAD 83, Feet
 Path: w:\sd06\bio\SCE\ivy_glen\
 mxd\prj_vicinity_new.mxd
 Date: 10/26/2006

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.



Project Vicinity
 Valley - Ivyglen Transmission Line Project, California

will be installed overhead on the new Valley-Ivyglen 115 kV structures. The telecommunication line construction activities would begin after new Valley-Ivyglen 115 kV subtransmission line structures are installed. Some sections of the fiber optic line will be installed underground by the use of trenching and/or boring methods.

The trenching method would involve installing the underground conduit through a 5-inch PVC conduit that will be placed in an excavated trench (18 inches wide and 36 inches deep) which will be dug using a backhoe. Areas where boring will be utilized to install the fiber optic telecommunication line would initially involve the excavation of a 6 foot by 8 foot hole. A boring machine will then be placed within the hole and drilling tube wherein the conduit will be placed would be inserted in the ground by the machine. Areas along the Preferred Route where these methods will be used are identified in Section 3.2 of this report.

1.3 Project Location

The proposed project is located in western Riverside County; the proposed transmission line routes also traverse unincorporated Riverside County, and the cities of Lake Elsinore, Corona, Perris, Sun City, and Canyon Lake, California. The proposed routes also traverse through portions of the following U.S. Geological Survey (USGS) 7.5-minute series topographic quadrangles: Corona South, Lake Matthews, Steele Peak, Perris, Lakeview, Santiago Peak, Alberhill, Lake Elsinore, Romoland, Winchester, Sitton Peak, and Wildomar.

1.4 Regulatory Setting

1.4.1 Federal Regulations

1.4.1.1 Federal Regulation of Waters of the United States, Including Wetlands (Clean Water Act Sections 404 and 401)

The U.S. Army Corps of Engineers (Corps or USACE) and the Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into “*waters of the United States*”, including wetlands, under Section 404 of the Clean Water Act (CWA). The USACE has defined the term “wetlands” as follows:

“Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstance do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Some classes of fill activities may be authorized under general permits if specific conditions are met. Projects that would result in the placement of dredged or fill material into waters of the U.S. require a Section 404 permit from the Corps. Utility line construction activities that result in the placement of fill into waters of the U.S. may be authorized under Section 404 Nationwide Permit 12 (at the discretion of the Corps). Nationwide Permit 12 also notes that overhead utility lines constructed over navigable waters of the United States require a Rivers and Harbors Act Section 10 permit. The general definition of navigable waters of the United States includes those waters of the United States that are subject to the ebb and flow of the tide shoreward to

the mean high water mark, and/or are presently used or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. Nationwide permits do not authorize activities that are likely to jeopardize the existence of a threatened or endangered species (listed or proposed for listing under the federal Endangered Species Act) or that may affect properties listed or eligible for listing in the National Register of Historic Places (56 FR 59134, November 22, 1991). In addition to conditions outlined under each nationwide permit, project-specific conditions may be required by the Corps as part of the Section 404 permitting process.

Section 401 of the CWA requires the issuance of a water quality certification or waiver thereof for all Section 404 nationwide or individual permits issued by the Corps. The EPA has deferred water quality certification authority to the Regional Water Quality Control Board (RWQCB). The federal government also supports a policy of minimizing "*the destruction, loss, or degradation of wetlands.*" Executive Order 11990 (May 24, 1977) requires that each federal agency take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

1.4.1.2 Federal Policies on Riparian Communities in California

Riparian communities have a variety of functions, including providing high-quality habitat for resident and migrant wildlife, streambank stabilization, and runoff water filtration. Throughout the United States, riparian habitats have declined substantially in extent and quality compared with their historical distribution and condition. These declines have increased concerns about dependent plant and wildlife species, which consequently, has lead federal agencies to adopt policies to arrest further loss. United States Fish and Wildlife Service (USFWS) mitigation policy identifies California's riparian habitats as belonging to resource Category 2, for which no net loss of existing habitat value is recommended (46 FR 7644, January 23, 1981).

1.4.1.3 Federal Endangered Species Act

The USFWS and National Oceanic and Atmospheric Administration (NOAA) Fisheries oversee the federal Endangered Species Act (ESA). Sections 9 and 4(d) of the ESA prohibit the "*take*" of any fish or wildlife species listed as endangered or threatened, including the destruction of habitat that could hinder species recovery. The ESA defines take as, "*to harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect listed animal species, or attempt to engage in such conduct.*" The Section 9 take prohibition of the ESA applies only to wildlife and fish species. Section 9 also prohibits the removal, possession, damage, or destruction of any endangered plant from federal lands. Section 9 further prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in non-federal areas in knowing violation of any state law or in the course of criminal trespass.

Candidate species and species that are proposed for listing receive no protection under the ESA. The USFWS has jurisdiction over plants, wildlife, and resident fish; NOAA Fisheries has jurisdiction over anadromous fish, marine fish, and marine mammals. Section 7 of the Act mandates that all federal agencies consult with the USFWS and/or NOAA Fisheries to ensure

that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify critical habitat for listed species.

Under Section 10(a)(1)(B) of the ESA, permits to authorize "*incidental take*" of listed species may be issued. "*Incidental take*" is defined by the ESA as take that is incidental to, and not for the purpose of, carrying out an otherwise lawful activity. To obtain a take permit, an applicant must submit a HCP outlining what will be done to minimize and mitigate the impact of the permitted take on the listed species. The underlying principle of Section 10 exemption from the ESA is that some individuals of a species or portions of their habitat may be expendable over the short term, as long as enough protection is provided to ensure the long-term recovery of the species.

1.4.1.4 Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) states that without a permit issued by the U.S. Department of the Interior, it is unlawful to pursue, hunt, take, capture, transport, import, or kill any migratory bird. A list of migratory bird species protected by the MBTA appears in 50 CFR 10.13.

1.4.1.5 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (The Eagle Act) amended in 1962, was originally implemented for the protection of bald eagles (*Haliaeetus leucocephalus*). In 1962, Congress amended the Eagle Act to cover golden eagles (*Aquila chrysaetos*), 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. This act makes it illegal to import, export, take (which includes molest or disturb), sell, purchase, or barter any bald eagle or golden eagle or part thereof. The golden eagle, however, is accorded somewhat lighter protection under the Eagle Act than the bald eagle (USFWS 2006b).

1.4.2 State Regulations

1.4.2.1 State Regulation of Waters

The CDFG regulates activities that would interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. Section 1602 of the California Fish and Game Code (CFG) requires notification of the CDFG for lake or stream alteration activities. If, after notification is complete, the CDFG determines that the activity may substantially adversely affect an existing fish and wildlife resource, the CDFG has authority to issue a streambed alteration agreement under Section 1603 of the CFG. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. These may include avoidance or minimization of heavy equipment use within stream zones, limitations on work periods to avoid impacts to wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses.

1.4.2.2 Storm Water Pollution Prevention Plan

The RWQCB implements water quality regulations under the federal CWA and the State Porter-Cologne Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activity. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

1.4.2.3 California Endangered Species Act

California implemented its own Endangered Species Act (CESA) in 1984. The state act prohibits the take of state-listed endangered and threatened species; however, habitat destruction is not included in the state's definition of take. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. The CDFG administers the act and authorizes take through Section 2081 agreements (except for designated "*fully protected species*"). Regarding listed rare and endangered plant species, CESA defers to the California Native Plant Protection Act (NPPA) of 1977, which prohibits importing of rare and endangered plants into California, and the taking and selling of rare and endangered plants. The CESA includes an additional listing category for threatened plants which are not regulated under the NPPA. In this case, plants listed as rare or endangered under the NPPA are not protected under CESA but can be protected under the California Environmental Quality Act (CEQA). In addition, plants that are not state-listed but meet the state standards for listing, are also protected under CEQA (Guidelines, Section 15380). In practice, this is generally interpreted to mean that all species on lists 1B and 2 of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants* (CNPS 2006) potentially qualify for protection under CEQA, and some species on lists 3 and 4 of the CNPS Inventory may qualify for protection under CEQA. List 3 includes plants for which more information is needed on taxonomy or distribution. Some of these are rare and endangered enough to qualify for protection under CEQA. List 4 includes plants of limited distribution that may qualify for protection if their abundance and distribution characteristics are found to meet the state standards for listing.

1.4.2.4 California Fish and Game Code Bird Protections

Section 3503 of the CFGC prohibits destruction of the nests or eggs of most native resident and migratory bird species. Section 3503.5 of the CFGC specifically prohibits the taking of raptors or destruction of their nests or eggs.

1.4.3 Local Regulations

1.4.3.1 Western Riverside County Multiple Species Habitat Conservation Plan

The proposed Valley-Ivyglen Transmission Line Project is in the coverage area of the Western Riverside County MSHCP which serves as a HCP pursuant to Section 10(a)(1)(B) of the ESA, as well as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The MSHCP, which was adopted by the County of Riverside on 17 June 2003, is one of several

large, multi-jurisdictional habitat conservation planning efforts in Southern California with the overall goal of maintaining biological diversity within a rapidly urbanizing region. The MSHCP will allow Riverside County and participating cities to better control local land-use decisions and maintain a strong economic climate in the region while addressing the requirements of the ESA and CESA.

The MSHCP aims to create a 500,000-acre Conservation Area from approximately 347,000 acres of existing public lands and 153,000 acres of existing private land within the 1.26-million-acre MSHCP area (1,966 square miles). It includes all unincorporated Riverside County land west of the crest of the San Jacinto Mountains to the Orange County line, as well as the jurisdictional areas of the cities of Temecula, Murrieta, Lake Elsinore, Canyon Lake, Norco, Corona, Riverside, Moreno Valley, Banning, Beaumont, Calimesa, Perris, Hemet, and San Jacinto. It covers multiple species and multiple habitats within a diverse landscape, from urban centers to undeveloped foothills and montane forests.

The MSHCP provides a conservation area for 146 special-status species, including federal and state listed endangered and threatened species, and provides incidental take permits for development projects that impact these conserved "covered" species. Under the MSHCP, the USFWS and CDFG (collectively known as the "Wildlife Agencies") will grant "*Take Authorization*" for otherwise lawful actions, such as public and private development that may incidentally take or harm individual species or their habitat outside of the MSHCP Conservation Area in exchange for the assembly and management of a coordinated MSHCP Conservation Area.

The MSHCP Conservation Area is designated within a significantly larger MSHCP Criteria Area. This Criteria Area is intended to facilitate the process by which the county or cities will evaluate property that may be included in the MSHCP Conservation Area after the plan is implemented. The Criteria Area is an analytical tool which assists in determining which properties to evaluate for acquisition, and conservation under the MSHCP and does not impose land use restrictions. The Criteria Area is mapped as cells of approximately 160 acres that are formed by overlaying USGS quarter sections on the Criteria Area. Each cell is uniquely identified and has specific conservation criteria. Some of the cells are grouped into subunits of the Criteria Area.

The overall 1.26 million acre MSHCP area is subdivided into 16 Area Plans, each of which include Criteria Area cells. Each Area Plan has specific protection measures, criteria, and surveys that are required for a proposed development plan to comply with the MSHCP. The proposed Valley-Ivyglen Transmission Line lies within the Temescal Canyon, Elsinore, Lake Matthews/Woodcrest, Mead Valley, and Sun City/Menifee Area Plans of the MSHCP.

For land use projects within the Criteria Areas, the county's Environmental Programs Department (EPD) administers the Property Owner Initiated Habitat Evaluation and Acquisition Negotiation Strategy (HANS) and ensures project level consistency with other elements of the MSHCP. The HANS process applies to property which may be needed for inclusion in the MSHCP Conservation Area or subjected to other MSHCP criteria and shall be implemented by the county and those cities that have agreed to implement the HANS process. Based on

current mapping, portions of the proposed Valley-Ivyglen Transmission Line are within Criteria Area cells, and thus will be subject to the HANS process.

A parcel outside the Criteria Areas generally does not require any type of habitat assessment, unless the parcel is within a required plant/animal survey area. With certain covered species, existing data is not sufficient to meet ESA Section 10(a) issuance criteria for take authorization.

MSHCP Biological Surveys

Of the 146 species covered by the MSHCP, no surveys are required by applicants for public and private projects for 106 of these Covered Species. There are 40 species for which surveys may be required by applicants for public and private development projects, including 4 birds, 3 mammals, 3 amphibians, 3 crustaceans, 14 narrow endemic plants, and 13 other sensitive plants within the Criteria Area. Of these species, surveys will be required within suitable habitat areas in locations identified on MSHCP survey maps (Section 6.0 of the MSHCP) and avoidance and minimization measures implemented in accordance with the species-specific objectives for those species. The possibility exists that surveys may be avoided if the project is designed to avoid identified species and their associated habitats.

Narrow Endemic Plant Species Surveys and Criteria Area Species Surveys

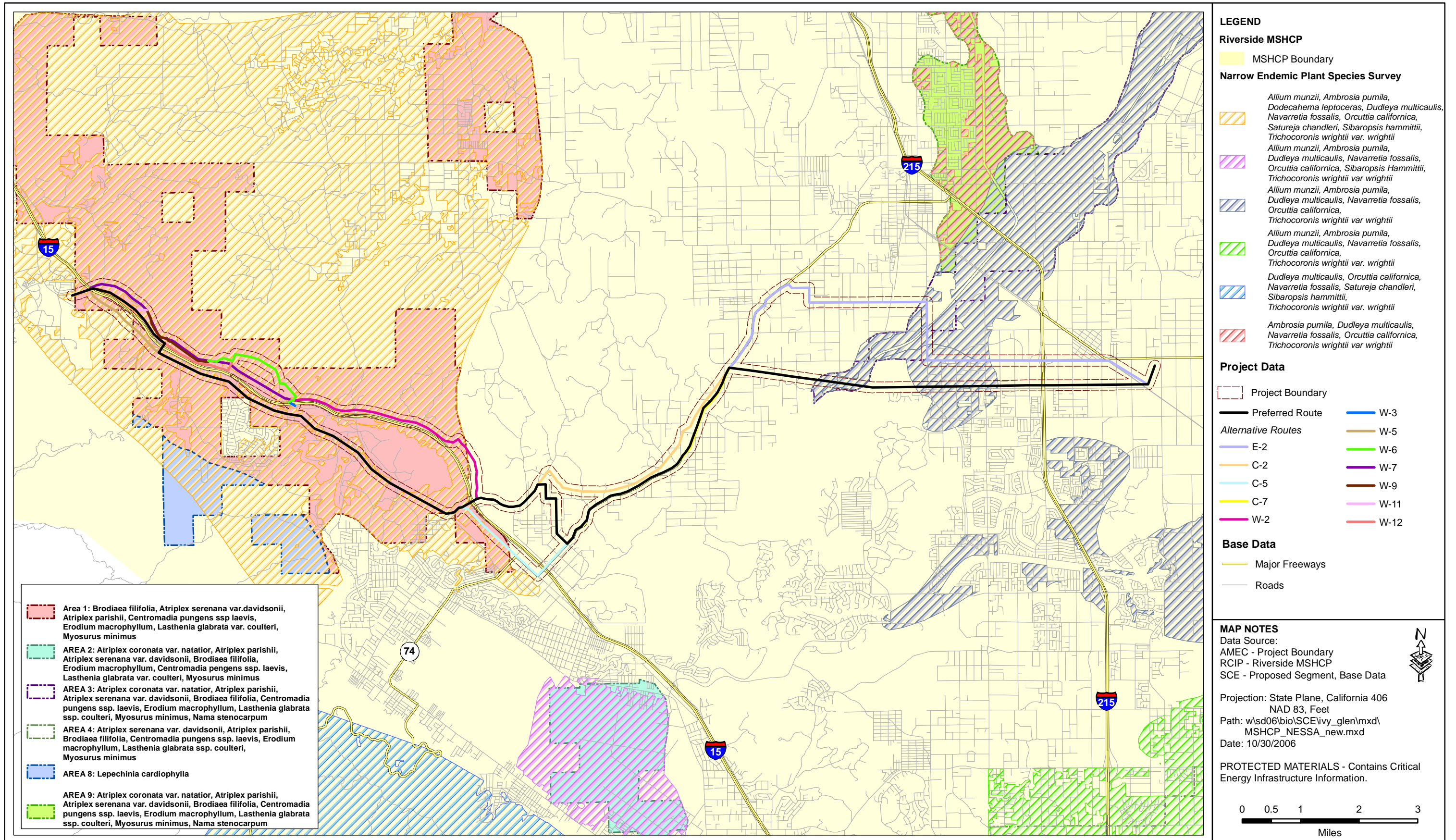
The Valley-Ivyglen Transmission Line Project lies within identified MSHCP Narrow Endemic Plant Species Survey Areas (Figure 3). Within these areas, site-specific focused surveys for Narrow Endemic Plant Species (Table 1) shall be required for all public and private projects where appropriate habitat is present.

In addition to the Narrow Endemic Plant Species, other surveys are needed for specific species “*Criteria Area Species*” (Table 1) in conjunction with the MSHCP. The *Additional Survey Needs and Procedures* policies presented in Section 6.3.2 of the MSHCP outlines these habitats and species. Additional surveys shall be conducted within suitable habitat for these species in the MSHCP Criteria Area (Figure 3).

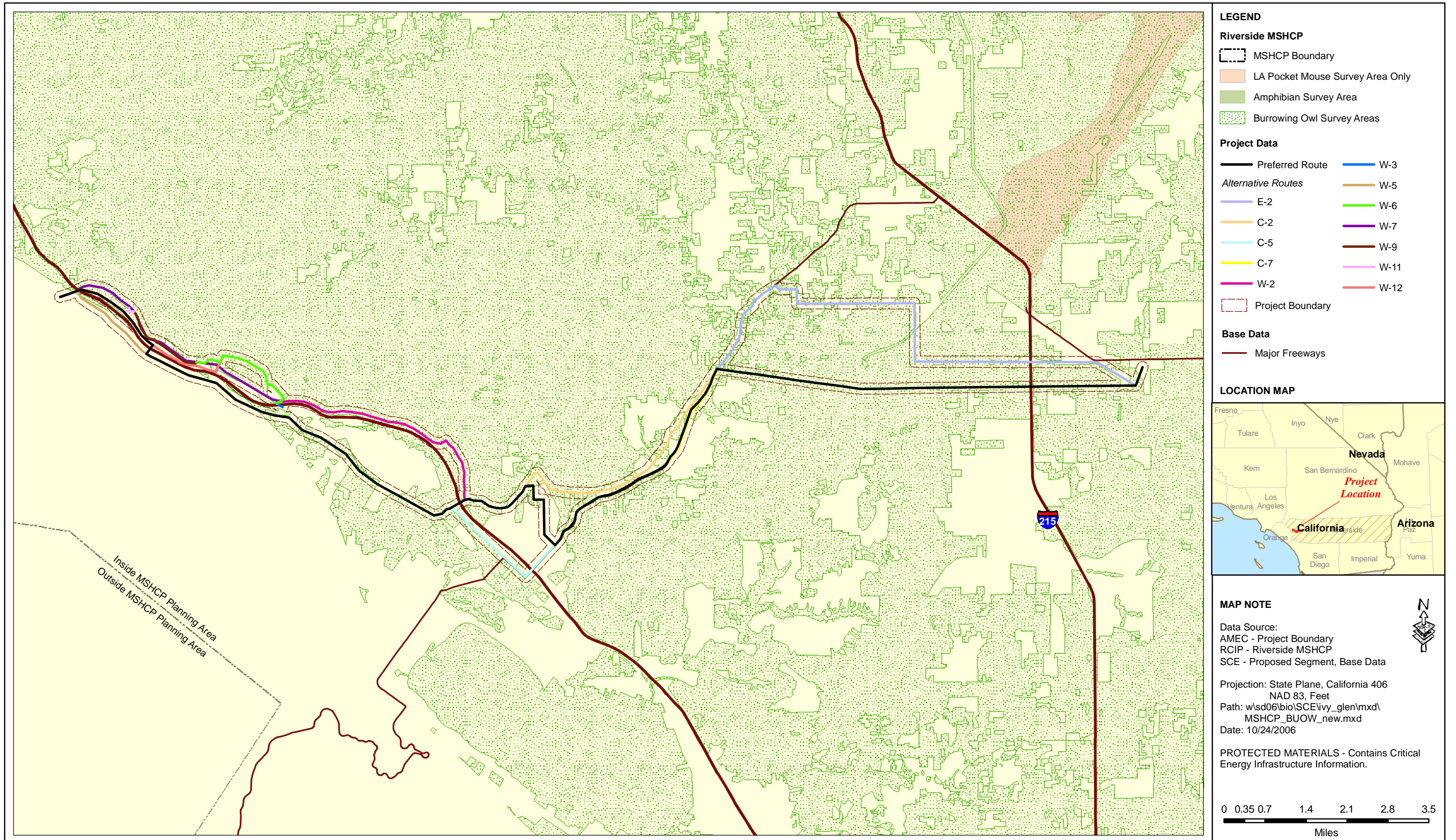
The MSHCP also specifies areas that need to be surveyed for specific amphibian, bird, and mammal species (Figure 5). The proposed Valley-Ivyglen Transmission Line Project does not traverse any of the areas depicted on the Amphibian and Mammal Survey Areas within the Criteria Area. However, the project does include areas which include Burrowing Owl (*Athene cunicularia hypugaea*) Survey Areas (Figure 4).

Table 1. MSHCP Narrow Endemic and Additional Criteria Area Species

MSHCP Narrow Endemic Plant Species		MSHCP Criteria Area Species	
Scientific Name	Common Name	Scientific Name	Common Name
<i>Allium marvinii</i>	Yucaipa Onion	<i>Atriplex coronata</i> var. <i>notatior</i>	San Jacinto Valley Crownscale
<i>Allium munzii</i>	Munz's Onion	<i>Atriplex parishii</i>	Parish's Brittle-scale
<i>Ambrosia pumila</i>	San Diego Ambrosia	<i>Atriplex serenana</i> var. <i> davidsonii</i>	Davidson's Saltscale
<i>Arabis johnstonii</i>	Johnston's Rockcress	<i>Berberis nevinii</i>	Nevin's Barberry
<i>Calochortus palmer</i> var. <i>munzii</i>	Munz's Mariposa lily	<i>Brodiaea filifolia</i>	Thread-Leaved Brodiaea
<i>Dodecahema leptoceras</i>	Slender-Horned Spine Flower	<i>Ceanothus ophiochilus</i>	Vail Lake Ceanothus
<i>Dudleya multicaulis</i>	Many-Stemmed Dudleya	<i>Erodium macrophyllum</i>	Round-Leaved Filaree
<i>Galium angustifolium</i> ssp. <i>jacinticum</i>	San Jacinto Mountains Bedstraw	<i>Centromadia pungens</i>	Smooth Tarplant
<i>Navarretia fossalis</i>	Spreading Navarretia	<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's Goldfields
<i>Orcuttia californica</i>	California Orcutt Grass	<i>Lepechinia cardiophylla</i>	Heart-Leaved Pitcher Sage
<i>Phacelia stellaris</i>	Brands Phacelia	<i>Myosurus minimus</i>	Little Mousetail
<i>Satureja chandleri</i>	San Miguel Savory	<i>Nama stenocarpum</i>	Mud Nama
<i>Sibaropsis hammittii</i>	Hammitt's Clay-Cress	<i>Navarretia prostrata</i>	Prostrate Navarretia
<i>Trichocoronis wrightii</i> var. <i>wrightii</i>	Wright's Trichocoronis		



Narrow Endemic Species Survey Area and Criteria Area Species Survey Area
 Valley - Ivyglen Transmission Line Project, California



MSHCP Riparian/Riverine Areas and Vernal Pools

The MSHCP requires site surveys of riparian, riverine, and vernal pool resources in order to conserve these resources and the species that use them. The MSHCP does not replace existing federal and state regulations covering lakes, streams, vernal pools and other wetland areas. Thus, projects must comply with existing regulations for these resources. An assessment of the potentially significant effects of projects on riparian/riverine areas, and vernal pools, shall be performed as currently required by CEQA.

Section 6.1.2 *Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools* of the MSHCP defines Riparian/Riverine Areas and vernal pools as follows:

- *Riparian/Riverine Areas are lands which contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby fresh water source; or areas with fresh water flow during all or a portion of the year.*
- *Vernal pools are seasonal wetlands that occur in depression areas that have wetlands indicators of all three parameters (soils, vegetation, and hydrology) during the wetter portion of the growing season, but normally lack wetlands indicators of hydrology and/or vegetation during the drier portion of the growing season. Obligate hydrophytes and facultative wetlands plant species are normally dominant during the wetter portion of the growing season, while upland species (annuals) may be dominant during the drier portion of the growing season.*

In addition to mapping vernal pools, the MSHCP requires mapping of stock ponds, ephemeral pools, and other features which may be suitable habitat for Riverside fairy shrimp (*Streptocephalus woottoni*), vernal pool fairy shrimp (*Branchinecta lynchi*), and Santa Rosa fairy shrimp (*Linderiella santarosae*).

If surveys find these resources on a project site, these resources may be conserved through inclusion in the Conservation Area during the HANS process. The MSHCP describes a strategy of impact avoidance, minimization, and mitigation for these resources. The MSHCP further requires that long-term conservation of these areas is assured, and recommends that indirect impacts be reviewed to provide protection for these areas.

MSHCP Habitat Suitability Assessments

The MSHCP states that “*prior to conducting surveys for Narrow Endemic and Criteria Area Species, habitat suitability assessments may be undertaken by a biologist/botanist with expertise in the plant species of concern to determine whether focused surveys for individual species are required and to focus the species-specific survey efforts.*”

In general, habitat suitability assessments may be undertaken year-round, with the exception of vernal pool species for which habitat suitability assessments must be conducted during the rainy season. For species with specific known reliance on rainfall and hydrology affinities, completion of a habitat suitability assessment and/or focused survey with negative results shall be sufficient to satisfy survey requirements for those species during years with at least normal rainfall.

2.0 METHODOLOGY

Prior to the field survey, records from the CDFG's California Natural Diversity Database (CNDDDB) *RareFind3* (CNDDDB 2005) and the CNPS' *Inventory of Rare and Endangered Plants* (CNPS 2006) were reviewed for potential occurrence of any sensitive species or habitats within the quadrangles wherein the proposed Valley-Ivyglen Transmission Line Project lies. In addition, a previous study conducted within the project area, *Draft Biological Resources Report Valley-Ivyglen Transmission Line Project Riverside County, California* (Entrix, Inc. 2005) was reviewed.

Based on this review, a list of potentially occurring special-status plants and animals was prepared for the study area. Plant and animal taxa were considered to be special-status species if they were classified as one or more of the following:

- Officially listed by California or the federal government as endangered, threatened, or rare;
- A candidate for State or Federal listing as endangered, threatened, or rare;
- Taxa listed in the CNPS' *Inventory of Rare and Endangered Plants of California*;
- Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the CEQA Guidelines;
- Bureau of Land Management, U.S. Fish and Wildlife Service, or U.S. Forest Service Sensitive Species; and
- Taxa that are biologically rare, very restricted in distribution, or declining (CDFG 2006).

Field maps were created prior to field visits (1 inch = 400 feet) which depicted the aerial view of each proposed transmission line segment and included known sensitive species CNDDDB data points. Potentially occurring habitats for special-status species were identified prior to field investigations through aerial photo-interpretation and consultations with SCE staff biologists.

Between 24 April and 22 August 2006 AMEC biologists, Patrick McConnell, Chester McGaugh and Nathan Moorhatch conducted biological surveys and habitat suitability assessments within the preferred transmission line segment and nine alternative routes.

Surveys were conducted in order to assess the biological resources and potential impacts to biological resources which are associated with the proposed transmission line project. Surveyed areas included a 200-foot-wide corridor centered on the segment. The survey efforts documented the following:

1. General biological characteristics of the each segment corridor;
2. Presence of any listed or special-status species;
3. Vegetation communities;
4. Flora and fauna species inventories;
5. Habitat suitability for MSHCP Narrow Endemic Plant Species;

6. Habitat suitability for MSHCP Criteria Area Plant Species;
7. Habitat suitability for other listed species that are not included in the MSHCP;
8. Habitat suitability and presence/absence surveys for burrowing owls;
9. MSHCP vernal pool and riparian/riverine habitats; and
10. USACE and CDFG jurisdictional areas.

As part of the proposed project, a telecommunication route will also be installed along the Preferred Route. Areas where telecommunication construction activities will involve trenching and/ or boring activities associated with the installation of the telecommunication line were additionally surveyed. These five locations along the Preferred Route were surveyed to include a 500-foot area.

Data was collected by numerous techniques including the use of a hand-held global positioning system (GPS), standardized data forms, photographs, and aerial field maps. Surveys were conducted according to Table 2, which indicates the surveyed segments, personnel involved, and date.

Table 2. Survey Dates, Personnel, and Methods

Proposed Routes	Surveyor	Date (2006)	Foot Survey	Windshield Survey	Inaccessible
Preferred Route	P.M.;C.M.	04/25, 4/26, 04/27, 05/02, 05/03	✓	✓	
Alternative E-2	P.M.;N.M.	4/27, 05/02, 05/03	✓	✓	
Alternative C-1	P.M.;C.M.	4/27, 05/02, 05/03	✓	✓	
Alternative C-5	P.M.;N.M.	4/27, 05/02, 05/03	✓	✓	
Alternative C-7	P.M.;N.M.	4/27, 05/02, 05/03		✓	
Alternative W-2	P.M.;N.M.	05/03, 05/04	✓	✓	✓
Alternative W-3	P.M.;N.M.	04/27, 05/02	✓	✓	
Alternative W-5	P.M.;N.M.	04/26, 4/27	✓		
Alternative W-6	P.M.;N.M.	04/27, 05/02	✓	✓	
Alternative W-7	P.M.;N.M.	04/24, 04/25, 05/03, 05/04	✓	✓	
Alternative W-9	P.M.;N.M.	05/02, 05/03	✓	✓	
Alternative W-11	P.M.;N.M.	05/02, 05/03	✓	✓	
Alternative W-12	P.M.;N.M.	04/24, 04/25, 04/26	✓	✓	

C.M. = Chester McGaugh; AMEC Wildlife Biologist
 N.M. = Nathan Moorhatch; AMEC Wildlife Biologist
 P.M. = Patrick McConnell; AMEC Botanist

2.1 Sensitive Plant Species Surveys

Botanical surveys of the transmission line Preferred Route and Alternative routes were conducted following the CDFG *Guidelines for Assessing the Effects of Proposed Project on Rare, Threatened, and Endangered Plants and Natural Communities* (CDFG 2006) and the CNPS *Botanical Survey Guidelines* (CNPS 2001). Botanical surveys were performed when most plant species would be detectable.

Areas with potential habitat for special-status species (i.e., mesic sites, rocky outcrops, gabbroic soils, etc.) to occur were surveyed on foot. Other areas were surveyed by vehicle in areas where there was little to no potential for occurrence or in highly disturbed areas. Plant species were noted along each proposed route during field surveys (Appendix A).

Vegetation communities along each proposed transmission line route were described according to the MSHCP Conservation Area descriptions (County of Riverside 2003), and dominant plant species and community structure were recorded. Wetlands, streams, and/or vernal pools were also noted.

According to the CNPS *Electronic Inventory of Rare or Endangered Vascular Plants of California* (CNPS 2006) and the CDFG *RareFind3* database, 51 special-status plant species are known to occur or have the potential to occur in the general vicinity of the proposed Valley- Ivyglen project (Table 3).

Additional information on special-status species, such as habitat needs, flowering periods, potential for occurrence within the project area, and MSHCP coverage is provided in Appendix B. Species accounts are also provided for MSHCP Narrow Endemic and Criteria Area species (Appendix C).

2.2 Sensitive Wildlife Surveys

Reconnaissance wildlife surveys were conducted in conjunction with vegetation mapping and sensitive plant species surveys for sensitive wildlife known to occur within the vicinity of the study area and/or that have the potential to occur in the study area (Table 4). The project area was traversed on foot to survey each vegetation community and look for evidence for wildlife presence. All wildlife and wildlife signs, including tracks, fecal material, nests, and vocalizations were noted (Appendix D). All sensitive wildlife species encountered were mapped and added to a GIS database.

2.2.1 Burrowing Owl Surveys

Habitat on each proposed transmission line route was also assessed for burrowing owl presence, use, and potential use. Burrowing owl habitat assessment surveys were conducted according to the CDFG *Burrowing Owl Consortium Guidelines* (CDFG 1993) and the *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area* (County of Riverside 2006).

Areas with potential burrowing owl habitat, including grasslands, sage scrub, and low growing vegetation were surveyed for potential owl burrows and owls. These surveys included ground squirrel and ground squirrel burrow surveys. Biologists walked areas of potential habitat while searching for burrowing owls, potential and active burrows, and owl sign such as feathers, pellets, and prey items.

Surveys were conducted to allow 100 percent visual coverage of potential habitat. The survey area included a 500-foot buffer area from the center line of each route. The guidelines require that, if the project site contains burrows that could be used by burrowing owls, survey efforts should be directed towards determining owl presence.

Table 3. Special-Status Plant Species Known to Occur or with the Potential to Occur in the Valley-Ivyglen Project Area

Scientific Name	Common Name	Status CNPS/Federal/State/County
<i>Abronia villosa</i> var. <i>aurita</i>	Chaparral Sand-Verbena	1B.1/-/-
<i>Allium munzii</i>	Munz's Onion	1B.1/FE/ST/NES
<i>Ambrosia pumila</i>	San Diego Ambrosia	1B.1/FE/-/NES
<i>Arctostaphylos rainbowensis</i>	Rainbow Manzanita	1B.1/-/-/CS
<i>Astragalus pachypus</i> var. <i>jaegeri</i>	Jaeger's Milk-Vetch	1B.1/-/-/CS
<i>Atriplex coronata</i> var. <i>notatior</i>	San Jacinto Valley Crownscale	1B.1/FE/-/CAS
<i>Atriplex coulteri</i>	Coulter's Saltbush	1B.2/-/-/CS
<i>Atriplex pacifica</i>	South Coast Saltscale	1B.2/-/-/CS
<i>Atriplex parishii</i>	Parish's Brittle-scale	1B.1/-/-/CAS
<i>Atriplex serenana</i> var. <i> davidsonii</i>	Davidson's Saltscale	1B.2/-/-/CAS
<i>Brodiaea filifolia</i>	Thread-Leaved Brodiaea	1B.1/FT SE/CAS
<i>Brodiaea orcuttii</i>	Orcutt's Brodiaea	1B.1/-/-/CS
<i>Calochortus plummerae</i>	Plummer's Mariposa Lily	1B.2/-/-/CS
<i>Calochortus weedii</i> var. <i>intermedius</i>	Intermediate Mariposa Lily	1B.2/-/-/CS
<i>Centromadia pungens</i> ssp. <i>laevis</i>	Smooth Tarplant	1B.1/-/-/CS
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's Spineflower	3.2/-/-/CS
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	Long-Spined Spineflower	1B.2/-/-/CS
<i>Chorizanthe xanti</i> var. <i>leucotheca</i>	White-Bracted Spineflower	1B.2/-/-
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	Summer Holly	1B.2/-/-
<i>Convolvulus simulans</i>	Small-Flowered Morning Glory	4.2/-/-/CS
<i>Cupressus forbesii</i>	Tecate Cypress	1B.1/-/-/CS
<i>Dodecahema leptoceras</i>	Slender-Horned Spineflower	1B.1/FE/SE/NES
<i>Dudleya cymosa</i> ssp. <i>ovatifolia</i>	Santa Monica Mountains Dudleya	1B.2/FT/NC
<i>Dudleya multicaulis</i>	Many-Stemmed Dudleya	1B.2/NES
<i>Dudleya viscida</i>	Sticky Dudleya	1B.2/-/-/CS
<i>Erodium macrophyllum</i>	Round-Leaved Filaree	2.1/CAS
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego Button-Celery	1B.1/FE/SE
<i>Hordeum intercedens</i>	Vernal Barley	3.2/-/-/CS
<i>Harpagonella palmeri</i>	Palmer's grapplinghook	4.2/-/-/CS
<i>Horkelia cuneata</i> ssp. <i>puberula</i>	Mesa Horkelia	1B.1/-/-
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's Goldfields	1B.1/-/-/CAS
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's Pepper-Grass	1B.2/-/-/CS
<i>Lepechinia cardiophylla</i>	Heart-Leaved Pitcher Sage	1B.2/-/-/CAS

Scientific Name	Common Name	Status CNPS/Federal/State/County
<i>Limnanthes gracilis</i> ssp. <i>parishii</i>	Parish's Meadowfoam	1B.2/-/ST/CS
<i>Monardella hypoleuca</i> ssp. <i>lanata</i>	Felt-Leaved Monardella	1B.2/-/-/-
<i>Monardella macrantha</i> ssp. <i>hallii</i>	Hall's Monardella	1B.3/-/-/CS
<i>Myosurus minimus</i> ssp. <i>apus</i>	Little Mousetail	3.1/-/-/CAS
<i>Navarretia fossalis</i>	Spreading Navarretia	1B.1/FT/-/CS
<i>Navarretia prostrata</i>	Prostrate Navarretia	1B.1/NC/CAS
<i>Nolina cismontanas</i>	Chaparral Nolina	1B.2/-/-/-
<i>Orcuttia californica</i>	California Orcutt Grass	1B.1/FE/SE/NES
<i>Phacelia suaveolens</i> ssp. <i>keckii</i>	Santiago Peak Phacelia	1B.3/-/-/CS
<i>Satureja chandleri</i>	San Miguel Savory	1B.2/-/-/NES
<i>Senecio aphanactis</i>	Rayless Ragwort	2.2/-/-/-
<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i>	Southern Skullcap	1B.2/-/-/CS
<i>Sibaropsis hammittii</i>	Hammitt's Clay-Cress	1B.2/-/-/-
<i>Sidalcea neomexicana</i>	Salt Spring Checkerbloom	2.2/-/-/CS
<i>Sphaerocarpos dreweii</i>	Bottle Liverwort	1B.1/-/-/-
<i>Symphotrichum defoliatum</i>	San Bernardino Aster	1B.2/-/-/-
<i>Tetracoccus dioicus</i>	Parry's Tetracoccus	1B.2/-/-/CS
<i>Tortula californica</i>	California Screw Moss	1B.2/-/-/-
<i>Trichocoronis wrightii</i> var. <i>wrightii</i>	Wright's Trichocoronis	2.1/-/-/CS

Federal Status

FE = Federal Endangered

FT = Federal Threatened

State/CDFG Status

SE = State Endangered

ST = State Threatened

County Status

CS = MSHCP Covered Species which has been "take authorized".

NES = MSHCP Narrow Endemic Species

CAS = MSHCP Criteria Area Species

BOLD = Identified within the project area.

CNPS Status

1B = Rare or Endangered in California and elsewhere

2 = Rare or Endangered in California, but more common elsewhere

3 = Review List- Plant for which we need more information

4 = Plants with limited Distribution- Watch List

.1 = Seriously endangered in California

.2 = Fairly endangered in California

.3 = Not very endangered in California

Table 4. Special-Status Wildlife Species Known to Occur or with the Potential to Occur in the Valley-Ivyglen Project Area

Common Name	Scientific Name	Status
Birds		
Cooper's Hawk	<i>Accipiter cooperii</i>	CSC (nesting), MBTA, CS
Sharp-Shinned Hawk	<i>Accipiter striatus</i>	CSC, CS
Tri-Colored Blackbird (Nesting Colony)	<i>Agelaius tricolor</i>	FBCC, CSC, MBTA, CS
Southern California Rufous-Crowned Sparrow	<i>Aimophila ruficeps canescens</i>	CSC, MBTA, CS
Bell's Sage Sparrow	<i>Amphispiza belli belli</i>	FBCC, CSC, MBTA, CS
Golden Eagle	<i>Aquila chrysaetos</i>	FBCC, BEPA, CSC, CFP, MBTA, CS
Burrowing Owl	<i>Athene cunicularia</i>	FSC, FBCC, CSC (Burrow sites), MBTA, CAS
Ferruginous Hawk	<i>Buteo regalis</i>	FBCC, CSC (wintering), MBTA, CS
Northern Harrier	<i>Circus cyaneus</i>	CSC (nesting), MBTA, CS (breeding)
White-Tailed Kite	<i>Elanus leucurus</i>	CFP, MBTA, CS
Willow Flycatcher (Southwestern)	<i>Empidonax traillii (extimus)</i>	FE (<i>extimus</i>), SE (all subspecies), MBTA, CS (<i>extimus</i>)
California Horned Lark	<i>Eremophila alpestris actia</i>	CSC, MBTA, CS
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	FBCC, SE, MBTA, CS
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FT, SE, BEPA, MBTA, CS
Yellow-Breasted Chat	<i>Icteria virens</i>	CSC (nesting), MBTA, CS
Loggerhead Shrike	<i>Lanius ludovicianus</i>	FBCC, CSC (nesting), MBTA, CS
White-Faced Ibis	<i>Plegadis chihi</i>	CSC, MBTA
Coastal California Gnatcatcher	<i>Poliopitila californica californica</i>	FT, CSC, MBTA, CS
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	FE, SE, MBTA, CS
Mammals		
Dulzura California Pocket Mouse	<i>Cheatomys californicus femoralis</i>	CSC
Stephens' Kangaroo Rat	<i>Dipodomys stephensi</i>	ST/FE CS
Western Mastiff Bat	<i>Eumops perotis</i>	CSC
San Diego Black-Tailed Jackrabbit	<i>Lepus californica bennettii</i>	CSC, CS
San Diego Desert Woodrat	<i>Neotoma lepida intermedia</i>	CSC, CS
Southern Grasshopper Mouse	<i>Onychomys torridus ramona</i>	CSC
Northwestern San Diego Pocket Mouse	<i>Perognathus (Chaetodipus) fallax fallax</i>	CSC, CS

Common Name	Scientific Name	Status
Los Angeles Pocket Mouse	<i>Perognathus longimembris brevinasus</i>	FE, CSC, NE, MSHCP Covered Species
(Townsend's) Big-Eared Bat	<i>Corynorhinus (Plecotus) townsendii</i>	CSC
Amphibians		
Arroyo Toad	<i>Bufo californicus</i>	FE, CSC, CS
Western Spadefoot Toad	<i>Scaphiopus hammondi</i>	CSC, CS
Reptiles		
Orange-Throated Whiptail	<i>Aspidoscelis (Cnemidophorus) hyperythra beldingi</i>	CSC CS
Coastal Western Whiptail	<i>Aspidoscelis (Cnemidophorus) tigris stejnegeri</i>	CNDDDB: G5T3T4S2S3, CS
Coastal Rosy Boa	<i>Charina (Lichanura) trivirgata roseofusca</i>	CNDDDB: G4G5S3S4
Southwestern Pond Turtle	<i>Clemmys marmorata pallida</i>	CSC, CS
San Diego Banded Gecko	<i>Coleonyx variegates abbottii</i>	CNDDDB: G5T3T4S2S3, CS
Northern Red Diamond Rattlesnake	<i>Crotalus ruber ruber</i>	CSC, CS
San Diego Mountain Kingsnake	<i>Lampropeltus zonata pulchra</i>	CSC, CS
Coast (San Diego) Horned Lizard	<i>Phrynosoma coronatum (blainvillei)</i>	CSC, CS
Coast Patch-Nosed Snake	<i>Salvadora hexalepis virgultea</i>	CSC
Two-Striped Garter Snake	<i>Thamnophis hammondi</i>	CSC
Invertebrates		
Quino Checkerspot Butterfly	<i>Euphydryas editha quino</i>	FE, CS
Riverside Fairy Shrimp	<i>Streptocephalus woottoni</i>	FE, CS

Federal Status

FE = Federal Endangered
 FT = Federal Threatened
 FBCC= Federal Birds of
 Conservation Concern
 MBTA = Migratory Bird Treaty Act
 Species
 BEPA=Bald and Golden Eagle
 Protection Act

State/CDFG Status

SE = State Endangered
 ST = State Threatened
 CFP= California Fully Protected Species
 CSC = California Species of Concern
 CNDDDB = has a California Natural
 Diversity DataBase ranking only

County Status

CS = MSHCP Covered Species which has
 been "take authorized".
 CAS= MSHCP Criteria Area Species
BOLD= Identified within the project area.

3.0 SURVEY RESULTS AND EXISTING CONDITIONS

The topography in the study area is generally gentle rolling hills. The approximately 58 miles of study area contains a combination of agricultural, municipal, private, and reserve land, most with previous disturbance. The project area also traverses through portions of public lands which are managed by the Bureau of Land Management (BLM) (Figure 5).

3.1 Regional Overview

3.1.1 Climate

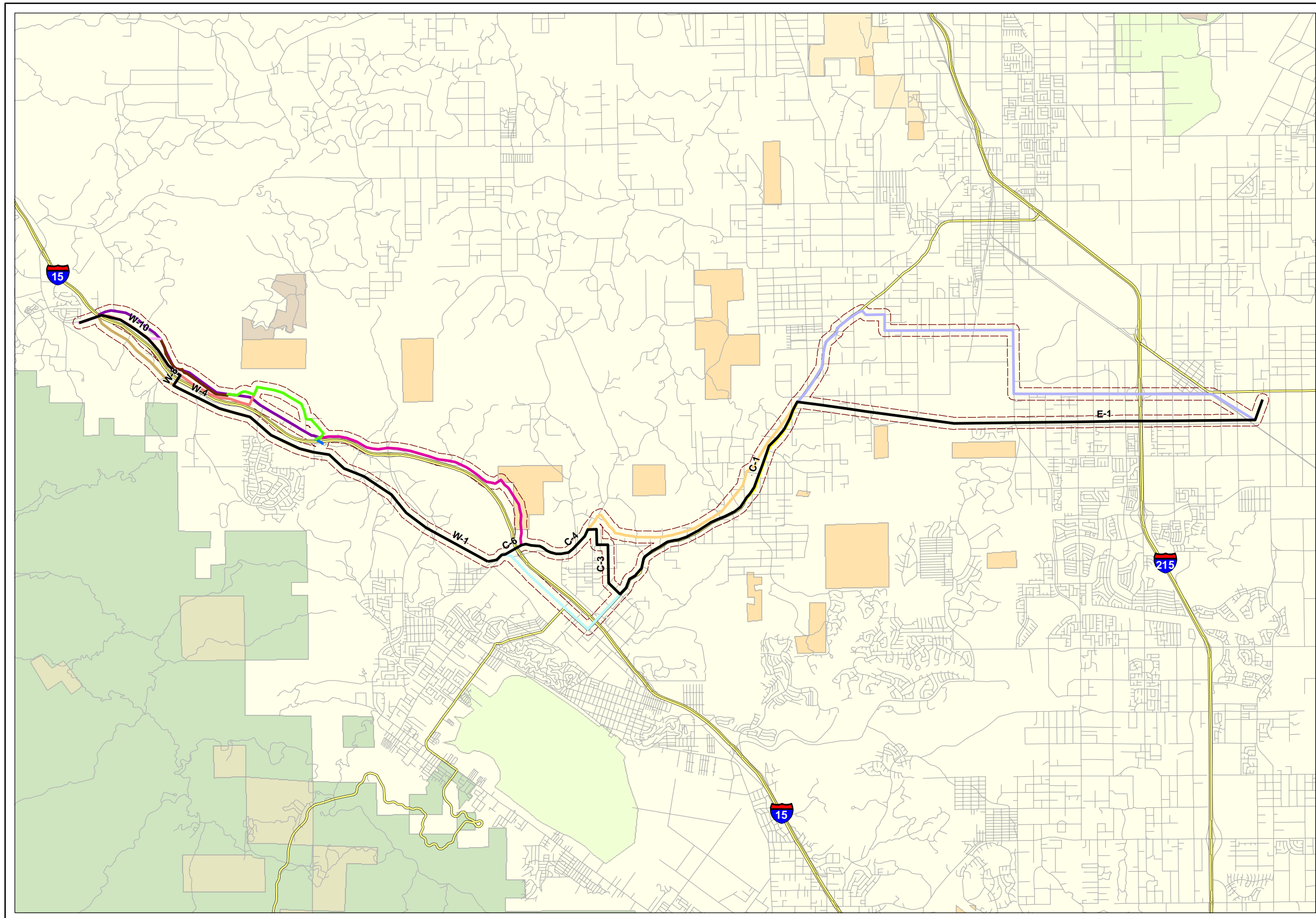
The study area is located within a Mediterranean climate region consisting of warm, dry summers and mild, wet winters. In summer, temperatures often reach 100° F and winter temperatures fall into the 30°, with an occasional freeze. Average annual temperature ranges are fairly moderate for the area, ranging from 49.3° F to 79.5° F. Average total precipitation for the area is approximately 10 to 15 inches per year (Western Regional Climate Center 2005).

3.1.2 Soils

The project area is located on predominantly flat areas that have historically been used for grazing and agriculture. Soils in the study area are primarily in the Monserate-Arlington-Exeter and Traver-Domino-Willows associations. These soils are characterized as level to moderately steep soils that have a surface layer of sandy loam often with a hardpan. The soils can vary from very shallow to relatively deep (USDA 1971). The soils in the area do not generally have a high clay component. However, there are "lenses" of clay soils in the study area.

The Traver-Domino-Willows association is considered a MSHCP sensitive soil type and includes saline-alkali soils largely located along floodplain areas of the San Jacinto River (Figure 6). Sensitive plants which may be supported by the Traver-Domino-Willows soil association include two federally-listed species: San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*) and spreading navarretia (*Navarretia fossalis*). Other sensitive plant species found in this association include Parish's brittlescale (*Atriplex parishii*), Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), and vernal barley (*Hordeum intercedens*) (County of Riverside 2003).

Clay soils may support several listed threatened or endangered species: Munz's onion (*Allium munzii*), thread-leaved brodiaea (*Brodiaea filifolia*) and San Diego button celery (*Eryngium aristulatum* var. *parishii*). Other sensitive plant species occurring on clay soils include, Orcutt's brodiaea (*Brodiaea orcuttii*), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), small-flowered morning glory (*Convolvulus simulans*), many-stemmed dudleya (*Dudleya multicaulis*), Palmer's grapplinghook (*Harpagonella palmeri*), graceful tarplant (*Holocarpha virgata* ssp. *elongata*), and small-flowered microseris (*Microseris douglasii* ssp. *platycarpha*) (County of Riverside 2003).



- LEGEND**
- Land Ownership**
- Bureau of Land Management
 - U.S. Forest Service
 - State Fish and Game
 - State Parks and Recreation
 - State
 - Private Conservancy
 - Private

- Project Data**
- Project Boundary
 - Preferred Route
 - W-3
 - W-5
 - E-2
 - W-6
 - C-2
 - W-7
 - C-5
 - W-9
 - C-7
 - W-11
 - W-12
 - W-2

- Base Data**
- Major Freeways
 - Roads



MAP NOTE

Data Source:
 AMEC - Project Boundary
 CaSIL - Government Ownership
 SCE - Alternatives, Base Data

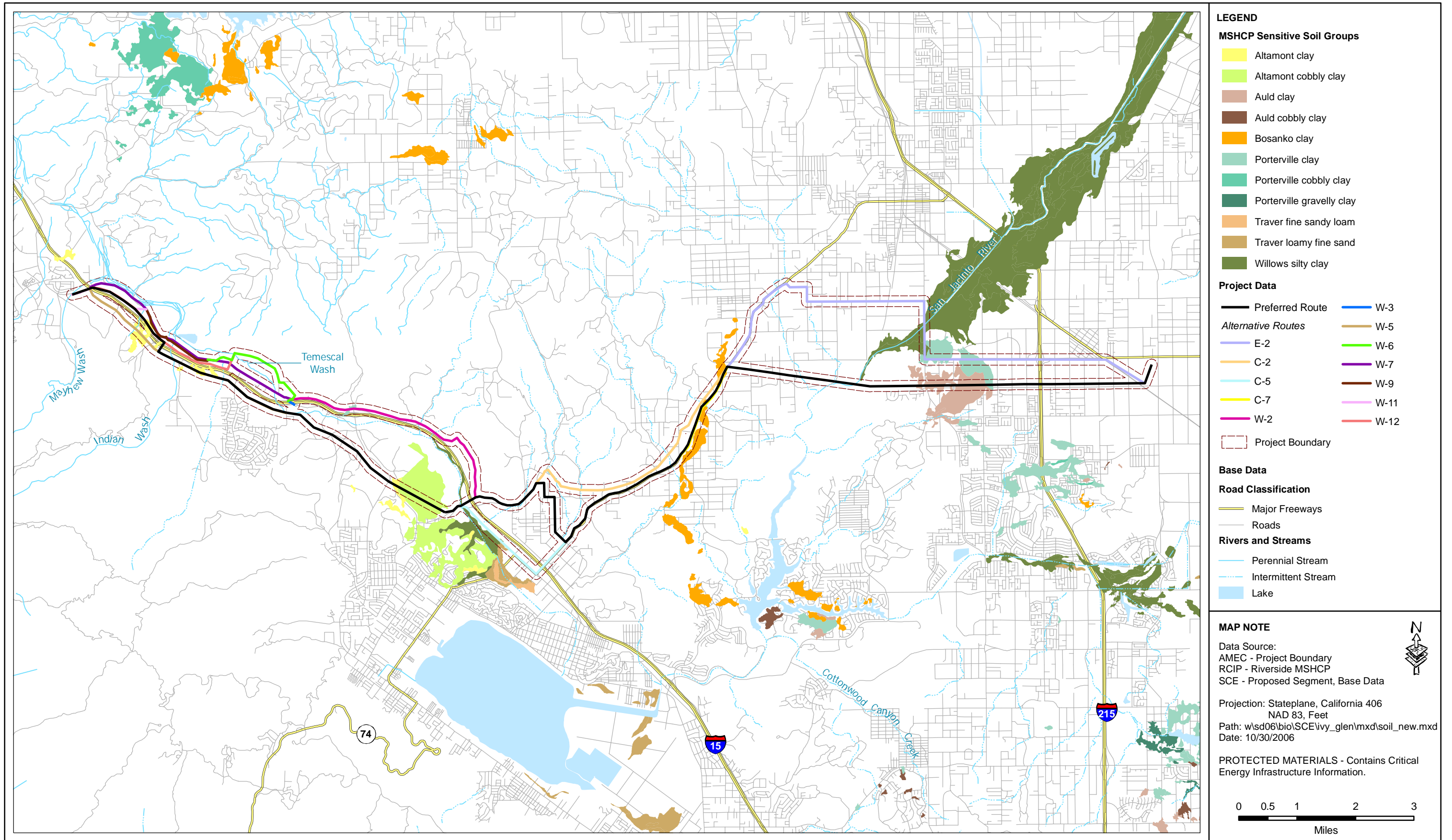
Projection: Stateplane, California 406
 NAD 83, Feet
 Path: w\sd06\bio\SCE\ivy_glen\mxdl\ownership_new.mxd
 Date: 10/30/2006

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

0 0.5 1 2 3
 Miles



Land Ownership
 Valley - Ivyglen Transmission Line Project, California



Sensitive Soils
 Valley - Ivyglen Transmission Line Project, California

FIGURE
 6

3.1.3 Vegetation Communities

The vegetation communities and land cover types in the Valley-Ivyglen Transmission Line Project area are primarily coastal sage scrub, grasslands, agriculture, and developed disturbed land (ruderal habitat). Additional plant communities found within the study area include woodlands and forest, Riversidean alluvial fan sage scrub, riparian scrub/woodland/forest, vernal pools, and open water. Previous agriculture, grazing, fire suppression, and invasion of nonnative plant species have contributed to the disturbed condition of many vegetation communities in the study area.

The vegetation communities which were identified in the Valley-Ivyglen Transmission Line Project area are described in Appendix E. These communities are classified using the plant community definitions in the Western Riverside County MSHCP which is based on the vegetation communities presented in the *Preliminary Descriptions of Terrestrial Natural Communities of California* (Holland 1986).

3.2 Valley-Ivyglen Transmission Preferred Route and Alternatives

Existing conditions of the Valley-Ivyglen Transmission Line preferred and alternative routes are discussed below. Table 5 illustrates the habitat types that were present along each of the routes. Volume II of this report contains aerial maps which illustrate the vegetation communities that are present along each route.

Table 5. Valley-Ivyglen Transmission Line Project Vegetation Communities

Proposed Routes	Coastal Sage Scrub	Nonnative Grassland	Agricultural Land	Developed-Disturbed Land	Woodlands and Forest	Riversidean Alluvial Fan Sage Scrub	Riparian Scrub, Woodland Forest	Meadows and Marshes
Preferred Route	✓	✓	✓	✓	✓	✓	✓	✓
Alternative Routes								
E-2	✓	✓	✓	✓	✓		✓	
C-2	✓	✓	✓	✓		✓	✓	
C-5	✓		✓	✓			✓	✓
C-7	✓		✓	✓			✓	
W-2	✓	✓	✓	✓			✓	
W-3	✓						✓	
W-5	✓	✓		✓	✓	✓	✓	
W-6	✓	✓	✓	✓		✓	✓	✓
W-7	✓	✓	✓	✓	✓	✓	✓	✓
W-9	✓	✓		✓	✓	✓	✓	✓
W-11	✓	✓			✓	✓	✓	
W-12	✓	✓		✓	✓	✓	✓	

3.2.1 Preferred Route

The Preferred Route is approximately 22.6 miles long and begins at the Valley Substation in unincorporated Romoland and ends at the Ivyglen Substation near the Glen Ivy Hot Springs (Maps 1-4, 9-16, 20, 22-23, 28-33). Areas of the Valley Substation (Map 1) (approximately 500 feet from the substation fence to the Valley-Ivyglen Transmission Line riser pole) will be excavated in order to install a telecommunication line.

Portions along the Preferred Route will be trenched and/or bored in order to install underground portions of the fiber optic telecommunication line. The following sites where underground activities will occur were individually surveyed for sensitive species:

- a. Valley Substation – the trenched area includes approximately 500 feet from the substation fence to the Valley-Ivyglen Transmission Line riser pole (Map 1).
- b. Crossing at existing Elsinore – Ivyglen 115kV line and Lake Street- the trenched area includes approximately 500 feet beneath Lake Street (Map 29).
- c. Crossing at I-15 at Hostettler Road – the trenched area includes approximately 500 feet beneath the freeway along Hostettler Road (Map 31).
- d. Crossing Existing Elsinore-Ivyglen 115 kV line at Temescal Canyon Road – the trenched area includes approximately 500 feet at crossing beneath Temescal Canyon Road (Map 31).
- e. Ivyglen Substation – the trenched area includes approximately 1,500 feet along Temescal Canyon Road beneath the freeway, from Mayhew Road to the Ivyglen Substation (Map 23).

Vegetation Communities: The majority of this Preferred Route passes through disturbed coastal sage scrub and developed habitats. Portions of this route are also vegetated by riparian habitat (Table 6, Maps 1-4, 9-16, 20, 22-23, 28-33).

Special-Status Species: Two MSHCP Covered Species were identified adjacent to the project area boundary along this route. Bells' sage sparrow (*Amphispiza belli belli*) was identified within disturbed coastal sage scrub habitat (Map 11) and evidence of kangaroo rats (scat and burrows) was identified within nonnative grassland habitat in very close proximity to a CNDDDB occurrence of Stephens' kangaroo rat (Map 16).

Entrix, Inc. additionally identified populations of smooth tarplant and San Diego ambrosia along this route (Map 16) however; these species were not identified during our field investigations.

Table 6. Preferred Route Vegetation Communities

Vegetation Community		Acreage
Coastal Sage Scrub	Undisturbed	18.80
	Disturbed	144.90
Agriculture		3.90
Disturbed/Developed		156.50
Nonnative Grassland	Undisturbed	170.90
	Disturbed	11.20
Coast Live Oak Woodland		6.50
Riversidean Alluvial Sage Scrub	Undisturbed	5.90
	Disturbed	17.80
Seasonal Wetland		0.35
Riparian Scrub, Woodland, Forest	Southern Cottonwood/Willow Riparian Forest	6.90
	Southern Sycamore/Alder Riparian Woodland	0.76
	Southern Willow Scrub	2.90
	Riparian Woodland	0.18

An active red tailed hawk (*Buteo jamaicensis*) nest, was identified in the southeast fringe of the Pacific Clay property, within a stand of blue gum trees (*Eucalyptus* spp.) (Map 29). Red-tailed hawk is an MBTA listed species. The MBTA of 1916 protects all migratory avian populations, and therefore mandates that this nest not be destroyed if still active during the construction or expansion of this route.

Also, juvenile western spadefoot toads (*Scaphiopus hammondi*), which are California species of special concern and MSHCP Covered Species, were identified within three artificial pools located in a clay mining area of Pacific Clay (Map 30).

No other special status plant or animal species were identified along this route during field investigations.

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: Potential habitat for the sensitive long-spined spineflower does exist within undisturbed coastal sage scrub habitat along this route. In addition, areas of this route along the San Jacinto floodplain which include saline-alkali soils may support sensitive plant species which are supported by this soil association. These species include San Jacinto Valley crowscale, spreading navarretia, Parish's brittlescale, San Diego ambrosia, Davidson's saltscare and vernal barley. Focused preconstruction plant surveys will be required within these areas for sensitive plant species.

Clay soils also exist along areas of this route that are associated with the Pacific Clay, Inc. property. Clay soils may provide suitable habitat for sensitive species such as Munz's

onion, thread-leaved brodiaea, San Diego button celery, Orcutt's brodiaea, long-spined spineflower, small-flowered morning glory, many-stemmed dudleya, graceful tarplant, and small-flowered microseris. Focused preconstruction plant surveys will be required within these areas for sensitive plant species.

Burrowing Owl Habitat Assessment: There is a CNDDDB point that indicates the historic use of burrowing owls along this route (Map 11) and adjacent to this route outside of the survey area boundary (Map 4). Surveys for burrowing owls were conducted in these potential habitat areas intensively; however, none were observed. Other areas along this route which are occupied by open, nonnative grassland and agricultural fields may support this species. No burrowing owls or evidence of this species were identified during field investigations; however, focused preconstruction burrowing owl surveys will be needed within the nonnative grassland and agriculture field areas if this route is chosen.

Riparian/Riverine Habitat: This Preferred Route crosses through some wetland/riparian habitats that are associated with the San Jacinto River and other drainages, and (Maps 9, 10, 22, 23, and 31-33). The San Jacinto River is considered jurisdictional waters under both the USACE and CDFG. A wetland delineation will be necessary within these areas in order to determine the extent of jurisdiction.

3.2.2 Alternative Routes

3.2.2.1 Alternative E-2

Alternative E-2 begins approximately 2,500 feet west of the Valley Substation and is approximately 9.4 miles long. This alternative route runs northwest along Mathews Road; west on Ethanac Road; north on Goetz Road; west on Mapes Road; north on Sophie Road; and south along Highway 74 terminating at Ethanac Road and Transmission Node 2 (Maps 1-8 and 11).

Vegetation Communities: Much of this route passes through developed/disturbed, agricultural and nonnative grassland habitats. Portions of this route are also vegetated by riparian habitat (Table 7, Maps 1-8 and 11).

Special-Status Species: No special status plant or animal species were identified along this route during field investigations.

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: A historic CNDDDB point for thread-leaved brodiaea, a MSHCP Criteria Area species is located along this route (Map 5), focused surveys for this species were conducted within this area however, thread-leaved brodiaea plants were not identified. The size and extent of populations of thread-leaved brodiaea within suitable habitat vary in response to the timing and amount of rainfall, as well as temperature patterns. Typically, in any given year, only a fraction of the plants will develop to maturity. Thus, due to the lack of rainfall during this season this species may not be evident within this area during our survey. Thus, focused preconstruction surveys for this species and other alkali soil associated species will be required within this area.

Table 7. Alternative E-2 Vegetation Communities

Vegetation Community		Acreage
Coastal Sage Scrub		0.28
Disturbed/Developed		292.9
Agriculture	Field Cropland	85.9
	Grove/Orchard	1.30
Nonnative Grassland		60.5
Woodland and Forest (Juniper Woodland and Scrub)		0.41
Riparian Scrub, Woodland, Forest	Disturbed Riparian Scrub	0.89
	Southern Willow Scrub	0.44
	Tamarisk Scrub	3.78
	Southern Cottonwood/Willow Riparian Forest	0.11
	Tamarisk Scrub	11.9
Seasonal Wetland		0.66

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along Alternative E-2. However, locations along this route do have the potential for burrowing owl occupation due to the presence of ground squirrel burrows and open disturbed habitat. These potentially occupied sites are along the agricultural fields in the eastern half of the route (Maps 1-6). A historic CNDDDB occurrence of this species occurs in near the terminus of this segment, in open-disturbed nonnative grassland (Map 11). Preconstruction burrowing owl surveys will be needed within these areas if this route is chosen.

Riparian/Riverine Habitat: Alternative E-2 crosses through some alluvial habitat that is associated with the San Jacinto River and other drainages (Map 5). The San Jacinto River is considered jurisdictional waters and thus, activities in this area may have oversight by the CDFG and USACE. A wetland delineation will be necessary within this area in order to determine the extent of jurisdiction.

3.2.2.2 Alternative C-2

Alternative C-2 begins at Transmission Node 2 is approximately 4.6 miles long. This alternative route runs southwest to its terminus at the junction of El Torro Road and Wells Fargo Drive (Maps 11-15).

Vegetation Communities: The majority of Alternative C-2 passes through nonnative grassland, developed habitats and disturbed coastal sage scrub. Portions of this route are also vegetated by riparian habitat (Table 8, Maps 11-15).

Table 8. Alternative C-2 Vegetation Communities

Vegetation Community		Acreage
Coastal Sage Scrub	Undisturbed	14.0
	Disturbed	65.7
Agriculture Grove/Orchard		0.09
Disturbed/Developed		88.1
Nonnative Grassland		37.5
Disturbed Riversidean Alluvial Fan Sage Scrub		9.96
Riparian Scrub, Woodland, Forest	Southern Cottonwood/Willow Riparian Forest	0.58
	Mule Fat Scrub	0.55
	Southern Willow Scrub	1.47

Special-Status Species: Bells sage sparrow, an MSHCP Covered Species, was identified within disturbed coastal sage scrub habitat along this route (Map 11). No other special-status species were identified along Alternative C-2.

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: No potential habitat for MSHCP Narrow Endemic and/or Criteria Area plant species were identified along this route.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along Alternative C-2. However, locations along this route do have the potential for burrowing owl occupation due to the presence of ground squirrel burrows and open disturbed habitat. Potential burrowing owl habitat was identified within the areas that are occupied by nonnative grassland along this route (Maps 11-15). A historic CNDDDB occurrence of this species occurs in near the terminus of this segment at Transmission Node 2, in open-disturbed nonnative grassland (Map 11). Preconstruction burrowing owl surveys will be needed within these areas if this route is chosen.

Riparian/Riverine Habitat: Alternative a crosses through some wetland/riparian habitats that is associated with an unnamed drainage (Map 13). This and other drainages which intersect this route (Maps 12-15) may be considered jurisdictional waters and thus, activities in this area may have oversight by the CDFG and USACE. A wetland delineation will be necessary within these areas in order to determine the extent of jurisdiction.

3.2.2.3 Alternative C-5

Alternative C-5 runs southeast along Collier Avenue and northeast along Central Avenue to its terminus at the junction of Central Avenue and Conard Avenue (Maps 16 and 25-27). Alternative C-5 is approximately 2.5 miles long.

Vegetation Communities: Alternative C-5 mostly passes through disturbed and developed properties (Table 9, Maps 16 and 24-27). This route additionally traverses through portions of riparian/wetland habitat that is associated with Temescal Wash (Maps 16 and 27).

Table 9. Alternative C-5 Vegetation Communities

Vegetation Community		Acreage
Agriculture Field Cropland		1.11
Disturbed Coastal Sage Scrub		0.40
Disturbed/ Developed		108.5
Freshwater Marsh		0.56
Alkali Marsh		0.74
Riparian Scrub, Woodland, Forest	Southern Cottonwood/Willow Riparian Forest	4.03
	Mule Fat Scrub	1.49
	Southern Willow Scrub	7.2

Special-Status Species: No special status plant or animal species were identified along this route during field investigations.

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: Historic CNDDDB points for three alkali soils associated species, San Diego ambrosia, San Jacinto Valley crownscale and Coulter's goldfields occurs adjacent to the boundary of this route, along the Temescal Wash floodplain (Map 16). Surveys for these species were conducted within this area, however none were identified. Focused preconstruction surveys for these and other alkali soils associated species will be required within this area.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along Alternative C-5; however, potential habitat for this species occurs within the open and disturbed habitats along this route (Maps 25 and 26).

Riparian/Riverine Habitat: Alternative C-5 passes directly through riparian and wetland habitat that is associated with Temescal Wash (Maps 16 and 27). These habitats are possibly jurisdictional wetlands, and thus, activities in this area may have oversight by the CDFG and USACE. A wetland delineation will be necessary within these areas in order to determine the extent of jurisdiction.

3.2.2.4 Alternative C-7

Alternative C-7 begins at Transmission Node 2 and travels southwest to its terminus at Peach Street (Maps 11-13). This alternative route is approximately 1.8 miles in length.

Vegetation Communities: Alternative C-7 passes predominantly through disturbed and developed lands (Table 10, Maps 11-13). This alternative route also traverses through nonnative grassland and disturbed coastal sage scrub habitat (Table 10, Maps 11-13).

Table 10. Alternative C-7 Vegetation Communities

Vegetation Community	Acreage
Agriculture	3.53
Disturbed Coastal Sage Scrub	2.63
Disturbed/ Developed	65.1
Nonnative Grassland	18.0
Southern Willow Scrub	0.28

Special-Status Species: Surveys for special-status species were not conducted by AMEC biologists along Segment C-7; however, the vegetation communities along this route were delineated. Pre-construction for species that may occur in the habitats identified along this route will be needed.

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: No potential habitat for MSHCP Narrow Endemic and/or Criteria Area plant species were identified along this route.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along Alternative C-7. However, locations along this route do have the potential for burrowing owl occupation due to the presence of ground squirrel burrows and open disturbed habitat. Potential burrowing owl habitat was identified within the areas that are occupied by nonnative grassland along this route (Maps 11-15). A historic CNDDDB occurrence of this species occurs in near the terminus of this segment at Transmission Node 2, in nonnative grassland habitat (Map 11). Preconstruction burrowing owl surveys will be needed within these areas if this route is chosen.

Riparian/Riverine Habitat: An isolated area containing riparian vegetation (riparian scrub) is located along this route (Map 13). Activities in this area may have oversight by the CDFG and USACE. A wetland delineation may be necessary within this areas in order to determine the extent of jurisdiction.

3.2.2.5 Alternative W-2

Alternative W-2 follows I-15 north from Nichols Road to Concordia Ranch Road. This route then travels northward through the BLM land to Big Canyon Drive and Walker Canyon Road; proceeding westerly along the north side of I-15 to its terminus at Concordia Ranch Road and Temescal Canyon Road near the Ivyglen Substation (Maps 16-19, and 31). This route is approximately 4.1 miles long.

Vegetation Communities: The habitat alternates along this route between nonnative grassland, remnant coastal sage scrub, and disturbed coastal sage scrub. Areas containing riparian vegetation are also located along this route (Table 11, Maps 16-19, and 31).

Table 11. Alternative W-2 Vegetation Communities

Vegetation Community		Acreage
Agriculture	Field Cropland	1.65
	Grove/Orchard	1.37
Nonnative Grassland		58.2
Disturbed/ Developed		32.9
Coastal Sage Scrub	Undisturbed	0.94
	Disturbed	103.6
Riparian Scrub, Woodland, Forest	Mule Fat Scrub	0.72
	Southern Cottonwood/Willow Riparian Forest	0.73
	Riparian Scrub	2.39

Special Status Species: Two sensitive MSHCP Covered Species, coastal California gnatcatcher and southern California rufous crowned sparrow (*Aimophila ruficeps canescens*) were observed along this route (Maps 16 and 17). Evidence (scat and burrows) of kangaroo rat species (*Dipodomys* spp.) were also identified along this route (Map 16). It is difficult to determine what species of kangaroo rat is associated with this evidence; however, a historical CNDDDB occurrence of Stephens' kangaroo rat occurs in the vicinity of the scat and burrows which were observed; thus, this species is likely to currently inhabit this area (Map 16).

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: No potential habitat for MSHCP Narrow Endemic and/or Criteria Area plant species were identified along this route.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along Alternative W-2. In addition, no suitable habitat for burrowing owls was found along Alternative W-2 during field investigations.

Riparian/Riverine Habitat: Areas which contain riparian vegetation associated with unnamed tributaries are located along this route (Maps 17 and 19). Activities in these areas may have oversight by the CDFG and USACE. A wetland delineation may be necessary within these areas in order to determine the extent of jurisdiction.

3.2.2.6 Alternative W-3

Alternative W-3 is a very small segment (0.12 miles) that follows Temescal Canyon Road (Map 31).

Vegetation Communities: The majority of this alternative route passes through developed habitat (Table 12, Map 31).

Table 12. Alternative W-3 Vegetation Communities

Vegetation Community		Acreage
Coastal Sage Scrub	Undisturbed	0.14
	Disturbed	1.27
Disturbed/Developed		7.08
Riparian Scrub, Woodland, Forest	Southern Cottonwood/Willow Riparian Forest	0.001
	Southern Willow Scrub	0.09

Special-Status Species: No special status plant or animal species were identified along Alternative W-3.

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: No potential habitat for MSHCP Narrow Endemic and/or Criteria Area plant species were identified along this route.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along this route. Additionally, potential habitat for this species does not occur along this route.

Riparian/Riverine Habitat: No riparian/riverine or wetland habitats were identified along this route.

3.2.2.7 Alternative W-5

Alternative W-5 begins at the intersection of Hostettler Road and Desperado Drive and travels along the south side of I-15 northwestward to Temescal Canyon Road to its terminus just east of the Ivyglen Substation (Maps 20, 22, 23, and 31-33). This route is approximately 4.4 miles long.

Vegetation Communities: The first half of this route travels through a mosaic of developments, disturbed coastal sage scrub and nonnative grassland. Some of the coastal sage scrub on this section is in relatively undisturbed condition, but varies greatly from one hillside to another. The second half of the route crosses intermittent areas of Riversidean alluvial fan sage scrub, and then travels northwest through development. Small stands of coast live oak woodland also exist along this route (Table 13, Maps 20, 22, 23, and 31-33).

Special Status Species: Two populations of Munz's onion (Map 32), a MSHCP Narrow Endemic Plant Species, and a population of small-flowered morning glory (*Convolvulus simulans*), a MSHCP Covered Species were identified in association with clay soils along this route (Map 32).

Table 13. Alternative W-5 Vegetation Communities

Vegetation Community		Acreage
Coastal Sage Scrub	Undisturbed	46.7
	Disturbed	20.5
Disturbed/ Developed		118.3
Nonnative Grassland		7.27
Riversidean Alluvial Fan Sage Scrub		14.2
Oak Woodland		0.02
Coast Live Oak Woodland		3.39
Riparian Scrub, Woodland, Forest	Mule Fat Scrub	0.90
	Southern Sycamore/Alder Riparian Woodland	1.04
	Southern Cottonwood/Willow Riparian Forest	0.69
	Southern Willow Scrub	2.67

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: The CNDDDB has point locations for round leaved filaree, many stemmed dudleya, and Munz's onion in this general location where clay soils were identified along this route (Map 32). Clay soils may support other listed threatened or endangered species which prefer these soils such as, thread-leaved brodiaea, San Diego button celery, Orcutt's brodiaea, long-spined spineflower. Focused surveys for these and other clay soils endemic species should be conducted within this area prior to construction activities if this alternative route is chosen.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along Alternative W-5. In addition, no suitable habitat for burrowing owls was found along Alternative W-5 during field investigations.

Riparian/Riverine Habitat: Alternative W-5 passes through a isolated stand of riparian habitat (Map 31). In addition, this route crosses over riparian habitat that is associated with Temescal Wash, near Campbell Ranch Road (Map 33). These areas are likely to be considered jurisdictional wetlands, and thus, activities in these areas may have oversight by the CDFG and USACE. A wetland delineation will be necessary within this area in order to determine the extent of jurisdiction.

3.2.2.8 Alternative W-6

Alternative W-6 begins near the junction of Concordia Ranch Road and Temescal Canyon Road and travels northeast and then northwest to its terminus at Temescal Canyon Road (Maps 20, 31 and 32). This route is approximately 2.1 miles in length.

Vegetation Communities: The majority of Alternative W-6 passes through disturbed coastal sage scrub, developed habitats, and Riversidean alluvial sage scrub. Portions of this route are also vegetated by riparian habitat (Table 14, Maps 20, 31, and 32).

Table 14. Alternative W-6 Vegetation Communities

Vegetation Community		Acreage
Coastal Sage Scrub	Undisturbed	0.14
	Disturbed	38.9
Agriculture		1.55
Disturbed/Developed		21.9
Nonnative Grassland		17.5
Riversidean Alluvial Sage Scrub		18.7
Riparian Scrub, Woodland, Forest	Southern Cottonwood/Willow Riparian Forest	5.73
	Southern Willow Scrub	0.09
Freshwater Marsh		0.22

Special-Status Species: No special-status species were observed along this route during field investigations.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along this route. Additionally, potential habitat for this species was not identified along Alternative W-6.

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: No potential habitat for MSCHP Narrow Endemic and/or Criteria Area plant species were identified along this route.

Riparian/Riverine Habitat: Alternative W-6 traverses through portions of riparian and alluvial habitat this associated with Temescal Wash (Maps 20 and 32). These areas are likely to be considered jurisdictional wetlands, and thus, activities within in these areas may have oversight by the CDFG and USACE. A wetland delineation will be necessary within this area in order to determine the extent of jurisdiction.

The following special status plant and animal species are known to occur or have historically occurred near or along Alternative W-6:

3.2.2.9 Alternative W-7

Alternative W-7 is approximately 4.2 miles in length. This proposed route runs along the north side of 1-15 from west of Concordia Ranch Road to Mayhew Road to its terminus at the Ivyglen Substation (Maps 20-23 and 31-33). Portions of Alternative W-7 will be excavated in order to install the telecommunication line. The excavated area includes approximately 1,500 feet along Temescal Canyon Road beneath the freeway, from Mayhew Road to the Ivyglen Substation (Map 23).

Vegetation Communities: Alternative W-7 is predominately vegetated by disturbed and developed habitats. Areas of this route are also vegetated by coastal sage scrub, nonnative grassland, Riversidean alluvial fan sage scrub, riparian and wetland habitats and small patches of coast live oak woodland (Table 15, Maps 20-23, 32, and 33). Only portions of this route were

surveyed by AMEC biologist. The vegetation along the un-surveyed areas was mapped through photo-interpretation. Portions of Alternative W-7 will be excavated in order to install the telecommunication line. The excavated area includes approximately 1,500 feet along Temescal Canyon Road beneath the freeway, from Mayhew Road to the Ivyglen Substation (Map 23). These areas were surveyed by AMEC biologists.

Table 15. Alternative W-7. Vegetation Communities

Vegetation Community		Acreage
Coastal Sage Scrub	Undisturbed	5.12
	Disturbed	16.7
Agriculture		3.79
Disturbed/Developed		93.7
Nonnative Grassland		20.2
Coast Live Oak Woodland		8.73
Riversidean Alluvial Sage Scrub	Undisturbed	20.2
	Disturbed	6.27
Freshwater Marsh		1.95
Riparian Scrub, Woodland, Forest	Southern Cottonwood/Willow Riparian Forest	9.24
	Southern Sycamore/Alder Riparian Woodland	9.26
	Southern Willow Scrub	3.86
	Riparian Scrub	7.05
	Mule Fat Scrub	0.46

Special-Status Species: No special status plant or animal species were identified along the surveyed portions of this route during field visits.

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: Potential habitat for MSHCP Narrow Endemic and/or Criteria Area plant species may exist in areas which contain clay or alkali soils along this route. Species which are endemic to these soils types which include Munz's onion, thread-leaved brodiaea, and San Diego button celery, Orcutt's brodiaea, small-flowered morning glory, many-stemmed dudleya, Palmer's grapplinghook, graceful tarplant, small-flowered microseris, San Jacinto Valley crowscale, spreading navarretia, Parish's brittlescale, Davidson's saltscale, and vernal barley. Focused surveys for clay and alkali soil endemic species should be conducted within areas containing these soils prior to construction activities if this segment is chosen.

Burrowing Owl Habitat Assessment: No burrowing owls or potential burrowing owl habitat was found along the length Alternative W-7 in areas that were surveyed. However, locations along this route may have the potential for burrowing owl occupation due to the presence of open disturbed habitat (Maps 20-22, 31, and 33). Preconstruction burrowing owl surveys will be needed within these areas if this route is chosen.

Riparian/Riverine Habitat: Areas of this route that traverse the riparian/wetland habitat associated with Temescal Wash may require regulatory oversight by the CDFG and USACE (Maps 20- 23, 32). A wetland delineation will be necessary within this area in order to determine the extent of jurisdiction.

3.2.2.10 Alternative W-9

Alternative W-9 begins at Concordia Ranch Road and travels northwest to its terminus near Temescal Canyon Road (Maps 21, 32 and 33). This route is approximately 1.5 miles in length.

Vegetation Communities: The majority of Alternative W-9 passes through disturbed coastal sage scrub, nonnative grassland and developed habitats. Portions of this route are also vegetated by riparian habitat (Table 16, Maps 21, 32, and 33).

Table 16. Alternative W-2 Vegetation Communities

Vegetation Community		Acreage
Coastal Sage Scrub	Undisturbed	2.68
	Disturbed	16.8
Disturbed/Developed		22.4
Nonnative Grassland		15.6
Coast Live Oak Woodland		6.00
Riversidean Alluvial Sage Scrub		9.08
Riparian Scrub, Woodland, Forest	Southern Cottonwood/Willow Riparian Forest	5.73
	Southern Willow Scrub	0.09

Special-Status Species: No special status plant or animal species were identified along the surveyed portions of this route during field visits.

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: No potential habitat for MSCHP Narrow Endemic and/or Criteria Area plant species were identified along this route.

Burrowing Owl Habitat Assessment: No burrowing owls or potential burrowing owl habitat was found along the length Alternative W-9 in areas that were surveyed. However, locations along this route may have the potential for burrowing owl occupation due to the presence of open disturbed habitat (Maps 21 and 33). Preconstruction burrowing owl surveys will be needed within these areas if this route is chosen

Riparian/Riverine Habitat: Areas of Alternative W-9 that traverse riparian and wetland habitats that are associated with Indian Wash and Temescal Wash may require regulatory oversight by the CDFG and USACE (Maps 32 and 33). A wetland delineation will be necessary within this area in order to determine the extent of jurisdiction.

3.2.2.11 Alternative W-11

Alternative W-11 is approximately 1.4 miles long. This route travels along the I-15 freeway to its terminus at Ivyglen Substation (Maps 22, 23 and 33)

Vegetation Communities: The majority of Alternative W-11 passes through disturbed coastal sage scrub, nonnative grassland, and developed habitats (Table 17, Maps 22, 23, and 33). Portions of this route are also vegetated by riparian habitat that is associated with Temescal Wash (Map 33).

Table 17. Alternative W-11 Vegetation Communities

Vegetation Community		Acreage
Coastal Sage Scrub	Undisturbed	3.68
	Disturbed	50.6
Nonnative Grassland		40.1
Coast Live Oak Woodland		5.47
Riversidean Alluvial Sage Scrub		6.57
Southern Sycamore/Alder Riparian Woodland		2.54

Special-Status Species: No special status plant or animal species were identified along this route during field investigations.

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: No potential habitat for MSHCP Narrow Endemic and/or Criteria Area plant species were identified along this route.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along this route. Additionally, potential habitat for this species was not identified along Alternative W-11.

Riparian/Riverine Habitat: Alternative W-11 traverses riparian/wetland habitat that is associated with Temescal Wash. This area may require regulatory oversight by the CDFG and USACE. A wetland delineation will be necessary within this area in order to determine the extent of jurisdiction (Maps 22 and 23).

3.2.2.12 Alternative W-12

Alternative W-12 is approximately 3.2 miles long. This route begins along the north side of I-15 and runs between the freeway and Temescal Canyon Road traveling northwest crossing Indian Truck Trail to its terminus at Temescal Canyon Road east of the Ivyglen Substation (Maps 20, 22, 23, 32, and 33).

Vegetation Communities: Alternative W-12 is predominately vegetated by disturbed coastal sage scrub and developed habitats. Areas of this route are also vegetated by riparian forest, Riversidean alluvial fan sage scrub and small patches of coast live oak woodland (Table 18, Maps 20, 22, 23, 32, and 33).

Table 18. Alternative W-12 Vegetation Communities

Vegetation Community		Acreage
Coast Live Oak Woodland		2.78
Coastal Sage Scrub	Undisturbed	6.60
	Disturbed	76.3
Disturbed/ Developed		49.9
Nonnative Grassland		4.20
Riversidean Alluvial Fan Sage Scrub		13.2
Riparian Scrub, Woodland, Forest	Southern Sycamore/Alder Riparian Woodland	1.05
	Southern Cottonwood/Willow Riparian Forest	2.27

Special-Status Species: No special status plant or animal species were identified along this route during field investigations.

MSHCP Narrow Endemic and Criteria Area Species Habitat Suitability: No potential habitat for MSHCP Narrow Endemic and/or Criteria Area plant species were identified along this route.

Burrowing Owl Habitat Assessment: No burrowing owls or potential burrowing owl habitat was found along the length Alternative W-12.

Riparian/Riverine Habitat: Alternative W-12 intersects Temescal Wash upstream of Lake Corona. Areas of this route that traverse the riparian/wetland habitat associated with Temescal Wash may require regulatory oversight by the CDFG and USACE. A wetland delineation will be necessary within this area in order to determine the extent of jurisdiction (Maps 20-23, 32, and 33).

3.3 Recommended Additional Surveys

Once specific routes have been selected, focused surveys for sensitive species that are required by the MSHCP, such as burrowing owls, Narrow Endemic Plant Species and Criteria Area Species should be conducted prior to the commencement of construction. Sensitive plant and animal species that were not found during the biological surveys for this report but still have a moderate to high potential to occur within the proposed routes of this project are presented in Appendix B. Some of the species that were not found may be absent from the habitat for various reasons (e.g., plants that do not sprout until later in the season, migratory birds that have not yet arrived, etc.). The following focused pre-construction surveys are recommended below to assess the populations within the study area, identify potential impacts to these species, and if present mitigate impacts to them to below a level of significance (Table 16).

Table 19. Recommended Additional Surveys

Proposed Routes	Focused Sensitive Plant Species Surveys	Burrowing Owl Surveys	Wetland Delineation
Preferred Route	✓	✓	✓
E-2	✓	✓	✓
C-2	✓	✓	✓
C-5	✓		✓
C-7	✓	✓	✓
W-2	✓	✓	✓
W-3			✓
W-5	✓	✓	✓
W-6	✓	✓	✓
W-7	✓	✓	✓
W-9			✓
W-11			✓
W-12			✓

4.0 ASSESSMENT OF POTENTIAL IMPACTS

This section presents a general impact analysis of the proposed Valley-Ivyglen Transmission Line project. Because the project is still early in the design stage, this section outlines the potential issues that are likely to arise from the construction of the proposed transmission line segments. A complete project impact analysis will be conducted once a project impact footprint is established.

Impacts are defined as activities that destroy, damage, alter, or otherwise affect biological resources in the project area. Impacts are characterized as five types and are described below.

- Direct impacts occur when biological resources are altered, disturbed, destroyed, or removed during the course of project implementation. Examples of direct impacts are loss of habitat as a result of grading or filling or “take” of a sensitive species.
- Indirect impacts occur when project-related activities affect biological resources in a manner other than direct. Potential indirect impacts include increased noise levels and nonnative weed establishment. Chronic indirect impacts to biological resources resulting

from the operation of a project can include noise, lighting, and increased human presence among other factors.

- Permanent impacts result in the irreversible loss of biological resources. Examples include the removal of sensitive vegetation or vegetation that supports a sensitive species or chronic disturbance of sensitive species during a critical time period (e.g., breeding season).
- Temporary impacts are reversible with the implementation of mitigation measures. Examples include the revegetation of an area cleared during construction, or short-term noise events associated with operations.
- Cumulative impacts are the sum of all impacts from this and other local projects on the biological resources of a region.

4.1 Thresholds for Determining Potential Significance

The primary sources for determining significance of impacts are determined by the National Environmental Policy Act (NEPA), CEQA, NCCP, MSHCP, and local guidelines and ordinances. Guidelines under CEQA provide guidance and interpretation for implementing CEQA statutes. CEQA significance entails any impact to plant and wildlife species listed by federal or state agencies as threatened or endangered, or of regional or local significance. A significant impact to listed or sensitive species could be direct or indirect, with impacts to rare or sensitive habitats also considered significant.

In general, the proposed project could result in a potentially significant impact to the environment if it would:

- Substantially reduce the habitat of a plant or wildlife species
- Cause a plant or wildlife population to drop below self-sustaining levels
- Threaten to eliminate a plant or animal community
- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special species in local or regional plans, policies, or regulations, or by the CDFG or the USFWS
- Reduce the number or restrict the range of an endangered, rare, or threatened species
- 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 CDFG, USACE, RWQCB, or USFWS.

The proposed project could potentially produce three types of project-related impacts: direct impacts, indirect impacts, and cumulative impacts.

4.1.1 Direct Impacts

Direct impact analysis is subject to final project design. The most sensitive biological resources found in the study area are related to coastal sage scrub and riparian/wetland habitats. The coastal sage scrub vegetation type itself is a sensitive resource, as several sensitive flora and fauna species are associated with this habitat type including the coastal California gnatcatcher and Stephens' kangaroo rat.

Some permanent impacts to coastal sage scrub may result from clearing around new transmission line poles for construction and maintenance purposes. It is assumed that any direct impacts to sensitive species or habitats will be temporary in nature except for these clearance areas. Participation and compliance with the MSHCP however, can provide mitigation for any net loss to coastal sage scrub habitat within the MSHCP area.

Direct impacts to riparian/wetland habitats may also occur as a result of this project. Vegetation associated with this habitat type may be temporarily negatively impacted during the construction phase of this project. Permanent impacts to these habitats are not anticipated.

4.1.2 Indirect Impacts

Indirect impact analysis is subject to final project design. It is anticipated that there will be some indirect impacts resulting from the project and its proximity to sensitive habitat and sensitive species.

4.1.2.1 Runoff, Erosion, and Siltation

Siltation and erosion resulting from the proposed activities are potentially significant indirect impacts associated with this project because of the proximity of the proposed work area to wetlands and other sensitive habitats. Erosion can remove topsoil necessary for plant growth both in the graded areas and in lower areas affected by increased runoff. The eroded soil can be deposited as silt and alluvium in the drainages. Siltation can damage wetlands and aquatic habitats and bury vegetation or topsoil. Erosion control measures are recommended in the mitigation section of this report that would reduce this potential impact to below a level of significance.

4.1.2.2 Nonnative Weed Establishment

The loss of topsoil from grading or as a result of overland flow may increase the likelihood of exotic plant establishment in native communities. Nonnatives may outcompete native species, suppress native recruitment, alter community structure, degrade or eliminate habitat for native wildlife, and provide food and cover for undesirable nonnative wildlife (Bossard et al. 2000). The introduction of nonnative plant species into a community as a result of soil disturbance and erosion can increase the competition for resources such as water, minerals, and nutrients between native and nonnative species as well as alter the hydrology and sedimentation rates. In addition, if the nonnative plants form a continuous ground cover, an increase in the natural fire regime may occur, further eliminating any remaining native vegetation, and causing a type conversion to a disturbed/nonnative habitat type. As a means of avoiding and minimizing impacts due to nonnative species, mitigation measures should be implemented. The

establishment of nonnative weeds could affect endangered species associated with the surrounding habitat and could therefore be considered potentially significant if not mitigated.

4.1.2.3 Noise and Human Presence

Indirect and temporary impacts to wildlife movement due to construction noise, including presence of humans, would be expected during the construction phases of the proposed project. Noise impacts during the construction of the proposed Valley-Ivyglen transmission lines could be potentially significant. Noise can adversely affect wildlife by frightening or repelling individuals, masking communication, and impairing foraging success and predator detection. These effects are significant when they adversely affect the lifecycle of sensitive species, or constrain wildlife movement through a wildlife corridor; however, these impacts would not be considered significant if the activities were temporary in nature and of short duration.

Construction noise has the potential to impact the lifecycle of sensitive wildlife species identified onsite, or that have a high potential to occur onsite, including sage scrub nesters such as the coastal California gnatcatcher, Bell's sage sparrow, and Southern California rufous crowned sparrow or riparian-nesting birds such as the and least Bell's vireo (*Vireo bellii pusillus*). The current threshold for significant noise impacts to these species is generally accepted to be 60 dBA (Leq 1 hour) during the breeding season. If construction were to occur outside of the breeding season for these species, noise impacts would be considered not significant. Indirect noise impacts to other nesting migratory birds, including raptors, if present, could be adverse, but not necessarily significant because of the lower sensitivity status of these species.

4.1.2.4 Lighting

If used, nighttime lighting entering adjacent wildlife habitat from construction could temporarily impact sensitive wildlife species and wildlife movement. These temporary impacts would likely be considered adverse, but not significant, unless listed bird species were found nesting within the area of the lighting impact. These impacts could be avoided if nighttime work did not occur during construction of the project.

4.1.2.5 Toxic Substances

Toxic substances can kill wildlife and plants or prevent new growth where soils or water are contaminated. Toxic substances can be released into the environment through several scenarios including planned or accidental releases, leaching from stored materials, pesticide or herbicide use, or fires, among others. No intentional releases of toxic substances are planned as part of the proposed project. Accidental releases could occur from several sources such as leaking equipment, or fuel spills during the course of the construction. The implementation of best management practices (BMPs) during construction will reduce the risk of leaks and fuel spills below a level of significance. A spill contingency plan, written by the construction contractor and approved prior to construction, should be in effect during all phases of construction activities.

4.1.2.6 Fugitive Dust

Trenching, grading, and vehicle operations associated with the construction of the proposed Valley-Ivyglen transmission line may produce fugitive dust. Excessive dust can damage or degrade vegetation by blocking leaf exposure to sunlight. Implementation of dust control measures, as part of BMPs during construction, will reduce fugitive dust emissions to below a level of significance. Dust control measures can include spraying work or driving areas with water and careful operation of equipment.

4.1.3 Cumulative Impacts

Cumulative impact analysis is subject to final project design.

5.0 AVOIDANCE AND MITIGATION MEASURES

Construction activity associated with the proposed project should incorporate BMPs in order to eliminate or minimize environmental impacts. From the biological survey data, potential impacts to coastal sage scrub habitat and populations of Munz's onion would be the largest impacts from the project. As such, steps should be taken to minimize or eliminate these impacts.

Some general environmentally sensitive construction practices that can be implemented to minimize biological impacts before or during construction are listed below.

- Flagging or otherwise marking sensitive plant species so construction crews will avoid direct or indirect impacts to these areas.
- Fencing all construction limits that are adjacent to sensitive biological resources. Temporary fencing should consist of t-posts with the orange barrier fence. Silt fences should be included when construction occurs adjacent to wetlands.
- Flagging kangaroo rat and burrowing owl burrows so as to avoid crushing individuals with heavy equipment.
- Avoid work in coastal California gnatcatcher occupied coastal sage scrub habitat during the breeding season (February-August).
- Avoid the fueling of equipment adjacent to drainages, tributaries, or wetlands and associated plant communities to preclude water quality impacts.
- "No fueling zones" should be designated on construction maps and should be situated a minimum distance of 10 meters from all drainages and wetlands. Contractor equipment shall be checked for leaks prior to operation near riparian areas in coordination with the project biologist.
- Implement appropriate BMPs at all times to maintain proper water quality and prevent additional/excessive soil erosion. Refer to the erosion control plan that will be prepared by the construction contractor. This plan should detail the proper use of hay bales, straw wattles, silt fences, siltation basins, or other devices necessary to stabilize the soil in denuded or graded areas during construction phases of the project.

- Conduct a briefing with all construction supervisors and personnel by a biologist familiar with the biological issues of the project.
- Install new poles, where possible, in areas that are not environmentally sensitive.
- Utilize existing access roads, pads, and previously developed or disturbed areas as much as feasible in order to avoid impacts to sensitive areas.
- In areas where impacts are unavoidable, limit impacts to driving on or parking on scrub instead of grading or otherwise removing vegetation.

6.0 REFERENCES

- Bossard, C., J.M. Randall, and M.C. Hoshovsky. 2000. *Invasive Plants of California's Wildlands*. University of California Press, Berkeley.
- California Department of Fish and Game (CDFG). 1993. *Burrowing Owl Consortium Guidelines*
- California Department of Fish and Game. 2005. *California Natural Diversity Data Base, Rarefind 3 (CNDDDB) (Version 3.0.5)*.
- California Department of Fish and Game. 2006. *List of Special Vascular Plants, Bryophytes, and Lichens*. Habitat Conservation Division, Wildlife and Habitat Data Analysis Branch, California Natural Diversity Database. *Botanical Survey Guidelines*.
- California Native Plant Society (CNPS). 2001. *CNPS Botanical Survey Guidelines*. California Native Plant Society. Sacramento, CA. 3 pp.
- California Native Plant Society (CNPS). 2006. *Inventory of Rare and Endangered Plants of California (7th edition) online version 7-06a*. Accessed at:
<http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi>
- County of Riverside. 2003. *Western Riverside County Multiple Species Conservation Plan (MSHCP). Volume I: The Plan*. Accessed online at:
<http://www.rctlma.org/mshcp/index.html>
- County of Riverside. 2006. *Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area*. Environmental Programs Department. 4-14-06
- Entrix, Inc. 2006. *Draft Biological Resources Report Valley-Ivyglen Transmission Line Project*. Prepared for Southern California Edison.
- Hickman, J. C. 1993. *The Jepson manual: higher plants of California*. University of California Press, Berkeley, California. 1400 pp.
- Holland, R.F. 1986. *Preliminary descriptions of the terrestrial natural communities of California*. State of California, The Resources Agency.
- U.S. Department of Agriculture (USDA). 1971. *Soil survey, Western Riverside Area California*. Soil Conservation Service, Washington, D.C. November 1971.
- United States Fish and Wildlife Service (USFWS). 2006a. *Endangered Species Act of 1973*.
<http://www.fws.gov/Endangered/esa.html>. May 5.
- USFWS. 2006b. *Bald and Golden Eagle Protection Act*. Accessed online at:
http://www.fws.gov/Northeast/migratorybirds/eagle_protection.htm.

APPENDIX A

Plant Species Encountered

Appendix A Plant Species Encountered

Family	Scientific Name	Common Name	Native/Exotic
Agavaceae (Liliaceae)			
Agave Family			
	<i>Hesperoyucca whipplei</i>	Lord's Candle Yucca	N
Aizoaceae			
Fig-Marigold			
	<i>Mesembryanthemum nodiflorum</i>	Little Ice Plant	N
	<i>Sesuvium verrucosum</i>	Sea-Purslane	E
Amaranthaceae			
Amaranth Family			
	<i>Amaranthus albus</i>	White Tumbleweed	N
Anacardiaceae			
Sumac Family			
	<i>Malosma (Rhus) laurina</i>	Laurel Sumac	N
	<i>Rhus integrifolia</i>	Lemonadeberry	N
	<i>Rhus ovata</i>	Sugar Bush	N
	<i>Schinus molle</i>	Brazilian Pepper Tree	E
	<i>Toxicodendron diversilobum</i>	Poison Oak	N
Apiaceae (Umbelliferae)			
Carrot Family			
	<i>Apiastrum angustifolium</i>	Mock Parsley	N
	<i>Daucus pusillus</i>	Wild Carrot	N
	<i>Sanicula bipinatifida</i>	Purple Sanicle	N
Asclepiadaceae (Asphodelaceae)			
Milkweed Family			
	<i>Asclepius californicus</i>	Wooly Milkweed	N
	<i>Sarcostemma cynanchoides</i> ssp. hartwegii	Climbing Milkweed	N
Asteraceae (Compositae)			
Sunflower Family			
	<i>Ambrosia acanthicarpa</i>	Sand Bur	N
	<i>Ambrosia psilostachya</i>	Western Ragweed	N
	<i>Anthemis cotula</i>	Mayweed	E
	<i>Artemisia californica</i>	California Sagebrush	N
	<i>Artemisia douglasiana</i>	Douglas' Mugwort	N
	<i>Artemisia dracunculoides</i>	Tarragon	N
	<i>Baccharis salicifolia</i>	Mule Fat	N
	<i>Baccharis sarothroides</i>	Broom Baccharis	N

Family	Scientific Name	Common Name	Native/Exotic
	<i>Bebbia juncea</i>	Sweetbrush	N
	<i>Centaurea melitensis</i>	Tocalote	E
	<i>Chaenactis artemisiifolia</i>	Chaenactis	N
	<i>Chaenactis glabriuscula</i>	Yellow Pincushion	N
	<i>Cnicus benedictus</i>	Blessed Thistle	E
	<i>Conyza canadensis</i>	Horseweed	N
	<i>Conyza coulteri</i>	Fleabane	E
	<i>Cotula coronopifolia</i>	African Brass Buttons	E
	<i>Encelia californica</i>	California Encelia	N
	<i>Encelia farinosa</i>	Brittlebush	N
	<i>Deinandra (Hemizonia) fasciculata</i>	Fascicled Tarplant	N
	<i>Deinandra kelloggii</i>	Kellogg's Tarplant	N
	<i>Deinandra paniculata</i>	San Diego Tarplant	N
	<i>Ericameria palmeri</i> var. <i>pachylepis</i>	Box Spring Goldenbush	N
	<i>Erigeron foliosus</i> var. <i>foliosus</i>	Leafy Daisy	N
	<i>Eriophyllum confertiflorum</i>	Flat-Topped Golden Yarrow	N
	<i>Filago californica</i>	Fluffweed	E
	<i>Filago gallica</i>	Narrow Leaf Filago	E
	<i>Gnaphalium californicum</i>	California Everlasting	N
	<i>Gnaphalium luteo-album</i>	Everlasting	E
	<i>Gnaphalium palustre</i>	Lowland Cudweed	N
	<i>Gutierrezia californica</i>	California Matchweed	N
	<i>Hedypnois cretica</i>	Hedypnois	E
	<i>Helianthus annuus</i>	Western Sunflower	N
	<i>Helianthus gracilentis</i>	Slender Sunflower	N
	<i>Heterotheca grandiflora</i>	Telegraph Weed	N
	<i>Iva axillaris</i>	Poverty Weed	N
	<i>Lactuca serriola</i>	Prickly Lettuce	E
	<i>Lasthenia californica</i>	Common Goldfields	N
	<i>Layia glandulosa</i>	White Layia	N
	<i>Lepidospartum squamatum</i>	Scale Broom	N
	<i>Lessingia filaginifolia</i>	San Diego Sand Aster	N
	<i>Malacothrix saxatilis</i>	Cliff Desert Dandelion	N
	<i>Matricaria globifera</i>	Cattle Bush	E
	<i>Matricaria matricarioides</i>	Pineapple Weed	E
	<i>Osmadenia tenella</i>	Osmadenia	N

Family	Scientific Name	Common Name	Native/Exotic
	<i>Picris echioides</i>	Bristly Ox-Tongue	E
	<i>Pluchea sericea</i>	Arrow Weed	N
	<i>Rafinesquia</i> sp.	Chickory	N
	<i>Senecio flaccidus</i>	Butterweed	N
	<i>Silybum marianum</i>	Milk Thistle	E
	<i>Sonchus asper</i>	Prickly Sow Thistle	E
	<i>Sonchus oleraceus</i>	Common Sow Thistle	E
	<i>Stephanomeria virgata</i>	San Diego Wreath Plant	N
	<i>Stylocline gnaphalioides</i>	Everlasting Nest Straw	N
	<i>Tetradymia comosa</i>	Cotton-Thorn	N
	<i>Uropappus lindelyi</i>	Silver Puffs	N
	<i>Xanthium strumarium</i>	Cocklebur	N
Boraginaceae			
Borage Family			
	<i>Amsinckia menziesii</i> var. <i>intermedia</i>	Yellow Fiddleneck	N
	<i>Amsinckia retrorsa</i>	Rigid Fiddleneck	N
	<i>Cryptantha intermedia</i>	Nievitans	N
	<i>Heliotropium curassavicum</i>	Salt Heliotrope	N
	<i>Pectocarya linearis</i>	Comb-Bur	N
	<i>Pectocarya penicillata</i>	Winged Pectocarya	N
	<i>Pectocarya recurvata</i>	Recurved Pectocarya	N
	<i>Plagiobothrys canescens</i>	Valley Popcorn Flower	N
	<i>Plagiobothrys collinus</i> ssp. <i>californicus</i>	California Popcorn Flower	
Brassicaceae (Cruciferae)			
Mustard Family			
	<i>Athysanus pusillus</i>	Dwarf Athysanus	N
	<i>Brassica geniculata</i>	Mediterranean Mustard	E
	<i>Brassica rapa</i>	Field Mustard	E
	<i>Capsella bursa-pastoris</i>	Shepard's Purse	E
	<i>Hirschfeldia incana</i>	Short-Pod Mustard	E
	<i>Lepidium nitidum</i>	Peppergrass	N
	<i>Lepidium dictyotum</i> var. <i>dictyotum</i>	Peppergrass	E
	<i>Lepidium latifolium</i>	Broad-Leaved Peppergrass	E
	<i>Raphanus sativus</i>	Wild Radish	E
	<i>Rorippa nasturtium-aquaticum</i>	Watercress	N
	<i>Sisymbrium irio</i>	London Rocket	E

Family	Scientific Name	Common Name	Native/Exotic
	<i>Thysanocarpum laciniatus</i>	Notch Fringe-pod	N
	<i>Tropidocarpum gracile</i>	Slender Dobie-Pod	N
Cactaceae Cactus Family			
	<i>Cylindropuntia parryi</i>	Cholla	N
	<i>Opuntia ficus-indica</i>	Mission Prickly Pear	E
	<i>Opuntia littoralis</i>	Coastal Prickly Pear	N
Caprifoliaceae Honeysuckle Family			
	<i>Sambucus mexicana</i>	Blue Elderberry	N
Caryophyllaceae Pink Family			
	<i>Loeflingia squarrosa</i>	California Loeflingia	N
	<i>Spergularia bocconii</i>	Boccone's Sandspurry	E
	<i>Spergularia marina</i>	San Spurry	N
	<i>Stellaria</i> sp.		
Chenopodiaceae Goosefoot Family			
	<i>Atriplex argentea</i>	Silverscale Saltbush	N
	<i>Atriplex rosea</i>	Tumbling Oracle	E
	<i>Atriplex semibaccata</i>	Australian Saltbush	E
	<i>Atriplex suberecta</i>	Peregrine Saltbush	E
	<i>Atriplex triangularis</i>	Spearscale	N
	<i>Bassia hyssopifolia</i>	Fivehook	E
	<i>Chenopodium californicum</i>	California Pigweed	N
	<i>Chenopodium murale</i>	Nettle-Leaved Goosefoot	E
	<i>Chenopodium pumilio</i>	Clammy Goosefoot	E
	<i>Salsola tragus</i>	Russian Thistle	E
Convolvulaceae Morning Glory Family			
	<i>Calystegia macrostegia</i>	Morning Glory	N
	<i>Convolvulus arvensis</i>	Field Bindweed	E
	<i>Convolvulus simulans</i>	Small-Flowered Bindweed	N CNPS list 4.2
	<i>Cressa truxillensis</i>	Alkali Weed	N
Cuscutaceae Dodder Family			
	<i>Cuscuta californica</i>	California Dodder	N
	<i>Cuscuta salina</i>	Salt Marsh Dodder	N

Family	Scientific Name	Common Name	Native/Exotic
Crassulaceae			
Stonecrop Family			
	<i>Crassula connata</i>	Sand Pygmyweed	N
	<i>Dudleya lanceolata</i>	Live-Forever	N
	<i>Dudleya pulverulenta</i>	Chalk Live-Forever	N
Cyperaceae			
Sedge Family			
	<i>Carex</i> sp.	Sedge	N
	<i>Cyperus eragrostis</i>	Tall Flatsedge	N
	<i>Cyperus squarrosus</i>	Bearded Flatsedge	N
	<i>Eleocharis macrostachya</i>	Common Spikerush	N
	<i>Scirpus acutus</i>	Hardstem Bulrush	N
	<i>Scirpus californicus</i>	California Bulrush	N
	<i>Scirpus pungens</i>	Spike Sedge	
Euphorbiaceae			
Spurge Family			
	<i>Croton californicus</i>	California Croton	N
	<i>Chamaesyce albomarginata</i>	Rattlesnake Weed	N
	<i>Chamaesyce polycarpa</i>	Ground Spurge	N
	<i>Eremocarpus setigerus</i>	Doveweed	N
	<i>Ricinus communis</i>	Castor Bean	E
	<i>Stillingia linearifolia</i>	Linear-Leaf Stillingia	N
Fabaceae (Leguminosae)			
Pea Family			
	<i>Astragalus pomonensis</i>	Pomona Rattleweed	N
	<i>Lotus hamatus</i>	Small-Flowered Lotus	N
	<i>Lotus purshianus</i>	Spanish Clover	N
	<i>Lotus salsuginosus</i>	Alkali Lotus	N
	<i>Lotus scoparius</i> ssp. <i>brevialatus</i>	Deerweed	N
	<i>Lotus strigosus</i>	Strigose Bird's Foot Trefoil	N
	<i>Lupinus bicolor</i>	Miniature Lotus	N
	<i>Lupinus excubitus</i>	Grape Soda Lupine	N
	<i>Lupinus succulentus</i>	Collar Lupine	N
	<i>Medicago polymorpha</i>	Bur-Clover	E
	<i>Parkinsonia aculeata</i>	Mexican Palo Verde	E
	<i>Trifolium obtusiflorum</i>	Clammy Clover	N
	<i>Vicia benghalensis</i>	Purple Vetch	E

Family	Scientific Name	Common Name	Native/Exotic
Fagaceae			
Oak Family			
	<i>Quercus agrifolia</i> var. <i>agrifolia</i>	Coast Live Oak	N
	<i>Quercus berberidifolia</i>	Scrub Oak	N
Frankeniaceae			
Frankenia Family			
	<i>Frankenia salina</i>	Alkali Heath	N
Gentianaceae			
Gentian Family			
	<i>Centaurium venustum</i>	Canchalagua	N
Geraniaceae			
Geranium Family			
	<i>Erodium botrys</i>	Long-Beak Filaree	E
	<i>Erodium cicutarium</i>	Red-Stem Filaree	E
	<i>Erodium moschatum</i>	Green-Stem Filaree	E
	<i>Geranium carolinianum</i>	Carolina Cranesbill	N
Hydrophyllaceae			
Waterleaf Family			
	<i>Emmenanthe penduliflora</i> var. <i>penduliflora</i>	Whispering Bells	N
	<i>Eucrypta chrysanthemifolia</i>	Common Euscrupta	N
	<i>Phacelia cicutaria</i> var. <i>hispida</i>		
	<i>Nemophila</i> sp.	Baby Blue Eyes	N
	<i>Phacelia distans</i>	Wild Heliotrope	N
	<i>Phacelia minor</i>	California Bluebells	N
	<i>Phacelia ramosissima</i> var. <i>latifolia</i>	Branching Phacelia	N
Juncaceae			
Rush Family			
	<i>Juncus balticus</i>	Baltic Rush	N
	<i>Juncus bufonius</i>	Toad Rush	N
	<i>Juncus mexicanus</i>	Mexican Rush	N
	<i>Juncus rugulosus</i>	Wrinkled Rush	N
Lamiaceae (Labiatae)			
Mint Family			
	<i>Lamium ampexicaule</i>	Henbit	E
	<i>Marrubium vulgare</i>	Horehound	E
	<i>Robinia</i> sp.	Black Locust	E
	<i>Salvia apiana</i>	Cleveland Sedge	N
	<i>Salvia columbariae</i>	Chia	N

Family	Scientific Name	Common Name	Native/Exotic
	<i>Salvia mellifera</i>	Black Sage	N
	<i>Stachys ajugoides</i>	Hedge Nettle	N
Liliaceae Lily Family			
	<i>Calochortus splendens</i>	Splendid Mariposa Lily	N
	<i>Allium haematochiton</i>	Red-Skin Onion	N
			N CNPS list 1B
	<i>Allium munzii</i>	Munz's Onion	MSHCP Narrow Endemic Species
	<i>Chlorogalum parviflorum</i>	Small Flower Soap Plant	N
	<i>Muilla maritima</i>	Common Muilla	N
Lythraceae Loosestrife Family			
	<i>Lythrum californicum</i>	California Loosestrife	N
	<i>Lythrum hyssopifolia</i>	Grass Poly	E
Malvaceae Mallow Family			
	<i>Malacothamnus fasciculatus</i>	Bush Mallow	N
	<i>Malva parviflora</i>	Cheeseweed	E
	<i>Malvella leprosa</i>	Alkali Mallow	N
Molluginaceae Carpet-weed Family			
	<i>Glinus lotoides</i>	Lotus Sweetjuice	E
Nyctaginaceae Four O'Clock Family			
	<i>Boerhavia coccinea</i>	Scarlet Spiderling	N
	<i>Mirabilis laevis</i>	Wishbone Plant	N
Onagraceae Evening Primrose Family			
	<i>Camissonia bistorta</i>	Southern Sun Cup	N
	<i>Camissonia californica</i>	False Mustard	N
	<i>Camissonia hirtella</i>	Hairy Sun Cup	N
	<i>Clarkia purpurea</i>	Purple Clarkia	N
	<i>Epilobium canum</i>	California Fuchsia	N
	<i>Epilobium ciliatum</i>	Willow Herb	N
Oxalidaceae wood sorrel family			
	<i>Oxalis ces-caprae</i>	Burmuda Buttercup	E

Family	Scientific Name	Common Name	Native/Exotic
Papaveraceae			
Poppy Family			
	<i>Dicentra chrysantha</i>	Goldern Ear Drops	N
	<i>Eschscholzia caespitosa</i>	Tufted Poppy	N
	<i>Eschscholzia californica</i>	California Poppy	N
	<i>Romneya coulteri</i>	Matilija Poppy	N
Plantaginaceae			
Plantain Family			
	<i>Plantago coronopifolia</i>	Cut-Leaf Plantain	E
	<i>Plantago erecta</i>	California Plantain	N
	<i>Plantago lanceolata</i>	Narrow-Leaf Plantain	E
	<i>Plantago major</i>	Plantain	E
Platanaceae			
Plane Tree Family			
	<i>Platanus racemosa</i>	Western Sycamore	N
Poaceae (Gramineae)			
Grass Family			
	<i>Aristida purpurea</i>	Three-Awned Grass	N
	<i>Arundo donax</i>	Giant Reed	E
	<i>Avena fatua</i>	Wild Oat	E
	<i>Bromus catharticus</i>	Rescue Grass	E
	<i>Bromus diandrus</i>	Ripgut Grass	E
	<i>Bromus hordeaceus</i>	Soft Chess	E
	<i>Bromus madritensis ssp. rubens</i>	Red Brome	E
	<i>Cynodon dactylon</i>	Bermuda Grass	E
	<i>Distichlis spicata</i>	Saltgrass	N
	<i>Elymus condensatus</i>	Giant Wild Rye	N
	<i>Hordeum murinum</i>	Mediterranean Barley	E
	<i>Lolium multiflorum</i>	Italian Ryegrass	E
	<i>Lolium perenne</i>	Perennial Ryegrass	E
	<i>Nassella lepida</i>	Foothill Needlegrass	N
	<i>Nassella pulchra</i>	Purple Needlegrass	N
	<i>Phalaris paradoxa</i>	Canary Grass	E
	<i>Poa sp.</i>		
	<i>Polypogon monspeliensis</i>	Rabbitfoot Grass	E
	<i>Schismus barbatus</i>	Mediterranean Grass	E
	<i>Vulpia myuros</i>	Fescue	E

Family	Scientific Name	Common Name	Native/Exotic
Polemoniaceae			
Phlox Family			
	<i>Allophyllum glutinosum</i>	Blue False Gilia	
	<i>Eriastrum sapphirinum</i>	Blue Wool-Star	
	<i>Gilia diegensis</i>	San Diego Gilia	
	<i>Gilia</i> spp.	Gilia	
	<i>Gilia angelensis</i>	Chaparral Gilia	
	<i>Linanthus liniflorus</i>	Flax-Flowered Gilia	
	<i>Navarretia atractyloides</i>	Skunkweed	
Polygonaceae			
Buckwheat Family			
	<i>Chorizanthe coriacea</i>	Leather Spineflower	N
	<i>Chorizanthe staticoides</i>	Turkish Rugging	N
	<i>Eriogonum elongatum</i>	Long-Stemmed Eriogonum	N
	<i>Eriogonum fasciculatum</i> var. <i>foliolosum</i>	Leafy Buckwheat	N
	<i>Eriogonum gracile</i>	Slender Buckwheat	N
	<i>Polygonum aviculare</i>	Prostrate Knotweed	E
	<i>Polygonum arenastrum</i>	Common Knotweed	E
	<i>Rumex crispus</i>	Curly Dock	E
	<i>Rumex salicifolius</i>	Willow-Leaved Dock	N
Portulacaceae			
Purslane Family			
	<i>Calandrinia</i> sp.		N
	<i>Calyptridium monandrum</i>	Sand-Cress	N
	<i>Claytonia</i> sp.	Miners Lettuce	N
	<i>Anagallis arvensis</i>	Scarlet Pimpernel	E
	<i>Dodecatheon clevelandii</i>	Shooting Star	N
	<i>Portulaca oleracea</i>	Puslane	E
	<i>Stellaria</i> sp.	Chickweed	E
Primulaceae			
Primrose Family			
	<i>Ceanothus crassifolius</i>	Hoaryleaf Ceanothus	N
	<i>Rhamnus crocea</i>	Red-Berry	N
Ranunculaceae			
	<i>Clematis pauciflora</i>	Southern California Clematis	N
	<i>Delphinium</i> sp.	Larkspur	N

Family	Scientific Name	Common Name	Native/Exotic
Rosaceae			
Rose Family			
	<i>Adenostoma fasciculatum</i>	Chamise	N
	<i>Prunus ilicifolia</i> ssp. <i>ilicifolia</i>	Holy Leaved Cherry	N
	<i>Rosa californica</i>	California Wild Rose	N
Rubiaceae			
Madder Family			
	<i>Galium angustifolium</i>	Narrow-Leaf Bedstraw	N
	<i>Galium aparine</i>	Annual Bedstraw	N
Salicaceae			
Willow Family			
	<i>Populus fremontii</i>	Freemont Cottonwood	N
	<i>Salix exigua</i>	Sandbar Willow	N
	<i>Salix gooddingii</i>	Goodding's Willow	N
	<i>Salix lasiolepis</i>	Arroyo Willow	N
Scrophulariaceae			
Figwort Family			
	<i>Antirrhinum coulterianum</i>	Snapdragon	N
	<i>Antirrhinum nuttallianum</i>	Nuttall's Snapdragon	N
	<i>Castilleja affinis</i>	Coast Indian Paintbrush	N
	<i>Castilleja exserta</i>	Purple Owls Clover	N
	<i>Collinsia concolor</i>	Southern Chinese Houses	N
	<i>Keckiella antirrhinoides</i>	Chaparral Beard-Tongue	N
	<i>Mimulus brevipes</i>	Hillside Monkeyflower	N
	<i>Mimulus cardinalis</i>	Scarlet Monkeyflower	N
	<i>Mimulus guttatus</i>	Common-Monkey Flower	N
	<i>Mimulus pilosus</i>	False Monkeyflower	N
	<i>Penstemon spectabilis</i>	Beard-Tongue	N
	<i>Scrophularia californica</i>	Coast Figwort	N
	<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	Speedwell	N
Selaginellaceae			
Spike Moss Family			
	<i>Selaginella bigelovii</i>	Bigelow's Spikemoss	N
Simaroubaceae			
Quassia Family			
	<i>Ailanthus altissima</i>	Tree Of Heaven	E
Solanaceae			
Nightshade Family			
	<i>Datura wrightii</i>	Jimson Weed	N

Family	Scientific Name	Common Name	Native/Exotic
	<i>Nicotiana quadrivalvis</i>	Indian Tobacco	E
	<i>Solanum douglasii</i>	White Nightshade	N
Saururaceae Lizard-Tail Family			
	<i>Anemopsis californica</i>	Yerba Mansa	N
Tamaricaceae Tamarisk Family			
	<i>Tamarix ramosissima</i>		E
Themidaceae Brodiaea Family			
	<i>Bloomeria crocea</i>	Golden Star	N
	<i>Dichelostemma capitatum</i>	Blue Dicks	N
	<i>Muilla maritima</i>	Common Muilla	N
Typhaceae Cattail Family			
	<i>Typha</i> sp.		N
Urticaceae Nettle Family			
	<i>Urtica dioica</i>	Stinging Nettle	N
	<i>Urtica urens</i>	Dwarf Nettle	N
Verbenaceae Vervain Family			
	<i>Verbena lasiostachys</i>	Weedy Verbena	N
Violaceae Violet family			
	<i>Viola pedunculata</i>	Johnny Jump-Up	N

APPENDIX B
Sensitive Plant and Wildlife Species
with Potential to Occur in the
Proposed Valley-Ivyglen Transmission Line
Project

Appendix B Sensitive Plant and Wildlife Species with Potential to Occur in the Proposed Valley-Ivyglen Transmission Line Project

Scientific Name ¹	Common Name	Status ²	Blooming Period	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
Plants					
<i>Abronia villosa var aurita</i>	Chaparral Sand-Verbena	1B.1	Jan-Sept	Chaparral, Coastal Scrub, Desert Dunes/sandy	High. CNDDDB points occur in the study area.
<i>Allium munzii</i>	Munz's Onion	1B.1 FE ST MSHP Narrow Endemic	Mar-May	Chaparral, Cismontane, Woodland Coastal Scrub, Pinyon/Juniper Woodland, Valley and Foothill Grassland/ mesic, clay	High. Identified in the study area.
<i>Ambrosia pumila</i>	San Diego Ambrosia	1B.1 FE MSHP Narrow Endemic	May-Sept	Chaparral, Coastal Scrub, Valley and Foothill Grassland, Vernal Pools/often in disturbed areas	High. CNDDDB record within the study area.
<i>Arctostaphylos rainbowensis</i>	Rainbow Manzanita	1B.1 MSHCP Covered Species	Jan-Feb	Chaparral	Low. No habitat present
<i>Astragalus pachypus var. jaegeri</i>	Jaeger's Milk-Vetch	1B.1 MSHCP Covered Species	Dec-Apr	Chaparral, Cismontane Woodland, Coastal Scrub, Valley and Foothill Grassland/sandy or rocky	Moderate. Suitable habitat exists.
<i>Atriplex coronata var notatior</i>	San Jacinto Valley Crownscale	1B.1 FE MSHCP Covered Species	Apr-Aug	Playas, Valley and Foothill Grassland (mesic), Vernal Pools/alkaline	High. Alkaline soils exist within the project area.
<i>Atriplex coulteri</i>	Coulter's Saltbush	1B.2 MSHCP Criteria Species	Mar-Oct	Coastal bluff Scrub, Coastal Dunes, Coastal Scrub, Valley and Foothill Grassland/alkaline or clay	High. Alkaline soils exist within the project area.

Scientific Name ¹	Common Name	Status ²	Blooming Period	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<i>Atriplex pacifica</i>	South Coast Saltscale	1B.2 MSHCP Covered Species	Mar-Oct	Coastal Bluff Scrub ,Coastal Dunes, Coastal Scrub, Playas	Moderate. Suitable habitat exists.
<i>Atriplex parishii</i>	Parish's Brittscale	1B.1 MSHCP Criteria Species	Jun-Oct	Coastal Scrub, Playas, Vernal Pools	Moderate. Suitable habitat exists.
<i>Atriplex serenana var. davidsonii</i>	Davidson's Saltscale	1B.2 MSHCP Criteria Species	Apr-Oct	Coastal Bluff Scrub, Coastal Scrub/alkaline	High. Alkaline soils exist within the project area.
<i>Brodiaea filifolia</i>	Thread-Leaved Brodiaea	1B.1 FT SE MSHCP Criteria Species	Mar-Jun	Chaparral, Cismontane Woodland, Coastal Scrub, Playas, Valley and Foothill Grassland, Vernal Pools/often clay	High. CNDDDB record within project area. Clay soils exist near Pacific Clay property.
<i>Brodiaea orcuttii</i>	Orcutt's Brodiaea	1B.1 MSHCP Covered Species	May-July	Closed Cone Coniferous Forest,Chaparral,Cismontane Woodland, Meadows, Valley and Foothill Grassland, Vernal Pools/mesic, clay, sometimes serpentine	Low. No habitat present
<i>Calochortus plummerae</i>	Plummer's Mariposa Lily	1B.2 MSHCP Covered Species	May-July	Chaparral, Cismontane Woodland, Coastal Scrub, Lower Montane Coniferous Forest, Valley and Foothill Grassland/granitic, rocky	Moderate. Suitable habitat exists.
<i>Calochortus weedii var. intermedius</i>	Intermediate Mariposa Lily	1B.2 MSHCP Covered Species	May-July	Chaparral, Coastal Scrub, Valley and Foothill Grassland/rocky	Moderate. Suitable habitat exists.
<i>Centromadia pungens ssp. laevis</i>	Smooth Tarplant	1B.1 MSHCP Criteria Species	Apr-Sept	Chenopod Scrub, Meadows, Playas, Riparian Woodland, Valley and Foothill Grassland	High. Identified by Entrix, Inc. within study area.

Scientific Name ¹	Common Name	Status ²	Blooming Period	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<i>Chorizanthe parryi</i> var. <i>parryi</i>	Parry's Spineflower	3.2 MSHCP Covered Species	Apr-Jun	Chaparral, Coastal Scrub/sandy or rocky openings	Moderate. Suitable habitat exists.
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	Long-Spined Spineflower	1B.2 MSHCP Covered Species	April-July	Chaparral, Coastal Scrub, Meadows, Valley and Foothill Grassland/often clay	High. Clay soils within study area.
<i>Chorizanthe xanti</i> var. <i>leucotheca</i>	White-Bracted Spineflower	1B.2 MSHCP Covered Species	Apr-Jun	Mojavean Desert Scrub Pinyon/Juniper Woodland	Low. No habitat present
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	Summer Holly	1B.2 MSHCP Covered Species	Apr-Jun	Chaparral, Cismontane Woodland	Low. No habitat present
<i>Cupressus forbesii</i>	Tecate Cypress	1B.1 MSHCP Covered Species	n/a	Closed Cone Coniferous Forest, Chaparral	Low. No habitat present
<i>Dodecahema leptoceras</i>	Slender-Horned Spineflower	1B.1 FE SE MSHP Narrow Endemic	Apr-Jun	Chaparral, Cismontane Woodland, Coastal Scrub/(alluvial fan)/sandy	High. Alluvial fan present
<i>Dudleya cymosa</i> ssp. <i>ovatifolia</i>	Santa Monica Mountains Dudleya	1B.2 FT	Mar-Jun	Chaparral, Coastal Scrub	Moderate. Suitable habitat exists.
<i>Dudleya multicaulis</i>	Many-Stemmed Dudleya	1B.2 MSHP Narrow Endemic	Apr-Jul	Chaparral, Coastal Scrub, Valley and Foothill Grassland/often clay	High. Clay soils exist near Pacific Clay property.
<i>Dudleya viscida</i>	Sticky Dudleya	1B.2 MSHCP Covered Species	May-Jun	Coastal Bluff Scrub, Chaparral, Coastal Scrub/rocky	Low. No habitat present

Scientific Name ¹	Common Name	Status ²	Blooming Period	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<i>Erodium macrophyllum</i>	Round-Leaved Filaree	2.1 MSHCP Criteria Species	Mar-May	Cismontane Woodland, Valley and Foothill Grassland/clay	High. CNDDDB record within project area.
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego Button-Celery	1B.1 FE SE MSHCP Covered Species	Apr-Jun	Coastal Scrub, Valley and Foothill Grassland, Vernal Pools/mesic	Low. No habitat present
<i>Hordeum intercedens</i>	Vernal Barley	3.2 MSHCP Covered Species	Mar-Jun	Coastal Dunes, Coastal Scrub, Valley and Foothill Grassland, Vernal Pools	Low. No habitat present
<i>Horkelia cuneata</i> ssp. <i>puberula</i>	Mesa Horkelia	1B.1	Feb-Sept	Chaparral, Cismontane Woodland, Coastal Scrub/sand, gravelly	Moderate. Suitable habitat exists.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's Goldfields	1B.1 MSHCP Criteria Species	Feb-Jun	Marsh and Swamp (coastal salt), Playas, Vernal Pools	Low. No habitat present
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's Pepper-Grass	1B.2 MSHCP Covered Species	Jan-July	Chaparral, Coastal Scrub	Moderate.
<i>Lepechinia cardiophylla</i>	Heart-Leaved Pitcher Sage	1B.2 MSHCP Criteria Species	Apr-Jul	Closed Cone Coniferous Forest, Chaparral, Cismontane Woodland	Low. No habitat present
<i>Limnanthes gracilis</i> ssp. <i>parishii</i>	Parish's Meadowfoam	1B.2/ST MSHCP Covered Species	Apr-Jun	Lower Montane Coniferous Forest, Meadows, Vernal Pools/mesic	Low. No habitat present.
<i>Monardella hypoleuca</i> ssp. <i>lanata</i>	Felt-Leaved Monardella	1B.2	Jun-Aug	Chaparral, Cismontane Woodland	Low. No habitat present

Scientific Name ¹	Common Name	Status ²	Blooming Period	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<i>Monardella macrantha ssp. hallii</i>	Hall's Monardella	1B.3 MSHCP Covered Species	Jun-Aug	Broad leaved upland Forest, Chaparral, Cismontane Woodland, Lower Montane Coniferous Forest, Valley and Foothill Grassland	Low. No habitat present
<i>Myosurus minimus ssp. apus</i>	Little Mousetail	3.1 MSHCP Criteria Species	Mar-Jun	Valley and Foothill Grassland, Vernal Pools(alkaline)	Low. No habitat present
<i>Navarretia fossalis</i>	Spreading Navarretia	1B.1/FT MSHP Narrow Endemic	Apr-Jun	Chenopod Scrub, Marsh and Swamp(assorted shallow freshH2O),Playas, Vernal Pools	Low. No habitat present
<i>Navarretia prostrata</i>	Prostrate Navarretia	1B.1 MSHCP Criteria Species	Apr-July	Coastal Scrub, Meadows, Valley and Foothill Grassland,(alkaline),Vernal Pools/mesic	Moderate. Mesic alkaline soils present within study area.
<i>Nolina cismontanas</i>	Chaparral Nolina	1B.2	May-July	Chaparral, Coastal Scrub/sandstone or gabbro	Low. No habitat present
<i>Orcuttia californica</i>	California Orcutt Grass	1B.1/FE/SE MSHP Narrow Endemic	Apr-Aug	Vernal Pools	Low. No habitat present
<i>Phacelia suaveolens ssp. keckii</i>	Santiago Peak Phacelia	1B.3 MSHCP Covered Species	May-Jun	Closed Cone Coniferous Forest, Chaparral	Low. No habitat present
<i>Satureja chandleri</i>	San Miguel Savory	1B.2 MSHP Narrow Endemic	Mar-Jul	Chaparral, Cismontane Woodland, Coastal Scrub, Riparian Woodland, Valley and Foothill Grassland/rocky, gabbroic or metavolcanic	Low. No habitat present
<i>Senecio aphanactis</i>	Rayless Ragwort	2.2	Jan-Apr	Chaparral, Cismontane Woodland, Coastal Scrub/alkaline	Moderate. Suitable habitat exists.
<i>Scutellaria bolanderi ssp. austromontana</i>	Southern Skullcap	1B.2 MSHCP Covered Species	Jun-Aug	Chaparral, Cismontane Woodland, Lower Montane Coniferous Forest /mesic	Low. No habitat present

Scientific Name ¹	Common Name	Status ²	Blooming Period	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<i>Sibaropsis hammittii</i>	Hammitt's Clay-Cress	1B.2	Mar-Apr	Chaparral, Valley and Foothill Grassland	Moderate. Suitable habitat exists.
<i>Sidalcea neomexicana</i>	Salt Spring Checkerbloom	2.2 MSHCP Covered Species	Mar-Jun	Chaparral, Coastal Scrub, Lower Montane Coniferous Forest, Mojave Desert Scrub, Playas/alkaline, mesic	High. Alkaline soils within the study area
<i>Sphaerocarpos drewei</i>	Bottle Liverwort	1B.1	n/a	Chaparral, Coastal Scrub/opening, soil	Moderate. Suitable habitat exists.
<i>Symphyotrichum defoliatum</i>	San Bernardino Aster	1B.2	Jul-Nov	Cismontane Woodland, Coastal Scrub, Lower Montane Coniferous Forest, Meadows, Marsh and Swamp, Valley and Foothill Grassland(vernally mesic)/near ditches, streams, springs	Moderate. Suitable habitat exists.
<i>Tetracoccus dioicus</i>	Parry's Tetracoccus	1B.2 MSHCP Covered Species	Apr-May	Chaparral, Coastal Scrub	Moderate. Suitable habitat exists.
<i>Tortula californica</i>	Californica Screw Moss	1B.2	n/a	Chenopod Scrub, Valley and Foothill Grassland/ sandy, soil	Low. No habitat present
<i>Trichocoronis wrightii</i> var. <i>wrightii</i>	Wright's Trichocoronis	1B.1 MSHP Narrow Endemic	May-Sept	Meadows, Marsh and Swamp Riparian Forest, Vernal Pools/alkaline	High. Alkaline soils within the study area

Federal Status

FE = Federal Endangered

FT = Federal Threatened

State/CDFG Status

SE = State Endangered

ST = State Threatened

*= Not included in the MSHCP

CNPS Status

1B= Rare or Endangered in California and elsewhere

2= Rare or Endangered in California, but more common elsewhere

3= Review List- Plant for which we need more information

4= Plants with limited Distribution- Watch List

.1= Seriously endangered in California

.2= Fairly endangered in California

.3= Not very endangered in California

County Status

MSHCP Covered Species = Covered species under County of Riverside Multiple Species Habitat Conservation Plan

MSHCP Narrow Endemic = Listed as a narrow endemic under County of Riverside Multiple Species Habitat Conservation Plan

Scientific Name ¹	Common Name	Status ²	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
Invertebrates				
<i>Euphydryas editha quino</i>	Quino Checkerspot Butterfly	FE, MSHCP Covered Species	Grasslands, sage scrub, chaparral with open areas	Moderate. Has potential to occur within study area.
<i>Streptocephalus woottoni</i>	Riverside Fairy Shrimp	FE, MSHCP Covered Species	Vernal pools or shallow ponded water within grassland, scrub, chaparral	Moderate. Has potential to occur within study area.
Amphibians				
<i>Bufo californicus</i>	Arroyo Toad	FE, CSC, MSHCP Covered Species	Open, sandy or gravelly, riparian breeding areas and adjacent upland habitat within approximately 1 kilometer of breeding areas	Moderate. Has potential to occur within study area.
<i>Scaphiopus hammondi</i>	Western Spadefoot Toad	CSC, MSHCP Covered Species	Ephemeral pools, grassland, scrub, chaparral	High. Present within study area.
Reptiles				
<i>Aspidoscelis (Cnemidophorus) hyperythra beldingi</i>	Orange-Throated Whiptail	CSC, MSHCP Covered Species	Open sage scrub, chaparral, sandy wash, woodland	High. Present within study area.
<i>Aspidoscelis (Cnemidophorus) tigris stejnegeri</i>	Coastal Western Whiptail	CNDDB: G5T3T4S2S3, MSHCP Covered Species	Dense chaparral and sage scrub, especially around sandy washes and streambeds	Moderate. Has potential to occur within study area.
<i>Charina (Lichanura) trivirgata roseofusca</i>	Coastal Rosy Boa	CNDDB: G4G5S3S4	Dry, rocky brushlands and arid habitats, prefers rock outcrops	Moderate. Has potential to occur within study area.
<i>Clemmys marmorata pallida</i>	Southwestern Pond Turtle	CSC, MSHCP Covered Species	Streams, ponds, upland within 400 meters of ponds	Moderate. Has potential to occur within study area in the vicinity of ponded water.

Scientific Name ¹	Common Name	Status ²	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<i>Coleonyx variegates abbotii</i>	San Diego Banded Gecko	CNDDDB: G5T3T4S2S3, MSHCP Covered Species	Coastal Sage scrub and chaparral, prefers rock outcrops	Moderate. Has potential to occur within study area.
<i>Crotalus ruber ruber</i>	Northern Red Diamond Rattlesnake	CSC, MSHCP Covered Species	Scrub, chaparral, riparian	Moderate. Has potential to occur within study area.
<i>Lampropeltus zonata pulchra</i>	San Diego Mountain Kingsnake	CSC, MSHCP Covered Species	Coniferous forest, pine-oak and riparian woodlands, chaparral, Manzanita, and coastal sage scrub; ranging from sea level to high elevations. Prefers areas with rotting logs and/or talus and rock outcrops.	Low. Little to no habitat present.
<i>Lichanura trivirgata roseofusca</i>	Coastal Rosy Boa	CNDDDB G4-5, S3-4	Scrub and woodland habitats	High. Has potential to occur within study area.
<i>Phrynosoma coronatum (blainvillei)</i>	Coast (San Diego) Horned Lizard	CSC, MSHCP Covered Species	Sage scrub, chaparral, forests	High. Has potential to occur within study area.
<i>Salvadora hexalepis virgultea</i>	Coast Patch-Nosed Snake	CSC	Open habitats, brush	Moderate. Has potential to occur within study area.
<i>Thamnophis hammondi</i>	Two-Striped Garter Snake	CSC	Creeks and ponds, nearby upland habitats	Moderate. Has potential to occur within study area.
Birds				
<i>Accipiter cooperii</i>	Cooper's Hawk	CSC (nesting), MBTA, MSHCP Covered Species	Oak woodland, eucalyptus, mature riparian forest	High. Present within study area. Potential to nest in study area.
<i>Accipiter striatus</i>	Sharp-Shinned Hawk	CSC, MSHCP Covered Species	Grasslands, coastal sage scrub	Moderate. Has potential to occur within study area as a winter migrant.
<i>Agelaius tricolor</i>	Tri-Colored Blackbird (Nesting Colony)	FBCC, CSC, MBTA, MSHCP Covered Species	Marshes, fields	Moderate. Has potential to occur within study area.

Scientific Name ¹	Common Name	Status ²	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<i>Aimophila ruficeps canescens</i>	Southern California Rufous-Crowned Sparrow	CSC, MBTA, MSHCP Covered Species	Open coastal sage scrub	High. Present within study area. Potential to nest in study area.
<i>Amphispiza belli belli</i>	Bell's Sage Sparrow	FBCC, CSC, MBTA, MSHCP Covered Species	Coastal sage scrub, chaparral	High. Present within study area. Potential to nest in study area.
<i>Aquila chrysaetos</i>	Golden Eagle	FBCC, BEPA, CSC, CFP, MBTA, MSHCP Covered Species	Grasslands, trees, cliffs, scrub	Moderate. Has potential to forage within study area.
<i>Athene cucularia</i>	Burrowing Owl	FSC, FBCC, CSC (Burrow sites) , MBTA, MSHCP Covered Species	Open land, old ground squirrel burrows	Moderate. Has potential to occur within study area. Potential to nest in study area (i.e. ground squirrel burrows present).
<i>Buteo regalis</i>	Ferruginous Hawk	FBCC, CSC (wintering), MBTA, MSHCP Covered Species	Grasslands	Moderate. Uncommon winter visitor, could forage in study area.
<i>Circus cyaneus</i>	Northern Harrier	CSC (nesting), MBTA, MSHCP Covered Species (breeding)	Grasslands, marshes, open habitats	Moderate. Has potential to occur within study area. Potential nesting habitat present.
<i>Elanus leucurus</i>	White-Tailed Kite	CFP, MBTA, MSHCP Covered Species	Open habitats with perches	High. Present within study area. Potential nesting habitat present.
<i>Empidonax traillii (extimus)</i>	Willow Flycatcher (Southwestern)	FE (<i>extimus</i>), SE (all subspecies), MBTA, MSHCP Covered Species (<i>extimus</i>)	Well developed riparian woodland, willow meadows	Moderate. Has potential to occur within study area. Potential nesting habitat present. Potential to nest in study area.

Scientific Name ¹	Common Name	Status ²	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<i>Eremophila alpestris actia</i>	California Horned Lark	CSC, MBTA, MSHCP Covered Species	Open habitats, bare dirt	Moderate. Has potential to occur within study area.
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	FBCC, SE, MBTA, MSHCP Covered Species	Cliffs	Low. Has potential to occur within study area.
<i>Haliaeetus leucocephalus</i>	Bald Eagle	FT, SE, BEPA, MBTA, MSHCP Covered Species	Ocean shore, lake margins, and rivers.	Moderate. Has potential to occur within study area. Unlikely to nest in area.
<i>Icteria virens</i>	Yellow-Breasted Chat	CSC (nesting), MBTA, MSHCP Covered Species	Mature riparian woodland	Moderate. Has potential to occur within study area. Potential nesting habitat present.
<i>Lanius ludovicianus</i>	Loggerhead Shrike	FBCC, CSC (nesting), MBTA, MSHCP Covered Species	Open habitats, scrub	High. Has potential to occur within study area. Potential nesting habitat present.
<i>Plegadis chihi</i>	White-Faced Ibis	CSC, MBTA	Freshwater lagoons, rivers, lakes, wet agricultural fields, and occasionally salt marshes.	Moderate. Has potential to occur within study area.
<i>Polioptila californica californica</i>	Coastal California Gnatcatcher	FT, CSC, MBTA, MSHCP Covered Species	Coastal sage scrub	High. Present within study area. Potential to nest in study area.
<i>Vireo bellii pusillus</i>	Least Bell's Vireo	FE, SE, MBTA, MSHCP Covered Species	Riparian scrub and low woodland	Moderate. Has potential to occur within study area. Potential nesting habitat present.
Mammals				
<i>Cheatodipus californicus femoralis</i>	Dulzura California Pocket Mouse	CSC	Scrub/grassland interface, also woodlands and chaparral	Moderate. Has potential to occur within study area

Scientific Name ¹	Common Name	Status ²	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<i>Dipodomys stephensi</i>	Stephens' Kangaroo Rat	ST/FE, MSHCP Covered Species	Grasslands with sparse to no shrub cover	Moderate. Has potential to occur within study area.
<i>Eumops perotis</i>	Western Mastiff Bat	CSC	Areas of chaparral or live oaks and in more arid, rocky regions.	Moderate. Has potential to occur within study area.
<i>Lepus californica bennettii</i>	San Diego Black-Tailed Jackrabbit	CSC, MSHCP Covered Species	Scrub/grassland interface	Moderate. Has potential to occur within study area.
<i>Neotoma lepida intermedia</i>	San Diego Desert Woodrat	CSC, MSHCP Covered Species	Cactus thickets, chaparral, sage scrub	High. Has potential to occur within study area.
<i>Onychomys torridus ramona</i>	Southern Grasshopper Mouse	CSC	Abandoned rodent burrows in low to moderate shrub cover	Moderate. Has potential to occur within study area.
<i>Perognathus (Chaetodipus) fallax fallax</i>	Northwestern San Diego Pocket Mouse	CSC, MSHCP Covered Species	Sage scrub, grassland, desert scrub	Moderate. Has potential to occur within study area.
<i>Perognathus longimembris brevinasus</i>	Los Angeles Pocket Mouse	FE, CSC, NE, MSHCP Covered Species	Narrow coastal plains.	Moderate. Has potential to occur within study area.
<i>Corynorhinus (Plecotus) townsendii</i>	(Townsend's) Big-Eared Bat	CSC	Cold caves and mines	Moderate. Has potential to occur within study area.

Federal Status

FE = Federal Endangered
 FT = Federal Threatened
 FBCC= Federal Birds of Conservation Concern
 MBTA = Migratory Bird Treaty Act Species
 BEPA=Bald and Golden Eagle Protection Act

State/CDFG Status

SE = State Endangered
 ST = State Threatened
 CFP= California Fully Protected Species
 CSC = California Species of Concern
 CNDDDB = has a California Natural Diversity DataBase ranking only

County Status

MSHCP Covered Species = Covered species under County of Riverside Multiple Species Habitat Conservation Plan

APPENDIX C
Western Riverside MSHCP Narrow Endemic
and
Criteria Area Plant Species

Allium munzii

Munz's onion

USFWS: Endangered; 10/13/98

CDFG: Threatened; 01/90

CNPS: List 1B.1 (California endemic)

MSHCP: Narrow Endemic Species



© Roxanne Bittman and CNPS

Munz's onion is a bulb-forming perennial herb in the lily family (Liliaceae). This onion species is endemic to mesic clay soils of chaparral, valley and foothill grassland, cismontane woodland, pinon and juniper woodland, and coastal scrub habitats within southwestern Riverside County at elevations ranging from 300 to 1,070 meters (m) (984 to 3,510 feet [ft.]) (USFWS 1998, CNPS 2006). Munz' onion produces 10 to 36 white flowers which bloom between the months of March and May (CNPS 2005, Hickman 1993). They only flower during years with adequate rainfall and 3 to 5 years are required after seeds germination for plants to reach maturity and produce flowers. As much as 80 to 90 percent of the suitable habitat for this species has been adversely modified through extensive agriculture, urbanization, and clay mining (CDFG 1989).

This species is known from only 13 populations in Western Riverside County, including the Gavilan Hills, Harford Springs County Park, Paloma Valley, Skunk Hollow, Domenigoni Hills, Bachelor Mountain, and the Elsinore Mountains. It is estimated that the total number of plants is somewhere between 20,000 to 70,000 individuals. (USFWS 1998).

Ambrosia pumila

San Diego ambrosia

USFWS: Endangered 07/02/02

CDFG: None

CNPS:1B.1

MSHCP: Narrow Endemic Species



© 2003 Jim Rocks

San Diego ambrosia is an herbaceous perennial that belongs to the sunflower family (Asteraceae). This species occurs at elevations below 415 m (1,362 ft.) within chaparral, coastal scrub, valley and foothill grassland, and vernal pool habitats of Riverside and San Diego County. It may also be found in disturbed habitats such as fire breaks and roadways. In Riverside County, San Diego ambrosia is associated with open, gently sloped grasslands and is generally associated with alkaline soils (County of Riverside 2003). San Diego ambrosia is monoecious, the staminate and pistillate flowers occur in mixed clusters. Flowers are yellow or translucent and bloom from April to October. This species is known in California from fewer than 20 occurrences and is threatened by development, nonnative plants, road maintenance, and trampling (CNPS 2006).

Three populations of San Diego ambrosia have been mapped in Riverside County. One population is known from Skunk Hollow, a second from Nichols Road north of Lake Elsinore, and a third has been reported for the City of Riverside based on a 1941 collection (County of Riverside 2003).

Atriplex coronata var. notatior

San Jacinto Valley crownscale
USFWS: Endangered 10/13/98
CDFG: None
CNPS: 1B.1 (California endemic)
MSHCP: Criteria Area Species



© 2001 Barry Du Bois

San Jacinto Valley crownscale is an annual herb in the goosefoot family (Chenopodiaceae). It is endemic to western Riverside County and is restricted to the San Jacinto, Perris, Menifee, and Elsinore Valleys (County of Riverside 2003). San Jacinto Valley crownscale occurs primarily in floodplains (seasonal wetlands) dominated by alkali scrub, alkali playas, vernal pools, and, to a lesser extent, alkali grasslands at elevations ranging from 380 to 500 m (1,247 to 1,640 ft.) (CNPS 2006, County of Riverside 2003). This bushy, low, grayish erect annual is monoecious the staminate and pistillate flowers occur in mixed clusters and may be found blooming from April to August (CNPS 2006). This species requires seasonal inundation or flooding for habitat rejuvenation and seed dispersal, although the duration and extent of flooding may vary substantially from year to year (USFWS 1998). San Jacinto Valley crownscale is threatened by flood control, agriculture, urbanization, vehicles, and pipeline construction (CNPS 2006).

In western Riverside County, San Jacinto Valley crownscale occurs as 11 loosely-defined populations that are primarily associated with Mystic Lake, the San Jacinto River, and Salt Creek tributary drainages. One small, isolated population has recently been discovered on Willows soils at Alberhill Creek near Lake Elsinore (County of Riverside 2003).

Atriplex parishii

Parish's brittlescale
USFWS: None
CDFG: None
CNPS 1B.1
MSHCP: Criteria Area Species

NO PHOTO AVAILABLE

Parish's brittlescale is an annual herb belonging to the goosefoot family (Chenopodiaceae). Parish's brittlescale is currently known only from the western Riverside County. Historically, this species was also known to occur within the counties of Los Angeles, Orange, Riverside, and San Bernardino (CNPS 2006). Habitats for this species include chenopod scrub, playas, and vernal pools at elevations ranging from

25 to 1,900 m (82 to 6,233 ft.). The obscure and small flowers bloom from June to October (CNPS 2006). Parish's brittlescale is threatened by development, agricultural conversion, and grazing (CNPS 2006).

Currently, Parish's brittlescale is known definitively from only three populations within the Salt Creek drainage west of Hemet (County of Riverside 2003). Appropriate habitat still remains at several historical sites such as on the flood plain along the San Jacinto River (last observed in 1974) (County of Riverside 2003)

Atriplex serenana var. davidsonii

Davidson's saltscale

NO PHOTO AVAILABLE

USFWS: None

CDFG: None

CNPS 1B.2

MSHCP: Criteria Area Species

Davidson's saltscale is an annual herb belonging to the goosefoot family (Chenopodiaceae). Davidson's saltbush is known to occur in cismontane southwestern California from Ventura County, western Orange County, and western Riverside County (CNPS 2006). Historically, this species has also been reported in coastal Santa Barbara, Los Angeles, Orange, and San Diego Counties (CNPS 2006, CNDDDB 2005). In Riverside County, Davidson's saltbush is found in the Domino-Willows-Traver Soils series in association with the alkali vernal pools, alkali annual grassland, alkali playa, and alkali scrub components of alkali vernal plains at elevations ranging from 10 to 200 m (33 to 656 ft.) (CNPS 2006, County of Riverside 2003). Davidson's saltbush produces male and female flowers in separate clusters. The flowers, which bloom from April to October, are very small and obscure. In Riverside County, this species and its habitat are threatened by habitat destruction and fragmentation from urban and agricultural development, pipeline construction, alteration of hydrology and flood-plain dynamics, excessive flooding, channelization, off road vehicle activity, trampling by cattle and sheep, weed abatement, fire suppression practices (including discing and plowing), and competition from alien plant species (County of Riverside 2003).

Davidson's saltbush is known to occur in the upper Salt Creek drainage area west of Hemet and along the San Jacinto River floodplain from Mystic Lake south to the Ramona Expressway where it occurs in small, patchy populations. This species may also occur in the vicinity of the Nichols Road wetlands at Alberhill and Murrieta Hot Springs Area (County of Riverside 2003).

Brodiaea filifolia

Thread-leaved brodiaea
USFWS: Threatened 10/13/98
CDFG: Endangered 01/82
CNPS: 1B.1 (California endemic)
MSHCP: Criteria Area Species



© 2001 Salvatore Zimmitti

Thread-leaved brodiaea is a bulbiferous herb in the lily family (Liliaceae). This species is endemic to California and occurs only in Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. Thread-leaved brodiaea typically occurs on gentle hillsides, valleys, and floodplains in semi-alkaline mudflats, vernal pools, mesic southern needlegrass grassland, mixed native-nonnative grassland, and alkali grassland plant communities in association with clay, loamy sand, or alkaline silty-clay soils within elevations ranging from 25 to 860 m (82 to 2,821 ft.) (CNPS 2006, County of Riverside 2003). The leaves of this species are basal and often wither; its bell-shaped violet-red-purple flowers bloom from March to June (Hickman 1993, CNPS 2006). Thread-leaved brodiaea is seriously threatened by residential development, agriculture, grazing, and vehicles (CNPS 2006).

Twelve populations of thread-leaved brodiaea are known from western Riverside County along the San Jacinto River in Nuevo, Perris, and the San Jacinto Wildlife Area Salt Creek; on Salt Creek; on the Santa Rosa Plateau; and west of the Santa Rosa Plateau (County of Riverside 2003).

Centromadia pungens ssp. laevis

Smooth tarplant
USFWS: None
CDFG: None
CNPS 1B.1 (California endemic)
MSHCP: Criteria Area Species



© 2003 Dean Wm. Taylor

Smooth tarplant is an annual herb belonging to the sunflower family (Asteraceae). This species is endemic to southern California and is known to occur in Orange (extirpated), Riverside, San Bernardino, and San Diego counties. Smooth tarplant occurs in alkaline soils of chenopod scrub, playas, riparian woodland, meadows, seeps and valley, and foothill grassland habitats at elevations less than 480 m (1,574 ft.) (CNPS 2006). The majority of the populations in western Riverside County are associated with alkali vernal plains (County of Riverside 2003). Smooth tarplant produces large showy yellow flowers which bloom from April to September. In Riverside County, smooth tarplant and its habitat are threatened by habitat destruction and fragmentation from urban and agricultural development, pipeline construction, alteration of hydrology and flood-plain dynamics, excessive flooding, channelization, off-road vehicle activity, trampling by

cattle and sheep, weed abatement, fire suppression practices (including discing and plowing), and competition from alien plant species (County of Riverside 2003).

Populations identified in western Riverside County include the San Jacinto Wildlife Area, the middle segment of the San Jacinto River, Salt Creek, and areas north of the Tres Cerritos Hills (County of Riverside 2003).

Dodecahema leptoceras

Slender-horned spineflower
USFWS: Endangered 09/28/87
CDFG: Endangered 01/82
CNPS: 1B.1 (California endemic)
MSHCP: Narrow Endemic Species



© James L. Reveal

Slender-horned spineflower is a small, spreading annual herb the buckwheat family (Polygonaceae). This species is endemic to California and occurs only in Los Angeles, Riverside, and San Bernardino counties (CNPS 2006). Slender-horned spineflower is known to occur in sandy or gravelly soils of chaparral, cismontane woodland, and coastal scrub (alluvial fan) habitats in elevations ranging from 200 to 760 m (656 to 2,493 ft.) (CNPS 2006). This species is also known to occur in association with moss, algae, and/or lichen crusts which occur on the soil surface (County of Riverside 2003). Slender-horned spineflower produces white to pink flowers which bloom from April through June. In Riverside County, this species is threatened by urbanization, off-road vehicle use, sand and gravel mining, trampling associated with recreation, flood control measures (*i.e.*, constriction of the floodplain, dams, etc.), and competition from nonnative plant species (County of Riverside 2003).

Slender-horned spineflower is known to occur within the following areas of western Riverside County: Temescal Wash at Indian Creek, upper San Jacinto River near Valle Vista and Hemet, central Bautista Creek, Arroyo Seco and Kolb Creek along the north flank of the Agua Tibia Mountains, and at Vail Lake in southern Riverside (County of Riverside 2003).

Dudleya multicaulis

Many-stemmed dudleya
USFWS: None
CDFG: None
CNPS: 1B.2 (California endemic)
MSHCP: Narrow Endemic Species



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Many-stemmed dudleya is a perennial herb in the stonecrop family (Crassulaceae). It is endemic to southwestern California and is known to occur only in Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. Many-stemmed dudleya is often associated with clay soils in barrens, rocky places, or thinly vegetated openings in chaparral, coastal sage scrub, and southern needlegrass grasslands at elevations

ranging from 15 to 790 m (49 to 2,591 ft. in elevation) (Munz 1974, CNPS 2006). Many-stemmed dudleya generally produces yellow flowers from April to July (CNPS 2006).

About 10 populations of many-stemmed dudleya have been reported in western Riverside County. These populations are known from the vicinity of Santa Ana Canyon, the Temescal Valley, Estelle Mountain and Lake Mathews, Alberhill near Lake Elsinore, Oak Flats in the San Mateo Wilderness, and at Vail Lake (County of Riverside 2003). A significant portion of the population has been conserved within the Lake Mathews-Estelle Mountain preserve. However, other populations are threatened by urban and transportation development, and landfill expansion (County of Riverside 2003).

Erodium macrophyllum

Round-leaved filaree

USFWS: None

CDFG: None

CNPS: 2.1

MSHCP: Criteria Area Species



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Round-leaved filaree is an herbaceous annual in the geranium family (Geraniaceae) that is found throughout California, southern Oregon and northern Baja California. It typically grows in heavy clay soils within valley and foothill grasslands and cismontane woodland habitats at elevations ranging from 15 to 1,200 m (49 to 3,937 ft.) (CNPS 2006). The white showy white flowers of this species bloom from March through May (Hickman 1993, CNPS 2006). Round leaved filaree is threatened by urbanization, vehicles, grazing, and nonnative plants (CNPS 2006).

Currently there are six populations of round-leaved filaree known to occur in Riverside County from the vicinities of Skinner Reservoir and Bachelor Mountain, Alice Mine, Temescal Wash (south of Highway 15, west of Alberhill), south of Lake Mathews and Big Oak Mountain (Vail Lake region) (CNDDDB 2005).

Lasthenia glabrata ssp. coulteri

Coulter's goldfields

USFWS: None

CDFG: None

CNPS: 1B.1

MSHCP: Criteria Area Species



© 2003 Dean Wm. Taylor

Coulter's goldfields is a perennial herb in the sunflower family (Asteraceae) that is known to occur in the Counties of Orange, Riverside, Ventura, Santa Barbara, San Diego, and San Luis Obispo, as well as Santa Rosa Island and Baja California. Historically

populations of this species were known to occur in Kern, Los Angeles, and San Bernardino counties, however, today these populations are extirpated (CNPS 2006). Coulter's goldfields occur in vernal pools, playas, marshes and swamps at elevations ranging from 1 to 1,220 m (3.2 to 3,904 feet). In Riverside County, Coulter's goldfields occur primarily in floodplains dominated by alkali scrub, alkali playas, vernal pools, and, alkali grasslands associated with the Traver-Domino-Willows soils series (County of Riverside 2003). Coulter's goldfields produce orange-yellow ray flowers which may be seen blooming from February to June (CNPS 2006, Hickman 1993). This species and its habitat are threatened by habitat destruction and fragmentation from urban and agricultural development, pipeline construction, alteration of hydrology and flood-plain dynamics, excessive flooding, channelization, off-road vehicle activity, trampling by cattle and sheep, weed abatement, fire suppression practices (including discing and plowing), and competition from alien plant species (County of Riverside 2003).

Coulter's goldfields is known primarily from four areas in western Riverside County: Mystic Lake and the San Jacinto Wildlife Area; along the San Jacinto River from Lakeview, Nuevo, and Perris to Railroad Canyon; Salt Creek; and the alkali wetlands near Nichols Road in the City of Lake Elsinore. Small, or historic populations, have also been reported from Anza, the vicinity of Murrieta and Temecula, the lake bed of Lake Elsinore, and at Woodcrest near Mockingbird Canyon (County of Riverside 2003).

Lepechinia cardiophylla

Heart-leaved pitcher sage

USFWS: None

CDFG: None

CNPS: 1B.2

MSHCP: Criteria Area Species



© 2003 Vince Scheidt

Heart-leaved pitcher sage is a shrub in the mint family (Lamiaceae) that is known to occur from the Santa Ana Mountains in Orange and Riverside counties, Iron Mountain in San Diego County and the coastal mountains of northern Baja California (County of Riverside 2003). This aromatic species is found in closed-cone coniferous forest chaparral and cismontane woodland habitats in elevations ranging from 520 to 1,370 m (1,706 to 4494 ft.) (CNPS 2006). Heart-leaved pitcher sage produces white to lavender tinged funnel shaped flowers that bloom from April through July (CNPS 2006, Hickman 1993). This species is potentially threatened by development, installation of transmission lines and fire-suppression activities (County of Riverside 2003).

In Riverside County this species is known to occur from the foothills of the Santa Ana Mountains northwest of Lake Elsinore, the hills southeast of Alberhill, Cleveland National Forest, and near the border of Orange and Riverside counties (County of Riverside 2003).

Myosurus minimus ssp. apus

little mousetail

USFWS: None

CDFG: None

CNPS: 3.1

MSHCP: Criteria Area Species



© 2004 Carol W. Witham

Little mousetail is an annual herb in the buttercup family (Ranunculaceae) that is known to occur in Riverside County, San Bernardino County, San Diego County, Baja California and Oregon from sea level to 640 m (<2,100 ft.) elevation (CNPS 2006). In southern California, little mousetail occurs in association with vernal pools, as well as within the alkali vernal pools and alkali annual grassland components of alkali vernal plains (County of Riverside 2003). In Riverside County, the small greenish flowers of little mousetail bloom from April to May on the Santa Rosa Plateau and from March to April in the lowlands, but is often detectable most of the year unless disturbed (County of Riverside 2003). This species and its habitat are threatened in Riverside County by habitat destruction and fragmentation from urban and agricultural development, pipeline construction, alteration of hydrology and flood plain dynamics, excessive flooding, channelization, off-road vehicle activity, trampling by cattle and sheep, weed abatement, fire suppression practices (including discing and plowing), and competition from alien plant species (County of Riverside 2003).

Navarretia fossalis

USFWS: Threatened 10/13/98

CDFG: None

CNPS: 1B.1

MSHCP: Narrow Endemic Species



www.cnps.org

Spreading navarretia is an annual herb in the phlox family (Polemoniaceae). It is distributed from northwestern Los Angeles County and western Riverside County, south through coastal San Diego County, California to San Quintin in northwestern Baja California, Mexico, from near sea level to 1,300 m (<4,200 ft.). In western Riverside County, spreading navarretia has been found in relatively undisturbed and moderately disturbed vernal pools, within a larger vernal floodplains dominated by annual alkali grassland or alkali playa (County of Riverside 2003). This species produces a compact cluster of 15 to 50 small white flowers that bloom from April to June (CNPS 2006, Hickman 1993). Spreading navarretia and its habitat is threatened by habitat destruction and fragmentation from urban and agricultural development, pipeline construction, alteration of hydrology and flood-plain dynamics, excessive flooding, channelization, off-road vehicle activity, trampling by cattle and sheep, weed abatement, fire suppression

practices (including discing and plowing), and competition from alien plant species (County of Riverside 2003).

Riverside County supports the largest remaining populations of spreading navarretia. Eleven (11) of the 12 populations in Riverside County are found in the alkali soils of two population complexes within the Upper Salt Creek drainage west of Hemet, and along the San Jacinto River extending from just west of Mystic Lake south to the Perris Valley Airport (County of Riverside 2003). Several vernal pools occupied by spreading navarretia south of the Ramona Expressway are on lands managed for conservation by the Riverside County Habitat Conservation Association (County of Riverside 2003).

Navarretia prostrata

Prostrate navarretia

USFWS: None

CDFG: None

CNPS: 1B.1 (California Endemic)

MSHCP: Criteria Area Species



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Prostrate navarretia is a California endemic annual herb species in the phlox family (Polemoniaceae) that is known to occur only from Alameda, Los Angeles, Merced, Monterey, Orange, Riverside, San Diego, San Luis Obispo, and possibly San Bernardino counties. It is found in mesic sites within valley and foothill grassland (alkaline), coastal scrub, vernal pools, meadows, and seeps at elevations ranging from 15 to 700 m (49 to 2,296 ft.) (CNPS 2006). Prostrate navarretia produces a cluster of blue to white flowers that bloom from April to July. Threats to this species include habitat degradation by nonnative plants and destruction and fragmentation from urban and agricultural development. In Riverside County this species is known from only two occurrences that are located in the Santa Rosa Plateau Ecological Reserve (CNDDDB 2005).

Orcuttia californica

California orcutt grass

USFWS: Endangered 08/03/93

CDFG: Endangered 09/79

CNPS: 1B.1

MSHCP: Narrow Endemic Species



© Jane Villa-Lobos.

California orcutt grass is an annual herb in the grass family (Poaceae). In California it is known to occur from Los Angeles, Riverside, San Diego, and Ventura counties. California orcutt grass is specific to vernal pool habitats found at elevations below 660 m (<2,165 ft.) (CNPS 2006). Its seeds can remain dormant for at least 3 to 4 years and possibly longer, germinating in the spring only after flooding of the vernal pools.

California orcutt grass blooms from April through August and appears to be strongly adapted to wind pollination (CNPS 2006, County of Riverside 2003). This species and its habitat is threatened by habitat destruction and fragmentation from urban and agricultural development, pipeline construction, alteration of hydrology and flood-plain dynamics, excessive flooding, off-road vehicle activity, trampling by cattle and sheep, weed abatement, fire suppression practices (including discing and plowing), and competition from alien plant species (County of Riverside 2003).

California orcutt grass is known to occur from three vernal pool sites in Riverside County: Upper Salt Creek west of Hemet, Skunk Hollow, and the Santa Rosa Plateau. Historically, this species was also known from Salt Creek west of Menifee, and Murrieta Hot Springs (County of Riverside 2003).

Satureja chandleri

San Miguel savory

USFWS: None

CDFG: None

CNPS: 1B.2

MSHCP: Narrow Endemic Species



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San Miguel savory is a perennial herb in the mint family (Lamiaceae) that is known to occur from Orange, Riverside, San Diego counties, and Baja California. It is associated with rocky, gabbroic, and metavolcanic substrates in coastal sage scrub, chaparral, cismontane woodland, riparian woodland, and valley and foothill grasslands at elevations ranging from 120 to 1,075 m (394 to 3,526 ft.) (CNPS 2006). The two-lipped white-to-lavender flowers of this species bloom from March to July (CNPS 2006, Hickman 1993). This species is threatened by agricultural conversion, urban development, and recreational activities (CNPS 2006).

Occurrences of San Miguel savory in Riverside County are known from Steele Mountain; in the vicinity of the Hogbacks; in the hills west of the Santa Rosa Plateau; on the Santa Rosa Plateau; in the Santa Ana Mountains: 1 mile west of Murrieta on Tenaja Road, 10 miles west of Murrieta (vicinity of Tenaja guard station), 3 miles south of Murrieta near De Luz Road, and 3 miles southwest of Murrieta near Warner's Ranch. A historic (1959) occurrence is known from St. Johns Canyon south of Hemet that needs verification (County of Riverside 2003).

Trichocoronis wrightii* var. *wrightii

NO PHOTO AVAILABLE

Wright's trichocoronis

USFWS: None

CDFG: None

CNPS: 2.1

MSHCP: Narrow Endemic Species

Wright's trichocoronis is an annual herb in the sunflower family (Asteraceae) that has naturalized in California. It is currently only known to occur only in Merced and Riverside counties. Historically populations of this species were identified in Merced, Colusa, Sutter, and San Joaquin counties; however, today these populations are extirpated (CNPS 2006). In western Riverside County, Wright's trichocoronis is found in the alkali vernal plains and associated with alkali playa, alkali annual grassland, and alkali vernal pool habitats (County of Riverside 2003). Wright's trichocoronis produces white flower heads that bloom from May to September (CNPS 2006, Hickman 1993). This species and its habitat are threatened by habitat destruction and fragmentation from urban and agricultural development, pipeline construction, alteration of hydrology and flood-plain dynamics, excessive flooding, channelization, off-road vehicle activity, trampling by cattle and sheep, weed abatement, fire suppression practices (including disking and plowing), and competition from alien plant species (County of Riverside 2003).

This species is known only from four locations along the San Jacinto River from the vicinity of the Ramona Expressway and San Jacinto Wildlife Area and along the northern shore of Mystic Lake. Only two locations on either side of the Ramona Expressway have been seen in recent years. This species may have once occurred at Salt Creek and possibly in the alkali wetlands near Nichols Road in the vicinity of Lake Elsinore (County of Riverside 2003).



Athene cunicularia hypugaea

Burrowing owl

USFWS: Species of Concern

CDFG: Species of Concern; Proposed

MSHCP: Criteria Area Species (MSHCP Burrowing Owl Survey Areas)

The western burrowing owl (*Athene cunicularia hypugaea*) is one of the smallest species of owls, about 9 inches length, with a short tail and very long legs, weighing only about 4 ounces. While most owls are nocturnal, burrowing owls are unique in that they are diurnal, meaning they are active both day and night, with most activity occurring at dusk and dawn. They are opportunistic feeders, mostly eating beetles, grasshoppers, and other large arthropods. Other prey animals include mice, rats, gophers, reptiles, and amphibians (Johnsgard 1988). Burrowing owls occupy grasslands, deserts sagebrush scrub, agricultural areas, earthen levees, berms, coastal uplands, and urban vacant lots,

as well as margins of airports, golf courses, and roads. They prefer low-growing vegetation and presence of existing ground-squirrel burrows (Haug *et al.* 1993).

Currently, the western burrowing owl is a federal and state species of special concern; however, a petition for its listing as threatened or endangered under the CESA was submitted to the CDFG in December 2003 by the Center for Biological Diversity. Although the petition was later found unwarranted by the California Fish and Game Commission, a new petition is expected to be submitted in 2006 and listing may be found warranted in light of new information.

The burrowing owl was formerly common in appropriate habitats throughout the state, excluding the humid northwest coastal forests and high mountains. Population numbers have markedly reduced in recent decades (County of Riverside 2003). The burrowing owl occurs within the central portion of western Riverside County; in the open lowlands (County of Riverside 2003). The primary threats to the species include the loss of natural habitat due to urban development and agriculture, and the expressed effects of insecticides and rodenticides within occupied habitat. The loss of burrowing mammal colonies (due to rodenticides or other means) and the crushing of burrows by heavy equipment and ground maintenance machinery remain problematical (County of Riverside 2003).

Specific instructions for burrowing owl surveys are included in the CDFG Burrowing Owl Survey and Monitoring Guidelines (CDFG 1993) and the Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area (County of Riverside 2006).

REFERENCES

- California Department of Fish and Game (CDFG). 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Prepared by the California Burrowing Owl Consortium.
- California Department of Fish and Game 1989. Report to the Fish and Game Commission of the status of Munz's onion (*Allium fimbriatum* var. *munzii*). Prepared by Sandra C. Morey. Natural Heritage Division Status Report 89-10.
- California Native Plant Society (CNPS). 2006. Inventory of Rare and Endangered Plants (online edition, v7-06b). California Native Plant Society. Sacramento, CA. Accessed on Wed, Apr. 26, 2006 from <http://www.cnps.org/inventory>
- County of Riverside. 2003. Western Riverside County Multiple Species Conservation Plan (MSHCP): Species Accounts. Accessed at: <http://www.rctlma.org/mshcp/index.html>
- County of Riverside. 2006. Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area. Environmental Programs Department. 4-14-06
- Johnsgard, P.A. 1988. North American Owls: Biology and Natural History. Washington D. C.: Smithsonian Institution Press.
- Haug, E. A., B. A. Millsap, and M.S. Martell. 1993. The burrowing owl (*Speotyto cunicularia*). In Poole, A. and F. Gill (editors). The birds of North America, No. 61. Philadelphia: The Academy of Natural Sciences; Washington D.C. The American Ornithologist' Union. Washington, D.C. The American Ornithologists' Union.
- Munz, P.A. 1974. A flora of southern California. University of California Press, Berkeley. 1086 pp.
- U.S. Fish and Wildlife Service (USFWS). 1998. Endangered and threatened wildlife and plants; Determination of Endangered or Threatened Status for Four Southwestern California Plants from Vernal Wetlands and Clay Soils. Final Rule. Federal Register 63 No, 197: 54975-54994 October 13, 1998.

APPENDIX D

Animal Species Encountered

Family	Common Name	Scientific Name
FISH		
Minnnows and Relatives Cyprinidae	Common Carp	<i>Cyprinus carpio</i>
Livebearers Poeciliidae	Western Mosquitofish	<i>Gambusia affinis</i>
AMPHIBIANS -AMPHIBIA		
Spadefoot Toads Pelobatidae	Western Spadefoot (larvae)	<i>Scaphiopus (Spea) hammondi</i>
True Toads Bufonidae	California Toad	<i>Bufo boreas halophilus</i>
Treefrogs and Relatives Hylidae	Pacific Treefrog (larvae)	<i>Hyla regilla</i>
True Frogs Ranidae	Bullfrog (larvae)	<i>Rana catesbeiana</i>
REPTILES-REPTILIA		
Horned and Spiny Lizards Phrynosomatidae	Western Fence Lizard	<i>Sceloporus occidentalis</i>
	Side-blotched Lizard	<i>Uta stansburiana</i>
Colubrid Snakes Colubridae	California Kingsnake	<i>Lampropeltis getula californiae</i>
Vipers Viperidae	Southwestern Speckled Rattlesnake	<i>Crotalus mitchellii pyrrhus</i>
BIRDS-AVES		
Ducks, Geese, and Swans Anatidae	Mallard	<i>Anas platyrhynchos</i>
New World Quail Odontophoridae	California Quail	<i>Callipepla californica</i>
Cormorants Phalacrocoracidae	Double-crested Cormorant	<i>Phalacrocorax auritus</i>
Herons, Bitterns, and Allies Ardeidae	Great Blue Heron	<i>Ardea herodias</i>
	Great Egret	<i>Ardea alba</i>
	Snowy Egret	<i>Egretta thula</i>
	Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>
American Vultures Cathartidae	Turkey Vulture	<i>Cathartes aura</i>
Hawks, Kites, Eagles Accipitridae	White-tailed Kite	<i>Elanus leucurus</i>
	Sharp-shinned Hawk	<i>Accipiter striatus</i>
	Cooper's Hawk	<i>Accipiter cooperii</i>

Family	Common Name	Scientific Name
	Red-shouldered Hawk	<i>Buteo lineatus</i>
	Red-tailed Hawk	<i>Buteo jamaicensis</i>
Falcons Falconidae	American Kestrel	<i>Falco sparverius</i>
Rails, Gallinules, and Coots Rallidae	American Coot	<i>Fulica Americana</i>
Lapwings and Plovers Charadriidae	Killdeer	<i>Charadrius vociferus</i>
Stilts and Avocets Haematopodidae	Black-necked Stilt	<i>Himantopus mexicanus</i>
Sandpipers, Phalaropes, and Allies Scolopacidae	Greater Yellowlegs	<i>Tringa melanoleuca</i>
Skuas, Gulls, and Terns Laridae	California Gull	<i>Larus californicus</i>
Pigeons and Doves Columbidae	Rock Pigeon	<i>Columba livia</i>
	Mourning Dove	<i>Zenaida macroura</i>
Cuckoos, Roadrunners, and Anis Cuculidae	Greater Roadrunner	<i>Geococcyx californianus</i>
Swifts Apodidae	White-throated Swift	<i>Aeronautes saxatalis</i>
	Vaux's Swift	<i>Chaetura vauxi</i>
Hummingbirds Trochilidae	Black-chinned Hummingbird	<i>Archilochus alexandri</i>
	Anna's Hummingbird	<i>Calypte anna</i>
	Costa's Hummingbird	<i>Calypte costae</i>
Woodpeckers Picidae	Acorn Woodpecker	<i>Melanerpes formicivorus</i>
	Nuttall's Woodpecker	<i>Picoides nuttallii</i>
	Downy Woodpecker	<i>Picoides pubescens</i>
	Northern Flicker	<i>Colaptes auratus</i>
Tyrant flycatchers Tyrannidae	Olive-sided Flycatcher	<i>Contopus cooperi</i>
	Western Wood-pewee	<i>Contopus sordidulus</i>
	Black Phoebe	<i>Sayornis nigricans</i>
	Say's Phoebe	<i>Sayornis saya</i>
	Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>
	Cassin's Kingbird	<i>Tyrannus vociferans</i>

Family	Common Name	Scientific Name
	Western Kingbird	<i>Tyrannus verticalis</i>
Vireos Vireonidae	Warbling Vireo	<i>Vireo gilvus</i>
Jays, Magpies and Crows Corvidae	Western Scrub-jay	<i>Aphelocoma californica</i>
	American Crow	<i>Corvus brachyrhynchos</i>
	Common Raven	<i>Corvus corax</i>
Larks Alaudidae	Horned Lark	<i>Eremophila alpestris</i>
Swallows Hirundinidae	Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
	Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Swallows (cont.) Hirundinidae	Barn Swallow	<i>Hirundo rustica</i>
Long-tailed Tits and Bushtits Aegithalidae	Bushtit	<i>Psaltriparus minimus</i>
Wrens Troglodytidae	Rock Wren	<i>Salpinctes obsoletus</i>
	Bewick's Wren	<i>Thryomanes bewickii</i>
	House Wren	<i>Troglodytes aedon</i>
Old World Warblers and Gnatcatchers Sylviidae	Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>
	Coastal California Gnatcatcher	<i>Polioptila californica californica</i>
Babblers Timaliidae	Wrentit	<i>Chamaea fasciata</i>
Mockingbirds and Thrashers Mimidae	Northern Mockingbird	<i>Mimus polyglottos</i>
Starlings Sturnidae	European Starling	<i>Sturnus vulgaris</i>
Wood-Warblers Parulidae	Orange-crowned Warbler	<i>Vermivora celata</i>
	Nashville Warbler	<i>Vermivora ruficapilla</i>
	Yellow Warbler	<i>Dendroica petechia</i>
	Yellow-rumped Warbler	<i>Dendroica coronata</i>
	Black-throated Gray Warbler	<i>Dendroica nigrescens</i>
	Common Yellowthroat	<i>Geothlypis trichas</i>
	Wilson's Warbler	<i>Wilsonia pusilla</i>

Family	Common Name	Scientific Name
Tanagers Thraupidae	Western Tanager	<i>Piranga ludoviciana</i>
Emberizines Emberizidae	Spotted Towhee	<i>Pipilo maculatus</i>
	California Towhee	<i>Pipilo crissalis</i>
	Southern California Rufous-crowned Sparrow	<i>Aimophila ruficeps canescens</i>
	Chipping Sparrow	<i>Spizella passerina</i>
	Lark Sparrow	<i>Chondestes grammacus</i>
	Bell's Sage Sparrow	<i>Amphispiza belli belli</i>
	Savannah Sparrow	<i>Passerculus sandwichensis</i>
	Song Sparrow	<i>Melospiza melodia</i>
	White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Cardinals, Saltators, and Allies Cardinalidae	Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>
	Blue Grosbeak	<i>Passerina caerulea</i>
	Lazuli Bunting	<i>Passerina amoena</i>
Blackbirds and Allies Icteridae	Red-winged Blackbird	<i>Agelaius phoeniceus</i>
	Western Meadowlark	<i>Sturnella neglecta</i>
	Brewer's Blackbird	<i>Euphagus cyanocephalus</i>
	Great-tailed Grackle	<i>Quiscalus mexicanus</i>
	Hooded Oriole	<i>Icterus cucullatus</i>
	Bullock's Oriole	<i>Icterus bullockii</i>
Finches Fringillidae	House Finch	<i>Carpodacus mexicanus</i>
	Lesser Goldfinch	<i>Carduelis psaltria</i>
	Lawrence's Goldfinch	<i>Carduelis lawrencei</i>
	American Goldfinch	<i>Carduelis tristis</i>
Old World Sparrows Passeridae	House Sparrow	<i>Passer domesticus</i>
MAMMALS-MAMMALIA		
Rabbits and Hares Leporidae	Desert Cottontail	<i>Sylvilagus audubonii</i>
Squirrels, Chipmunks, and Marmots Sciuridae	California Ground Squirrel	<i>Spermophilus beecheyi</i>
Pocket Gophers Geomysidae	Botta's Pocket Gopher (mounds)	<i>Thomomys bottae</i>

Family	Common Name	Scientific Name
Pocket Mice and Kangaroo Rats Heteromyidae	Kangaroo Rat (burrows)	<i>Dipodomys</i> sp. (likely <i>stephensi</i>)
Mice and Rats Muridae	Dusky-footed Woodrat (nest)	<i>Neotoma fuscipes</i>
	California Vole	<i>Microtus californicus</i>
Raccoons and Relatives Procyonidae	Raccoon (tracks)	<i>Procyon lotor</i>
Foxes, Wolves and Coyotes Canidae	Coyote (scat)	<i>Canis latrans</i>
Deer, Elk, and Relatives Cervidae	Black-tailed (Mule) Deer (tracks)	<i>Odocoileus hemionus</i>

Notes: Western Spadefoot larvae were observed in ephemeral pools on Pacific Clay Property
 Bell's Sage Sparrows were observed on Segment K Southern California
 Rufous-crowned Sparrows were observed on Segments K and M

APPENDIX E

Vegetation Communities

Appendix E Vegetation Communities

Coastal Sage Scrub

In western Riverside County, coastal sage scrub is found both in large contiguous blocks scattered throughout the County as well as integrated with chaparral and grasslands. Coastal sage scrub is dominated by a characteristic suite of low-statured, aromatic, drought-deciduous shrubs, and subshrub species. Composition varies substantially depending on physical circumstances and the successional status of the vegetation community; however, characteristic species include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), California encelia (*Encelia californica*), and several species of sage (e.g., *Salvia mellifera*, *S. apiana*). Other common species include brittlebush (*Encelia farinosa*), lemonadeberry (*Rhus integrifolia*), sugarbush (*R. ovata*), yellow bush penstemon (*Keckiella antirrhinoides*), Mexican elderberry (*Sambucus mexicana*), sweetbush (*Bebbia juncea*), boxthorn (*Lycium* spp.), shore cactus (*Opuntia littoralis*), coastal cholla (*O. prolifer*), tall prickly-pear (*O. oricola*), and species of *Dudleya* (*Dudleya* spp.).

A subcategory of this vegetation type includes Riversidean Sage Scrub. This habitat type is the most xeric expression of the coastal sage scrub habitat. It includes the species listed above however, occurs in much drier conditions.

Grasslands

Two general types of grasslands occur in western Riverside County: (1) non-native dominated, primarily annual grassland (non-native grassland); and (2) native dominated perennial grassland (valley and foothill grassland).

Valley and foothill grasslands typically contain the perennial bunch grasses purple needlegrass (*Nassella pulchra*) and foothill needlegrass (*N. lepida*). Lesser amounts of other native grasses, such as onion grass (*Melica* spp.), wild rye (*Leymus* spp.), Muhly (*Muhlenbergia* spp.), and cane bluestem (*Bothriochloa barbinodis*), may also be present. In addition, non-native grasses or forbs may be present to varying degrees. Native herbaceous plants commonly found within valley and foothill grasslands include yellow fiddleneck (*Amsinckia menziesii*), common calyptidium (*Calyptidium monardum*), suncup (*Camissonia* spp.), Chinese houses (*Collinsia heterophylla*), California poppy (*Eschscholzia californica*), tarweed (*Hemizonia* spp.), coast goldfields (*Lasthenia californica*), common tidy-tips (*Layia platyglossa*), lupine (*Lupinus* spp.), popcornflower (*Plagiobothrys* spp.), blue dicks (*Dichelostemma capitata*), muilla (*Muilla* spp.), blue-eyed grass (*Sisyrinchium bellum*), and dudleya (*Dudleya* spp.) (County of Riverside 2003).

Non-native grasslands are likely to be dominated by several species of grasses that have evolved to persist in concert with human agricultural practices: slender oat (*Avena barbata*), wild oat (*Avena fatua*), fox tail chess (*Bromus madritensis*), soft chess (*Bromus hordeaceus*), ripgut grass (*Bromus diandrus*), barley (*Hordeum* spp.), rye grass (*Lolium*

multiflorum), English ryegrass (*Lolium perenne*), rat-tail fescue (*Vulpia myuros*), and Mediterranean schismus (*Schismus barbatus*) (County of Riverside 2003).

Agriculture

Agricultural lands within the MSHCP boundary include areas occupied by dairies and livestock feed yards or areas that have been tilled for use as croplands or groves/orchards (County of Riverside 2003).

Developed or Disturbed Land

Developed or disturbed lands consist of areas that have been disced, cleared, or otherwise altered. Developed lands may include roadways, existing buildings, and structures. Disturbed lands may include ornamental plantings for landscaping, escaped exotics, or ruderal vegetation dominated by non-native, weedy species such as mustard (*Brassica* sp.), fennel (*Foeniculum vulgare*), tocalote (*Centaurea melitensis*), and Russian thistle (*Salsola tragus*) (County of Riverside 2003).

Woodlands and Forest

Woodland and forest vegetation communities in western Riverside County are dominated by Engelmann oak (*Quercus engelmannii*), coast live oak (*Q. agrifolia*), canyon live oak (*Q. chrysolepis*), interior live oak (*Q. wislizenii*), and black oak (*Q. kelloggii*) in the canopy, which may be continuous to intermittent or savannah-like. Four-needle pinyon (*Pinus quadrifolia*), single-leaf pinyon pine (*Pinus monophylla*) and California juniper (*Juniperus californica*) are the canopy species of peninsular juniper woodland which most commonly occur in Southern California, forming a scattered canopy from 3 to 15 m tall (County of Riverside 2003).

Many understory plants in oak woodlands are shade tolerant and include wild blackberry (*Rubus ursinus*), snowberry (*Symphoricarpos mollis*), California walnut (*Juglans californica*), California-lilac (*Ceanothus* spp.), lemonadeberry (*Rhus integrifolia*), sugar bush (*Rhus ovata*), currant (*Ribes* spp.), toyon (*Heteromeles arbutifolia*), California bay (*Umbellularia californica*), Engelmann oak, manzanita (*Arctostaphylos* spp.), laurel sumac, poison-oak (*Toxicodendron diversilobum*) and herbaceous plants including bracken fern (*Pteridium aquilinum*), polypody fern (*Polypodium californicum*), fiesta flower (*Pholistorma auritum*) and miner's lettuce (*Claytonia perfoliata*). This vegetation community can occur on all aspects, on stream sides, canyon bottoms and flat to very steep topography (County of Riverside 2003).

Riversidean Alluvial Fan Sage Scrub

Riversidean alluvial fan sage scrub occurs throughout many drainages within western Riverside County. Riversidean alluvial fan sage scrub is a Mediterranean shrubland type that occurs in washes and on gently sloping alluvial fans. Alluvial scrub is made up predominantly of drought-deciduous soft-leaved shrubs, but with significant cover of larger perennial species typically found in chaparral. Scalebroom (*Lepidospartum squamatum*) generally is regarded as an indicator of Riversidean alluvial scrub. In addition to scalebroom, alluvial scrub typically is composed of white sage (*Salvia*

apiana), redberry (*Rhamnus crocea*), California buckwheat, Spanish bayonet (*Yucca whipplei*), California croton (*Croton californicus*), cholla (*Opuntia* spp.), tarragon (*Artemisia dracuncululus*), yerba santa (*Eriodictyon* spp.), mule fat (*Baccharis sarothroides*), and mountain-mahogany (*Cercocarpus betuloides*). Annual species composition has not been studied but is probably similar to that found in understories of neighboring shrubland vegetation. Two sensitive annual species, slender-horned spineflower (*Dodecahema leptoceras*) and Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*) are endemic to alluvial scrub vegetation in western Riverside County (County of Riverside 2003).

Riparian Forest, Woodland, and Scrub

Riparian vegetation, including forest, woodland, and scrub subtypes, is distributed in waterways and drainages throughout much of western Riverside County. Depending on community type, a riparian community may be dominated by any of several trees/shrubs, including box elder (*Acer negundo*), bigleaf maple (*Acer macrophyllum*), coast live oak, white alder (*Alnus rhombifolia*), sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), California walnut, Mexican elderberry, wild grape (*Vitis girdiana*), giant reed (*Arundo donax*), mule fat (*Baccharis salicifolia*), tamarisk (*Tamarix* spp.), or any of several species of willow (*Salix* spp.). In addition, various understory herbs may be present, such as saltgrass (*Distichlis spicata*), wild cucumber (*Marah macrocarpus*), mugwort (*Artemisia douglasiana*), stinging nettle (*Urtica dioica*), and poison-oak (County of Riverside 2003). Subcategories of these habitat types within the project area include Mule Fat Scrub, Southern Cottonwood/Willow Riparian, and Southern Sycamore/Alder Riparian Woodland.

Meadows and Marshes

Meadow and marsh vegetation communities occur in both flowing and still water. This vegetation community includes cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), sedges (*Carex* spp.), spike rushes, flatsedges (*Cyperus* spp.), smartweed (*Polygonum* spp.), watercress (*Rorippa* spp.), yerba mansa (*Anemopsis californica*) and also contains perennial and biennial herbs (e.g., *Oenothera* spp., *Polygonum* spp., *Lupinus* spp., *Potentilla* spp., and *Sidalcea* spp.) and grasses (e.g. *Agrostis* spp., *Deschampsia* spp., and *Muhlenbergia* spp.). Rooted aquatic plant species with floating stems and leaves also may be present, such as pennywort (*Hydrocotyle* spp.), water smartweed (*Polygonum amphibium*), pondweeds (*Potamogeton* spp.), and water-parsley (*Oenanthe sarmentosa*) (County of Riverside 2003).

Open Water

Open water habitat typically is unvegetated due to a lack of light penetration. However, open water may contain suspended organisms such as filamentous green algae, phytoplankton (including diatoms), and desmids. Floating plants such as duckweed (*Lemna* spp.), water buttercup (*Ranunculus aquatilis*), and mosquito fern (*Azolla filiculoides*) also may be present. Open water includes inland depressions, ponds, lakes, reservoirs, and stream channels containing standing water and often occur in conjunction with riparian and upland vegetation communities. Depth may vary from hundreds of feet to a few inches (County of Riverside 2003).