

FINAL
**BIOLOGICAL TECHNICAL REPORT FOR THE
FOGARTY SUBSTATION PROJECT
RIVERSIDE COUNTY, CALIFORNIA**

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	IV
1.0 INTRODUCTION.....	1
1.1 Project Background	1
1.2 Project Description	1
1.3 Project Location.....	1
1.4 Regulatory Setting.....	1
1.4.1 Federal Regulations	1
1.4.2 State Regulations	5
1.4.3 Local Regulations	6
2.0 METHODOLOGY.....	13
2.1 Sensitive Plant Species Surveys.....	14
2.2 Sensitive Wildlife Surveys	14
2.2.1 Burrowing Owl Surveys	14
3.0 SURVEY RESULTS AND EXISTING CONDITIONS.....	18
3.1 Regional Overview	18
3.1.1 Climate	18
3.1.2 Soils.....	18
3.1.3 Vegetation Communities	21
3.1.4 Coastal Sage Scrub.....	21
3.1.5 Nonnative Grassland	22
3.1.6 Developed or Disturbed Land.....	22
3.1.7 Riparian Forest, Woodland, and Scrub	22
3.1.8 Meadows and Marshes	22
3.2 Fogarty Substation Parcels	23
3.2.1 Parcel 1	23
3.2.2 Parcel 2	27
3.2.3 Parcel 7	28
3.2.4 Parcel 8	29
3.2.5 Parcel 9	29
3.2.6 Parcel 10	30
3.2.7 Parcel 11	31
3.2.8 Parcel 12	32
3.2.9 Parcel 13	32
3.2.10 Parcel 14	33
3.3 Recommended Additional Surveys	34

TABLE OF CONTENTS

4.0	ASSESSMENT OF POTENTIAL IMPACTS.....	34
4.1	Thresholds for Determining Potential Significance.....	35
4.1.1	Direct Impacts.....	36
4.1.2	Indirect Impacts	36
4.1.3	Cumulative Impacts.....	38
5.0	AVOIDANCE AND MITIGATION MEASURES	38
6.0	REFERENCES.....	40
	REFERENCES	14

LIST OF FIGURES

Figure 1.	Regional Project Location	2
Figure 2.	Project Vicinity.....	3
Figure 3.	Western Riverside County MSHCP Narrow Endemic Species Survey Area and Criteria Area Species Survey Area.....	10
Figure 4.	Western Riverside County MSHCP Bird, Amphibian and Mammal Survey Areas	11
Figure 5.	Western Riverside County MSHCP Sensitive Soils	20
Figure 6.	Vegetation Communities and Sensitive Species.....	26

LIST OF TABLES

Table 1.	MSHCP Narrow Endemic and Additional Criteria Area Species	9
Table 2.	Special-Status Plant Species Known to Occur or with the Potential to Occur in the Fogarty Substation Project Area.....	15
Table 3.	Special-Status Wildlife Species Known to Occur or with the Potential to Occur in the Fogarty Substation Project Area.....	17
Table 4.	Fogarty Substation Vegetation Communities	23
Table 5.	Recommended Additional Surveys	34

LIST OF APPENDICES

APPENDIX A – Plant Species Observed.....	A-1
APPENDIX B – Sensitive Plant Species with Potential to Occur in the Proposed Fogarty Substation Project	B-1
APPENDIX C - Western Riverside MSHCP Narrow Endemic and Criteria Area Plant Species Accounts.....	C-1

ACRONYMS

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
CWA	Clean Water Act
ESA	Endangered Species Act
FE	Federally Listed as Endangered
FT	Federally Listed as Threatened
HCP	Habitat Conservation Plan
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
NCCP	Natural Communities Conservation Plan
NPDES	National Pollutant Discharge Elimination System
RCA	Western Riverside County Regional Conservation Authority
SCE	Southern California Edison
SE	State Listed as Endangered
ST	State Listed as Threatened
SWPPP	Storm Water Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

EXECUTIVE SUMMARY

Project: Fogarty Substation Project
Project Proponent: Southern California Edison
Principal Investigator: AMEC Earth & Environmental, Inc.
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At the request of Southern California Edison (SCE), AMEC Earth & Environmental (AMEC) conducted a biological resources assessment for the proposed Fogarty Substation Project which is designed to improve reliability and meet projected electrical load requirements in the western Riverside County area. The proposed work includes biological surveys and habitat suitability assessments for sensitive plant and animal species within 10 potential land parcels that have been pre-selected for the Fogarty Substation.

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 may 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.
- Pre-Construction Burrowing Owl Surveys.
- Delineation 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 Fogarty Substation 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

Southern California Edison (SCE) is proposing to build a new substation in the city of Lake Elsinore in order to meet the growing electricity demands of western Riverside County. Ten potential land parcels have been pre-selected for the Fogarty Substation. The project area has been divided into numbered parcels 1, 2, 7, 8, 9, 10, 11, 12, 13, and 14. Each parcel is illustrated in Figure 2 and described in Section 3.2.

1.3 Project Location

The Fogarty Substation project site is located in western Riverside County; within the city of Lake Elsinore, California. The proposed project area traverses portions of the Lake Elsinore U.S. Geological Survey (USGS) 7.5-minute series topographic quadrangle.

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



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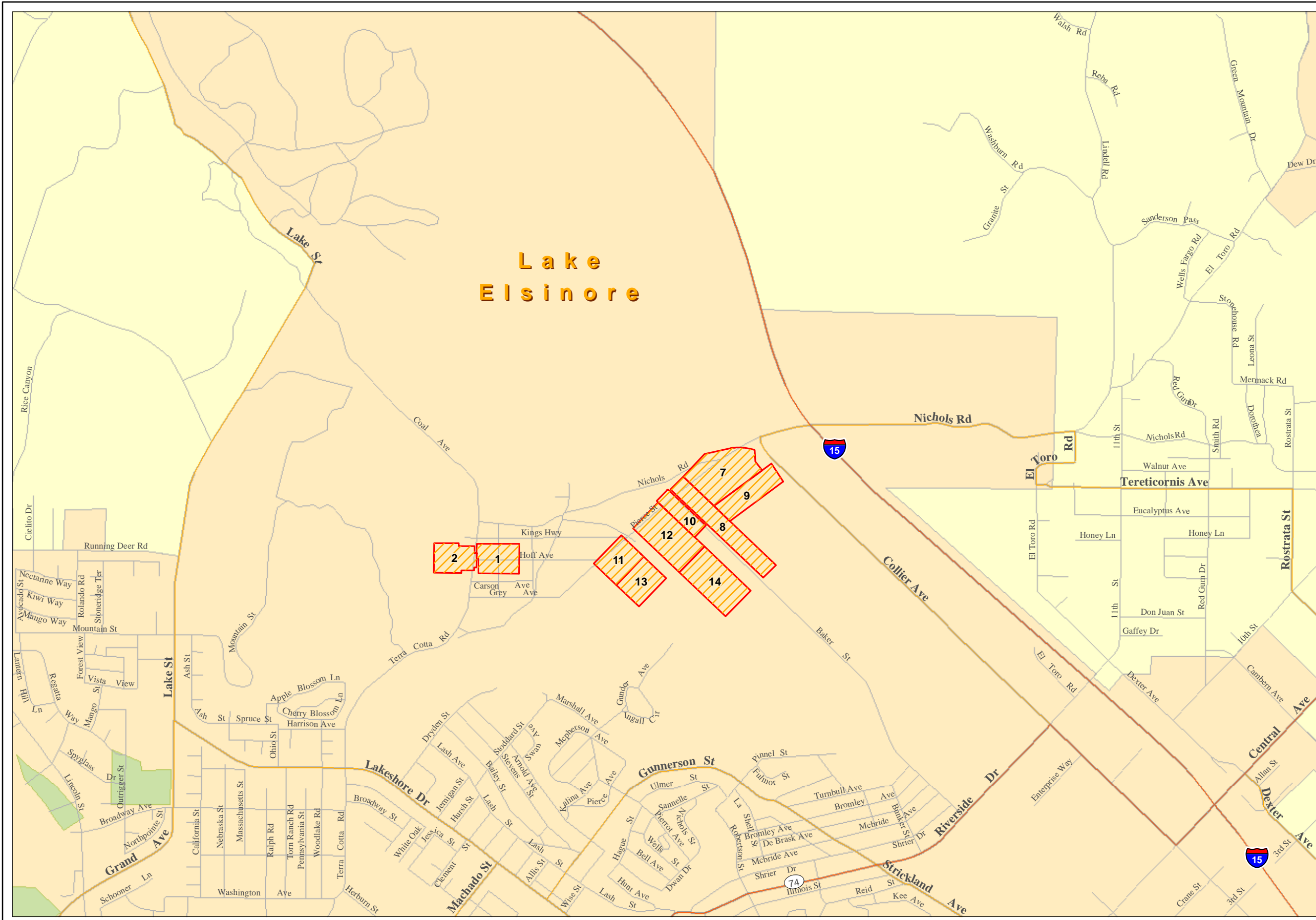
Date: 09/27/06









Regional Project Location
Fogarty Substation Project, Riverside, California

FIGURE

1




- LEGEND**
-  Project Boundary
 - Base Data**
 -  Parks and Forests
 -  Major Cities
 - Road Classification**
 -  Freeway
 -  Major Road
 -  Local Road



MAP NOTES

Data Source
 Project Boundary - SCE
 Base Data - ESRI StreetMap USA

Projection
 Stateplane, CA, 405, NAD 83, Feet
 Path: w:\sd06\bio\SCE\fogarty\
 mxd\prj_vicinity.mxd
 Date: 09/27/2006



1 inch equals 1,500 feet

0 1,500 3,000
 Feet



Project Vicinity
 Fogarty Substation Project, Riverside, California

FIGURE

2

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 Fogerty Substation project is in the coverage area of the Western Riverside County MSCHP 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 covered species. Under the MSHCP, the USFWS and CDFG (collectively known as the "Wildlife Agencies") will grant "*Take Authorization*" for otherwise unlawful 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 Fogarty Substation is located within the Elsinore Area Plan of the MSHCP.

For land-use projects within the Criteria Areas, the county's Environmental Programs Department 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, the Fogarty Substation project area is located 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.

As a public utility provider SCE operates facilities and/or owns land within the MSHCP area ("*Participating Special Entity*") and may request take authorization for its activities pursuant to the MSHCP permits.

In order to do so, the Participating Special Entity shall submit a complete application for the proposed activity to the Western Riverside County Regional Conservation Authority (RCA) containing a detailed description of the proposed activity, a map indicating the location of the proposed activity, an analysis of its potential impacts to Covered Species and their habitats and the MSHCP Conservation Area, and the results of biological surveys and habitat mapping as required pursuant to Section 6.3 of the MSHCP.

Within thirty (30) days of receipt of the complete application, the RCA and Wildlife Agency staff shall review the application. If RCA staff, with the concurrence of the Wildlife Agencies finds that the proposed activity complies with all terms and requirements of the MSHCP, the RCA shall issue a Certificate of Inclusion upon completion or fulfillment of all appropriate requirements. In the event the proposed activity crosses the MSHCP Conservation Area, RCA staff must make a finding supported by adequate evidence that the activity will result in a biologically equivalent or superior alternative to the MSHCP Conservation Area prior to issuance of a Certificate of Inclusion.

In addition to the requirements set forth in MSHCP Sections 6.1.2, 6.1.3, 6.1.4 and 6.3.2, Participating Special Entities shall also contribute to MSHCP implementation through payment of a mitigation fee based upon the type of proposed activity, which shall be applicable to all activities in the MSHCP area.

Payment of the mitigation fee and compliance with the requirements of Section 6.0 of the MSHCP are intended to provide full mitigation under the CEQA, NEPA, ESA, and CESA for impacts to the species and habitats covered by the MSHCP pursuant to agreements with the USFWS, the CDFG and/or any other appropriate participating regulatory agencies and as set forth in the Implementing Agreement for the MSHCP.

1.4.3.2 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 done within suitable habitat areas in locations identified on MSHCP survey maps (Section 6.0 of the MSHCP); avoidance and minimization measures implemented in accordance with the species-specific objectives for those species. Surveys may not be required if the project is designed to avoid identified species and their associated habitats.

1.4.3.3 Narrow Endemic Plant Species Surveys and Criteria Area Species Surveys

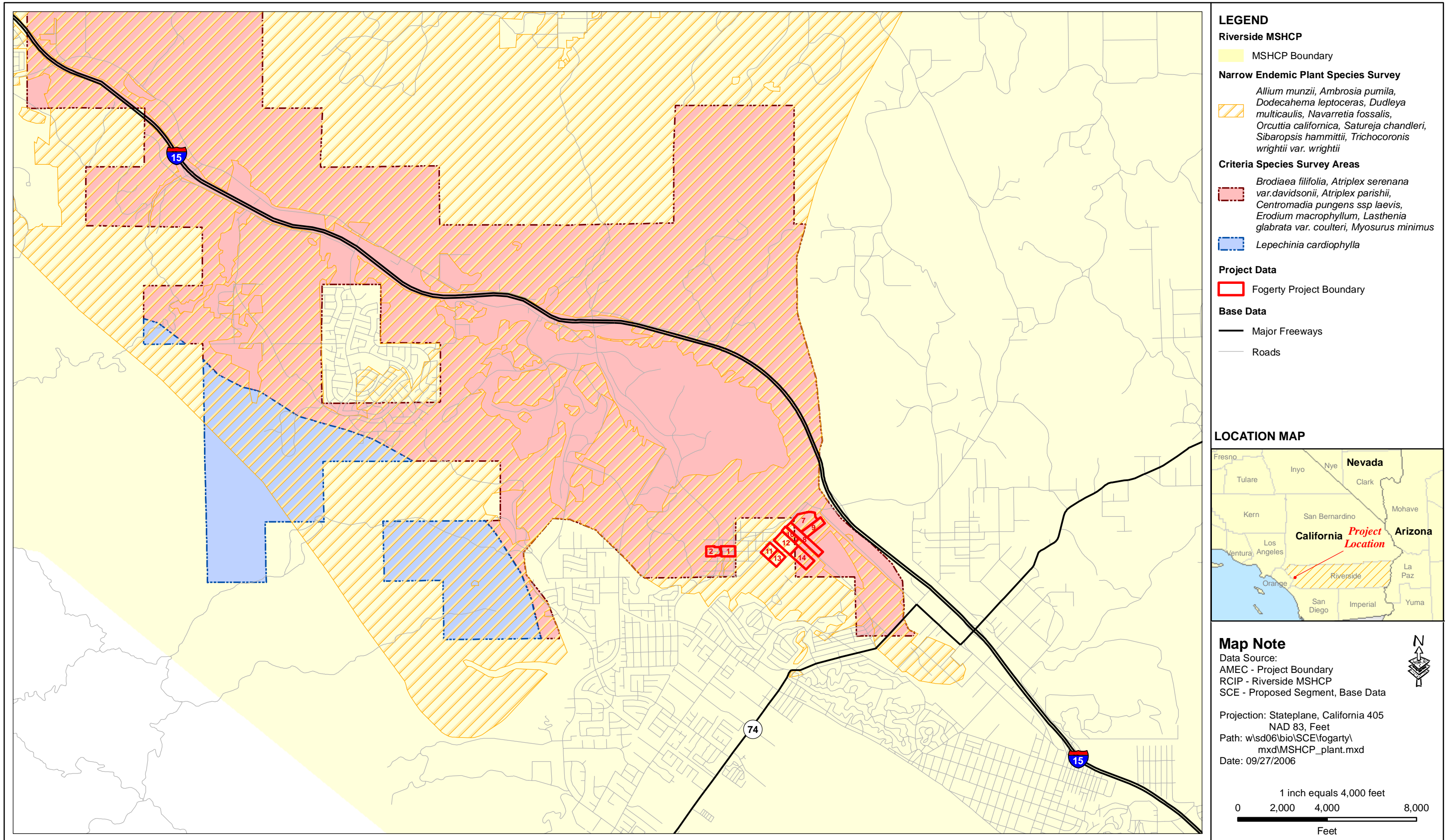
The Fogarty Substation project lies within identified MSHCP Narrow Endemic Plant Species Survey Areas (Figure 3). Within these areas, site-specific focused surveys for Narrow Endemic Plant Species (Table 1) shall be required for all public and private projects where appropriate habitat is present.

In addition to the Narrow Endemic Plant Species, other surveys are needed for certain 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 Fogerty Substation 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

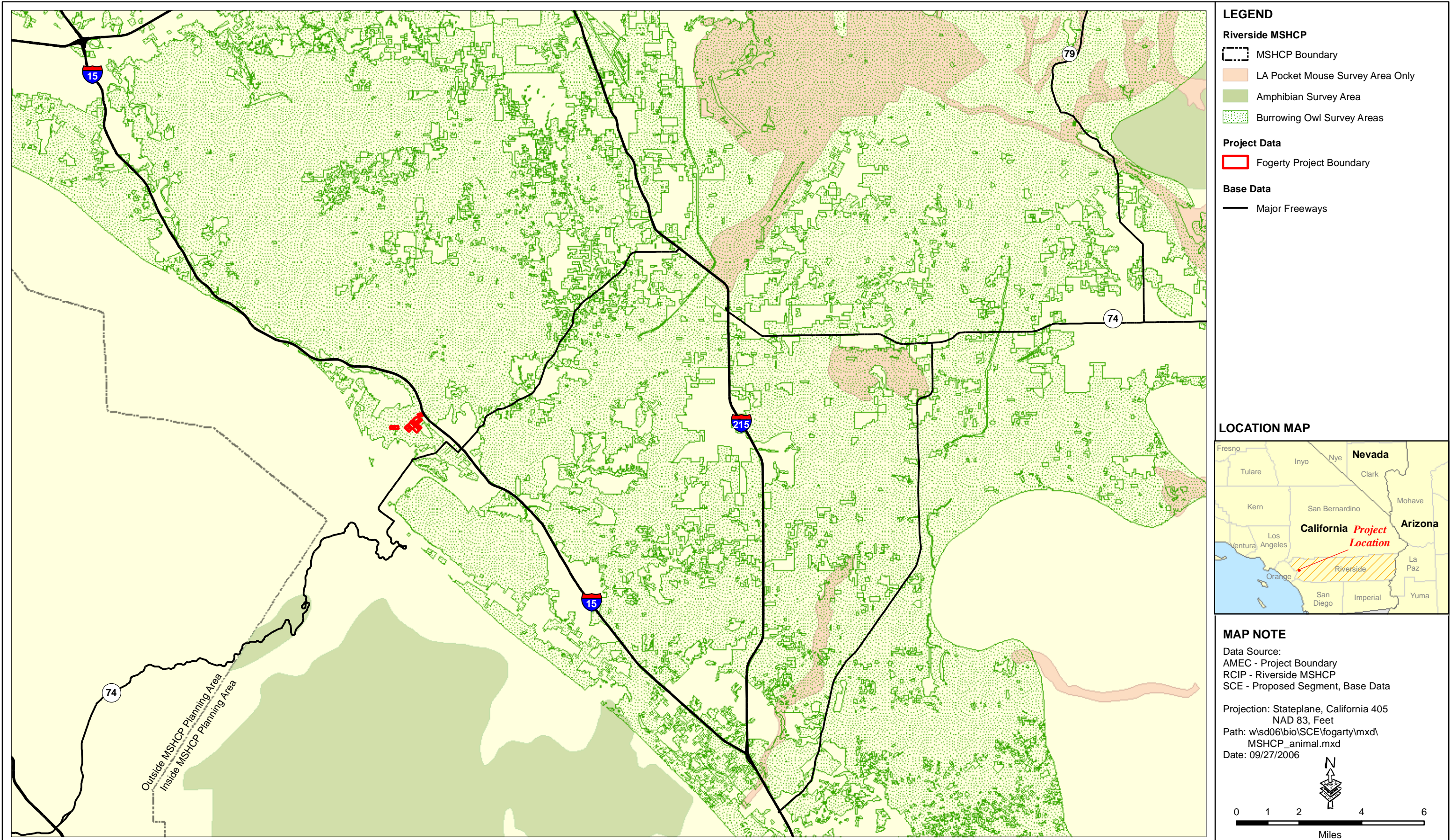
MSHCP Narrow Endemic Plant Species		MSHCP Criteria Area Species	
Scientific Name	Common Name	Scientific Name	Common Name
<i>Allium marvinii</i>	Yucaipa Onion	<i>Atriplex coronata</i> <i>var. notatior</i>	San Jacinto Valley Crownscale
<i>Allium munzii</i>	Munz's Onion	<i>Atriplex parishii</i>	Parish's Brittle-scale
<i>Ambrosia pumila</i>	San Diego Ambrosia	<i>Atriplex serenana</i> <i>var. davidsonii</i>	Davidson's Saltscale
<i>Arabis johnstonii</i>	Johnston's Rockcress	<i>Berberis nevinii</i>	Nevin's Barberry
<i>Calochortus palmeri</i> <i>var. 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> <i>ssp. jacinticum</i>	San Jacinto Mountains Bedstraw	<i>Centromadia pungens</i>	Smooth Tarplant
<i>Navarretia fossalis</i>	Spreading Navarretia	<i>Lasthenia glabrata</i> <i>ssp. 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> <i>var. wrightii</i>	Wright's Trichocoronis		



Western Riverside County MSHCP Narrow Endemic Species Survey Area and Criteria Area Species Survey Area
 Fogarty Substation Project, Riverside, California

FIGURE
 3





Western Riverside County MSHCP Bird, Amphibian and Mammal Survey Areas
 Fogarty Substation Project, Riverside, California



FIGURE

4

1.4.3.4 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 the California Environmental Quality Act (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 (*Lindleriella 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.

1.4.3.5 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 *California Native Plant Society's Inventory of Rare and Endangered Plants* (CNPS 2006) were reviewed regarding the potential occurrence of any sensitive species or habitats within 5 miles of the Lake Elsinore quadrangle wherein the proposed Fogarty Substation project lies.

Based on this information, a list of potentially occurring special-status plants and animals were prepared for the study area. Plants 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 California Native Plant Society's *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 Fogarty Substation parcel and included known sensitive species CNDDDB data points. Habitats which may be suitable for special-status species were identified prior to field investigations through aerial photo-interpretation and consultations with SCE staff biologists.

Surveys were conducted in order to assess the biological resources and potential impacts to biological resources which are associated with the proposed Fogarty Substation 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 proposed substation parcel;
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.

Data was collected by numerous techniques including the use of a hand-held geographic positioning system (GPS), standardized data forms, photographs, and aerial field maps.

2.1 Sensitive Plant Species Surveys

On 5 May 2006, AMEC botanist Patrick McConnell conducted botanical surveys of the proposed substation parcels 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. Plant species were noted within each parcel during field surveys (Appendix A).

Vegetation communities within each parcel (Figure 6) 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 Fogarty Substation project (Table 2). 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 MSCHP Narrow Endemic and Criteria Area species (Appendix C).

2.2 Sensitive Wildlife Surveys

AMEC wildlife biologist John Green conducted reconnaissance wildlife 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 on 28 July 2006 (Table 3). The project area was traversed on foot to survey for evidence of wildlife. All wildlife and wildlife signs, including tracks, fecal material, nests, and vocalizations were noted. All sensitive wildlife species encountered were mapped and added to a GIS database. Additional information on the potential for occurrence of each of the sensitive species listed in Table 3 is provided in Appendix B.

2.2.1 Burrowing Owl Surveys

Habitat on each proposed substation parcel was also specifically 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).

Table 2. Special-Status Plant Species Known to Occur or with the Potential to Occur in the Fogarty Substation 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 Brittscale	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
<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/-/-/

Scientific Name	Common Name	Status CNPS/Federal/State/County
<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 drewei</i>	Bottle Liverwort	1B.1/-/-/-
<i>Symphyotrichum 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 Conservation 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

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 project area boundaries. 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 Wildlife Species Known to Occur or with the Potential to Occur in the Fogarty Substation 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
Long-eared Owl	<i>Asio otus</i>	FBCC, CSC, MBTA
Burrowing Owl	<i>Athene cunicularia</i>	FSC, FBCC, CSC (Burrow sites), MBTA, CAS
Northern Harrier	<i>Circus cyaneus</i>	CSC (nesting), MBTA, CS (breeding)
Yellow-Billed Cuckoo	<i>Coccyzus americanus occidentalis</i>	CSC (nesting), MBTA, CS
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
Yellow-Breasted Chat	<i>Icteria virens</i>	CSC (nesting), MBTA, CS
Loggerhead Shrike	<i>Lanius ludovicianus</i>	FBCC, CSC (nesting), MBTA, CS
Coastal California Gnatcatcher	<i>Poliptila californica californica</i>	FT, CSC, MBTA, CS
Least Bell's Vireo	<i>Vireo bellii pusillus</i>	FE, SE, MBTA, CS
Mammals		
Stephens' Kangaroo Rat	<i>Dipodomys stephensi</i>	ST/FE CS
San Diego Black-Tailed Jackrabbit	<i>Lepus californica bennettii</i>	CSC, CS
San Diego Desert Woodrat	<i>Neotoma lepida intermedia</i>	CSC, CS
Northwestern San Diego Pocket Mouse	<i>Perognathus (Chaetodipus) fallax fallax</i>	CSC, CS
Amphibians		
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

Common Name	Scientific Name	Status
Coastal Rosy Boa	<i>Charina (Lichanura) trivirgata roseofusca</i>	CNDDDB: G4G5S3S4
Northern Red Diamond Rattlesnake	<i>Crotalus ruber ruber</i>	CSC, CS
San Bernardino ringneck snake	<i>Diadophis punctatus modestus</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 Conservation 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 flat or gently to moderately sloped. The approximately 89.5 acres of study area contain a combination of agricultural, municipal, private, and reserve land, most with previous disturbance.

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 to the 30°s, 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 Cajalco-Temescal-Las Posas and Traver-Domino-Willows associations. Few areas contain soils that are in the Monserate-Arlington-Exeter association.

The Cajalco-Temescal-Las Posas association is characterized by well-drained, undulating to steep moderately deep to shallow soils that have a surface layer of fine sandy loam and loam. Soils of this association are used chiefly for pasture and grain (USDA 1971). A minor soils type of this association which occurs greatly within the project area is the Altamont Soil Series. This Altamont clay and Altamont cobbly-clay soil types that are found within the project area are considered to be MSHCP sensitive soil types wherein sensitive plant species may be identified. Figure 4 illustrates where these soils are located within the project area.

Clay soils belonging to the Altamont series may support several listed threatened or endangered species including 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).

The Traver-Domino-Willows association is characterized by moderately well drained to poorly drained, nearly level to gently sloping saline-alkaline soils that have a surface layer of loamy fine sand to silty clay and are moderately deep to very deep to a calcareous hardpan (USDA 1971). The Traver-Domino-Willows is considered a MSCHP sensitive soil association and includes saline-alkali soils largely located along floodplain areas of the San Jacinto River. Figure 4 illustrates where these soils are located within the project area.



LEGEND

MSHCP Sensitive Soil Groups

- Altamont clay
- Altamont cobbly clay
- Traver fine sandy loam
- Traver loamy fine sand
- Willows silty clay

Project Data

- Fogerty Project Boundary

Base Data

- Major Freeways

LOCATION MAP

MAP NOTE

Data Source:
 AMEC - Project Boundary
 RCIP - Riverside MSHCP
 SCE - Proposed Segment, Base Data

Projection: Stateplane, California 405
 NAD 83, Feet
 Path: wsd06\bio\SCE\fogarty\mxd\soils.mxd
 Date: 09/28/2006

N

1 inch equals 1,000 feet

0 250 500 1,000 1,500 2,000
 Feet

Sensitive plant species 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).

The Monserate-Arlington-Exeter association is characterized by well-drained soils nearly level to moderately steep soils that have a surface layer of sandy loam to loam and are shallow to deep to a hardpan. This association occupies old alluvial fans and terraces. The soils of this association are chiefly used for dry-farmed grain and pasture. The soils are also used for homesites and related purposes.

3.1.3 Vegetation Communities

The vegetation communities and land-cover types in the Fogarty Substation project area are primarily coastal sage scrub, nonnative grasslands, and developed disturbed land (ruderal habitat). Additional plant communities found within the study area include southern willow scrub, freshwater marsh, and alkali marsh habitats.

The vegetation communities which were identified in the Fogarty Substation project area are described below as they are characterized by the Western Riverside County MSHCP. The MSHCP vegetation communities are based on the vegetation communities presented in the *Preliminary Descriptions of Terrestrial Natural Communities of California* (Holland 1986).

3.1.4 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. prolifera*), tall prickly-pear (*O. oricola*), and species of dudleya (*Dudleya* spp.) (County of Riverside 2003).

A disturbed qualifier is placed on coastal sage scrub (or any other native habitat) based on mechanical disturbance (e.g., brushing or clearing, off-road vehicle activity). The community is mapped as disturbed coastal sage scrub only when there is evidence of disturbance such as soil compaction, firebreak clearing, repeated burns, or other activities that have left a sparse, scattered cover of shrubs, or introduced a cover of nonnative species that have become established as part of the community.

3.1.5 Nonnative Grassland

Nonnative 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).

3.1.6 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 nonnative, weedy species such as mustard (*Brassica* sp.), fennel (*Foeniculum vulgare*), tocalote (*Centaurea melitensis*), and Russian thistle (*Salsola tragus*) (County of Riverside 2003).

3.1.7 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 (*Quercus agrifolia*), white alder (*Alnus rhombifolia*), sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), California walnut (*Juglans californica*), 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).

A subcategory of this habitat within the project area includes the Southern Willow Scrub vegetation community. This community is characterized by a dense riparian thicket that is dominated by several willow species with scattered cottonwood and sycamore shrub level species (Holland 1986)

3.1.8 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*). It 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).

Subcategories of this vegetation type within the project area include Coastal and Valley Freshwater Marsh and Alkali Marsh habitats. The Coastal and Valley Freshwater Marsh habitat is dominated by perennial, emergent monocots dominated by bulrush and cattail species. The Alkali Marsh habitat occurs in areas with moist, highly alkaline soil that usually lack water at the surface. Typical Alkali Marsh species include yerba mansa, saltgrass (*Distichlis spicata*), alkali-heath (*Frankenia salina*), cattails, common pickleweed (*Salicornia virginica*), marsh flea-bane (*Pluchea odorata*) and sedges (County of Riverside 2003).

3.2 Fogarty Substation Parcels

Existing conditions of each parcel (1, 2, 7, 8, 9, 10, 11, 12, 13, and 14) of the proposed project are discussed below. Table 4 illustrates the habitat types that were present within each parcel.

Table 4. Fogarty Substation Vegetation Communities

Parcel	Coastal Sage Scrub	Nonnative Grassland	Developed-Disturbed Land	Riparian Scrub, Woodland Forest	Meadows and Marshes
1					
2					
7					
8					
9					
10					
11					
12					
13					
14					

3.2.1 Parcel 1

Parcel 1 is situated between Main and Dolbeer Streets (Figure 6). This parcel is approximately 6.6 acres.

Vegetation Communities: Parcel 1 is predominately vegetated by approximately 6 acres of nonnative grassland and a small (0.53 acre) portion of disturbed property is located on the northeastern portion of this parcel (Figure 6). Typical nonnative grasses on this property include wild oat (*Avena* spp.), wild barley, and soft chess. There is some remnant coastal sage scrub interspersed within this parcel.

Special Status Species: A small population of long-spined spineflower, a CNPS list 1B.2 species and MSCHP Conservation Species, was identified within the eastern portion of this parcel (Figure 6).

Long-spined spineflower occurs in southwestern California and northwestern Baja California, Mexico, from western Riverside County south, through San Diego County, to the vicinity of Oso Negros, east of Ensenada, Mexico. This species occurs from about 100 to 1,400 meters (328 to 4,600 feet) in elevation. About 25 to 35 populations have been reported in the United States. At least 6 populations have been reported from Mexico (County of Riverside 2003).

This species is typically found on clay lenses which are largely devoid of shrubs. It can be occasionally seen on the periphery of vernal pool habitat and even on the periphery of montane meadows near vernal seeps. Long-spined spineflower occurs from about 328 to 4,600 feet in elevation and blooms from April through July (CNSP 2006) and is typically associated with other sensitive species such as Munz's onion, red-skinned onion, Palmer's grapplinghook, prostrate spineflower (*Chorizanthe procumbens*), and small-flowered morning glory (County of Riverside 2003).

Of the 62 occurrences listed for this species in the CNDDDB, 38 locations are from Riverside County, 22 locations are from San Diego County, one occurrence is from Santa Barbara County and one is from Orange County (CNDDDB 2006). In Riverside County, the largest populations are known from the vicinity of Gavilan Hills, Temescal Canyon area, Lake Mathews-Estelle Mountain Reserve, Hartford Springs Park, and the Motte Reserve. The two largest known populations appear to be at Dorland Mountain and at Woodchuck Road near Agua Tibia Mountain (County of Riverside 2003).

If this parcel is selected for the Fogarty Substation, direct impacts to this species will be less than significant through implementation of Avoidance and Mitigation Measures described in Section 5.0 of this report.

A Cooper's hawk (*Accipiter cooperii*); a MSHCP Covered Species was also identified foraging near this parcel.

Habitat Suitability Assessment: The heavy clay Altamont soils within this parcel may provide suitable habitat for sensitive species such as Munz's onion, thread-leaved brodiaea, and San Diego button celery. Other sensitive plant species which may occur in these clay soils include Orcutt's brodiaea, small-flowered morning glory, many-stemmed dudleya, Palmer's grapplinghook, graceful tarplant, and small-flowered microseris (County of Riverside 2003).

Note: Of the various sensitive status animal species that have the potential to occur onsite, the San Diego black-tailed jackrabbit (*Lepus californica bennettii*), and several avian species, including the loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), sharp-shinned hawk (*Accipiter striatus*), and Golden eagle (*Aquila chrysaetos*) have the potential to occupy or forage at all sites. Hereafter, no more mention of these species will be made in the following discussion of potential sensitive status animals by parcel.

If this parcel is selected for the Fogarty Substation, focused sensitive species surveys should be conducted for special-status species that have potential to occur on the site (Appendix B) prior to construction.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along Parcel 1. However, some ground squirrel burrows that could potentially be

occupied by burrowing owls in the future were present. Pre-construction burrowing owl surveys will be needed within this parcel.

Riparian/Riverine Habitat: A drainage occurs within the on the eastern half of this parcel, running the width of the parcel, and exiting near the northeast corner (Figure 6). This drainage is not likely to be considered jurisdictional wetland due to its lack of wetland vegetation, and will likely need to be addressed during the SWPPP and NPDES permitting process.



Vegetation Communities and Sensitive Species
 Fogarty Substation Project, Riverside, California

FIGURE

3.2.2 Parcel 2

Parcel 2 is located just west of Parcel 1 (Figure 6). This parcel is approximately 6.14 acres. The eastern half of Parcel 2 appears to have been a former homesite.

Vegetation Communities: This parcel is predominantly vegetated by disturbed and developed property (2.5 acres), nonnative grassland (1.7 acres), and disturbed (1.58 acres) and undisturbed (0.34 acre) coastal sage scrub habitat (Figure 6). Portions of this site which are associated with a previous residence have been partially cleared, and many domestic plants still exist along the margins of the cleared portions of the property.

Special Status Species: Palmer's grapplinghook, a CNPS list 4.2 species and MSCHP Conservation Species, was identified within this parcel. This species is associated with heavy clay and cobbly clay soils and other sensitive species such as Munz's onion, many-stemmed dudleya, and occasionally with Nevin's barberry (*Berberis nevinii*) (County of Riverside 2003).

No special-status wildlife species were identified in this parcel during surveys.

Habitat Suitability Assessment: The Altamont cobbly clay soils within this parcel 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 (County of Riverside 2003).

Due to the presence of coastal sage scrub habitat on the western half of this property there is the potential for quite a few special status animal species to occur within this parcel.

Reptiles with a potential of occupying the site include the coastal rosy boa (*Charina trivirgata roseofusca*), northern red diamond rattlesnake (*Crotalus ruber ruber*), San Bernardino ringneck snake (*Diadophis punctatus modestus*), coast patch-nosed snake, Coast horned lizard (*Phrynosoma coronatum*), and orange-throated whiptail (*Aspidoscelis hyperythra beldingi*).

Three avian species could potentially be found utilizing this habitat, including the Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Bell's sage sparrow (*Amphispiza belli belli*), and coastal California gnatcatcher (*Polioptila californica californica*).

Three mammal species have the potential to occur within the parcel including the San Diego desert wood rat (*Neotoma lepida intermedia*), San Diego pocket mouse (*Perognathus fallax fallax*), and northwestern San Diego black-tailed jackrabbit (*Lepus californica bennetti*).

If this parcel is selected for the Fogarty Substation, focused special-status species surveys should be conducted for sensitive species which have potential to occur onsite (Appendix B) prior to construction.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified within Parcel 2. No potential burrowing owl habitat was identified within this parcel.

Riparian/Riverine Habitat: No riparian/riverine, vernal pool, or other wet habitats of special concern were identified on this parcel.

3.2.3 Parcel 7

Parcel 7 is adjacent to Pierce Road to the northwest and Parcel 8 to the southwest (Figure 6). This parcel is approximately 14.3 acres, and is the largest parcel in the project area.

Vegetation Communities: Parcel 7 is vegetated by approximately 11.2 acres of developed and disturbed land, 3.0 acres of alkali marsh, 0.5 acre of freshwater marsh, and 0.02 acre of riparian habitat (southern willow scrub) (Figure 6). The historical use of this parcel for row crops is evident through the presence of linearly arranged furrows along the soil surface. Over half of this parcel is dominated by nonnative forbs such as perennial mustard (*Hirschfeldia incana*), and the native yellow fiddleneck (*Amsinckia menziesii*).

The northeastern portion of this parcel is located along Temescal Wash (Figure 6). The vegetation associated with the alkali marsh habitat along the watercourse is dominated by several species common to this habitat type, including saltgrass (*Distichlis spicata*), alkali weed (*Cressa truxellensis*), alkali mallow (*Malvella leprosa*), and alkali heath (*Frankenia salina*).

Special Status Species: No special-status plant or wildlife species were identified within this parcel during field investigations.

Habitat Suitability Assessment: The CNDDDB has a point locality for San Jacinto Valley crownscale and San Diego ambrosia within this parcel; however, these species were not identified during field surveys. The Willows soils which occur on this parcel (Figure 5) provide suitable habitat for these and other sensitive alkali soil associated species (Appendix B).

There is a low potential for the San Bernardino ringneck snake to occur onsite, in open habitat along the eastern side of the property, and this habitat nearby the stream course also has a low potential of supporting the two-striped garter snake (*Thamnophis hammondi*). The open marsh habitat along the eastern side of the property may be suitable for foraging raptors. The fairly mature riparian vegetation along the eastern edge of the property could house yellow-breasted chat (*Icteria virens*), least Bell's vireo (*Vireo bellii pusillus*), long-eared owl (*Asio otus*), and southwestern willow flycatcher (*Empidonax traillii*).

If this parcel is selected for the Fogarty Substation, focused sensitive species surveys should be for special-status species which have potential to occur onsite prior to construction.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along Parcel 7. There was, however some open habitat that could potentially be occupied by burrowing owls in the future. Pre-construction burrowing owl surveys will be needed within this parcel.

Riparian/Riverine Habitat: The eastern portion of this parcel is adjacent to Temescal Wash (Figure 6). This watercourse may be jurisdictional state and/or federal waters. Consequently, activities in this area may have oversight by the CDFG and USACE. A wetland delineation may be necessary within this area in order to determine the extent of jurisdiction.

3.2.4 Parcel 8

Parcel 8 is adjacent to Baker Road to the south, and Pierce Street along the northwestern edge (Figure 6). Parcel 8 is approximately 12.3 acres.

Vegetation Communities: This parcel is vegetated by approximately 5.6 acres of disturbed land, 4.5 acres of alkali marsh, and 2.2 acres of nonnative grassland (Figure 6).

Special Status Species: A population of 10 individual San Jacinto Valley crownscale plants and a population of approximately 1,000 individual Coulter's goldfields, both CNPS list 1B.1 and MSHCP Criteria Area species were identified within this parcel (Figure 6). In Riverside County, both species are endemic to highly alkaline, silty-clay soils in association with the Traver-Domino-Willows soil association; specifically with the Willows soil series (Riverside County 2003). Both identified species are often found in association with other listed and sensitive species, including Parish's brittlescale, thread-leaved brodiaea, smooth tarplant, California Orcutt grass, little mousetail, and spreading navarretia.

A San Diego black-tailed jack rabbit was observed within the alkali marsh habitat associated with Parcel 8 during field investigations.

Habitat Suitability Assessment: The presence of alkali soils (Willow soils series) within this parcel (Figure 5) provide suitable habitat for sensitive species which are associated with this soil type (Appendix B).

The majority of Parcel 8 is occupied by disturbed land which does not provide suitable nesting habitat for any special-status species other than the burrowing owl. The marsh habitat within this parcel however does provide suitable foraging habitat for several bird and mammal species.

If this parcel is selected for the Fogarty Substation, focused special-status species surveys should be conducted for sensitive species which have potential to occur on the site (Appendix B) prior to construction.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified within Parcel 8. There was, however as mentioned above, some open habitat that could potentially be occupied by burrowing owls in the future. Pre-construction burrowing owl surveys will be needed within this parcel.

Riparian/Riverine Habitat: The alkali soils present on this parcel are associated with a north trending drainage that may be considered jurisdictional waters under both the USACE and CDFG. A wetland delineation may be necessary within this area in order to determine the extent of jurisdiction.

3.2.5 Parcel 9

Parcel 9 is bordered by Parcel 7 to the northwest and Collier Avenue to the northeast (Figure 6). This parcel is approximately 8.0 acres.

Vegetation Communities: Parcel 9 is vegetated by 1.4 acres of alkali marsh, 5.2 acres of disturbed land, 0.73 acre of freshwater marsh habitat, and 0.63 acre of riparian habitat (southern willow scrub) (Figure 6).

Special Status Species: No special-status plant or wildlife species were identified within this parcel during field investigations.

Habitat Suitability Assessment: The CNDDDB has a point locality for Coulter's goldfields within the northeastern portion of Parcel 9 (Figure 6). None were found during the survey; however, the alkali soils belonging to the Willows soil series within this parcel (Figure 5) may support several sensitive species which have potential to occur within these soils (Appendix B).

If this parcel is selected for the Fogarty Substation, focused sensitive-species surveys should be conducted during appropriate blooming periods for sensitive species which have potential to occur on the site (Appendix B) prior to construction.

The neighboring and adjacent habitat types are nearly identical for this parcel as for Parcel 7. Thus, the same sensitive animal species potentials and considerations can be stipulated for this parcel as for Parcel 7.

If this parcel is selected for the Fogarty Substation, focused sensitive species surveys should be conducted for sensitive species which have potential to occur onsite prior to construction.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified within Parcel 9. There was, however some open habitat that could potentially be occupied by burrowing owls in the future. Pre-construction burrowing owl surveys will be needed within this parcel.

Riparian/Riverine Habitat: Temescal Wash flows within the eastern portion of this parcel. This watercourse may be jurisdictional state and/or federal waters. Consequently, activities in this area may have oversight by the CDFG and USACE. A wetland delineation may be necessary within this area in order to determine the extent of jurisdiction.

3.2.6 Parcel 10

This approximately 4.5-acre parcel is bordered to the north by Baker Road, to the northwest by Pierce Street, and to the southwest by Parcel 12 (Figure 6).

Vegetation Communities: This entire parcel is vegetated by nonnative grassland dominated by wild oat and barley with a fairly open understory containing a loose assemblage of alkali weed and other native species associated with alkali soils.

Special Status Species: Two populations of San Diego ambrosia (Figure 6) which collectively contained approximately 500 individual clones were identified within this parcel.

No special-status wildlife species were observed during field investigations of Parcel 10.

Habitat Suitability Assessment: The alkali soils belonging to the Willows soil series within this parcel (Figure 5) may support several sensitive species which have potential to occur within these soils (Appendix B).

Mammal species that do have the potential to occupy this parcel include Stephen's kangaroo rat (*Dipodomys stephensi*) and the northwestern San Diego pocket mouse.

If this parcel is selected for the Fogarty Substation, focused sensitive species surveys should be conducted for sensitive species which have potential to occur onsite prior to construction.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along Parcel 10. There is the potential for open habitat resulting from disturbance that could potentially be occupied by burrowing owls in the future. Pre-construction burrowing owl surveys will be needed within this parcel.

Riparian/Riverine Habitat: No riparian/riverine, vernal pool, or other wet habitats of special concern were identified on this parcel.

3.2.7 Parcel 11

This approximately 6.5-acre parcel is bordered on the north by Pierce Street and to the southeast by Parcel 13 (Figure 6). This site appears to have historically been used for pasture.

Vegetation Communities: Approximately 4.3 acres of this parcel is vegetated by nonnative grassland that is dominated by a mix of wild oat and bromes. A man-made channel runs through the center of the property in a westerly direction.

Special Status Plant Species: Two populations of San Diego ambrosia were identified within the sandy soils associated with the channel (Figure 6). No special status wildlife species were observed during field investigations.

Habitat Suitability Assessment: The sandy alkali soils belonging to the Willow soils series within this parcel (Figure 5) provide suitable habitat for special status species that are associated with this soil type (Appendix B).

The relatively open, sandy substrate provided in the channel that runs through the center of the property may provide suitable habitat for the orange-throated whiptail (*Aspidoscelis hyperythra beldingi*).

If this parcel is selected for the Fogarty Substation, focused sensitive species surveys should be conducted for sensitive species which have potential to occur on the site (Appendix B) prior to construction.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along Parcel 11. There were, however some ground squirrel burrows that could potentially be occupied by burrowing owls in the future. Pre-construction burrowing owl surveys will be needed within this parcel.

Riparian/Riverine Habitat: The drainage which runs through the center of the property may be jurisdictional state and/or federal waters (Figure 6). Consequently, activities in this area may have oversight by the CDFG and USACE. A wetland delineation may be necessary within this area in order to determine the extent of jurisdiction.

3.2.8 Parcel 12

Parcel 12, approximately 12.3 acres, is bordered on the northeast by Parcel 10 and to the southeast by Parcel 14 (Figure 6).

Vegetation Communities: This site is vegetated entirely by nonnative grassland dominated by wild oat and barley. Clay soils are evident within this parcel through the presence of splendid mariposa lily (*Calochortus splendens*), a species which is commonly found in this soil type. The southern half of Parcel 12 appears to have been historically used for row crops; the northern half for pasture.

Special Status Species: No special-status plant or wildlife species were identified within this parcel during field investigations.

Habitat Suitability Assessment: The clay (Altamont series) and alkali (Willows series) soils which are found on this parcel (Figure 5) may provide suitable habitat for special-status species which are endemic to these soil types (Appendix B).

This parcel has the potential to support foraging raptor species, but doesn't appear suitable for any species other than the Northwestern San Diego pocket mouse.

If this parcel is selected for the Fogarty Substation, focused sensitive species surveys should be conducted for species which have potential to occur on the site (Appendix B) prior to construction.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified along Parcel 12. There is the potential for open habitat resulting from disturbance that could potentially be occupied by burrowing owls in the future. Pre-construction burrowing owl surveys will be needed within this parcel.

Riparian/Riverine Habitat: No riparian/riverine, vernal pool, or other wet habitats of special concern were identified on this parcel.

3.2.9 Parcel 13

This 6.5-acre parcel is southeast of Parcel 11 (Figure 6). The majority of Parcel 13 appears to have historically been used as pasture.

Vegetation Communities: Parcel 13 is vegetated by 5.7 acres of nonnative grassland and 0.81 acre of disturbed coastal sage scrub (Figure 6).

Special Status Species: Two special status plant species, small-flowered morning glory and Palmer's grapplinghook were identified within the parcel. Both species are CNPS list 4.2 and MSHCP Conservation Species that are endemic to heavy clay and cobbly clay soils.

No special-status wildlife species were observed during field investigations of Parcel 13.

Habitat Suitability Assessment: The clay (Altamont series) and alkali (Willows series) soils which are found in the parcel (Figure 5) may provide suitable habitat for special-status species which are endemic to these soil types (Appendix B).

The small patch of disturbed coastal sage scrub in the southern portion of this parcel could potentially support the coastal California gnatcatcher, the Southern California rufous-crowned sparrow, and Bell's sage sparrow. The coast patch-nosed snake has a moderate potential of being found in this parcel, as well as the San Diego desert wood rat and Northwestern San Diego pocket mouse.

If this parcel is selected for the Fogarty Substation, focused sensitive species surveys should be conducted during appropriate blooming periods for species which have potential to occur on the site (Appendix B) prior to construction.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified inside parcel 13. No potential burrowing owl habitat was identified in this parcel.

Riparian/Riverine Habitat: No riparian/riverine, vernal pool, or other wetland habitats of special concern were identified on this parcel.

3.2.10 Parcel 14

Parcel 14 is a 12.3-acre parcel adjacent to Parcel 12 on the northwest and a private residence exists to the northeast (Figure 6).

Vegetation Communities: Parcel 14 is vegetated by approximately 11.2 acres of nonnative grassland and 1.1 acres of disturbed coastal sage scrub.

Special Status Plant Species: Two small populations of small-flowered morning glory, CNPS list 4.2 and MSHCP Conservation Species were identified within the nonnative grassland habitat within this parcel (Figure 6).

No sensitive wildlife species were observed during field investigations of this parcel.

Habitat Suitability Assessment: The clay (Altamont series) and alkali (Willows series) soils which are found on this parcel (Figure 5) may provide suitable habitat for special-status species which are endemic to these soil types (Appendix B).

The small patch of disturbed coastal sage scrub in the southern portion of this parcel could potentially support the coastal California gnatcatcher, the Southern California rufous-crowned sparrow, and Bell's sage sparrow. The coast patch-nosed snake has a moderate potential of being found in this parcel, as well as the San Diego desert wood rat and Northwestern San Diego pocket mouse.

If this parcel is selected for the Fogarty Substation, focused sensitive-species surveys should be conducted for species which have potential to occur on the site (Appendix B) prior to construction.

Burrowing Owl Habitat Assessment: No burrowing owls or signs of burrowing owls were identified within Parcel 14. There is the potential for open habitat resulting from disturbance that could potentially be occupied by burrowing owls in the future. Pre-construction burrowing owl surveys will be needed within this parcel.

Riparian/Riverine Habitat: No riparian, vernal pool, or other wetland habitats of special concern were identified within this parcel.

3.3 Recommended Additional Surveys

Focused sensitive-species surveys will be required prior to construction within the parcels that have a high potential for sensitive species (Table 5). There may be sensitive 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 Fogarty Substation parcel of this project (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). Therefore, some additional sensitive species surveys are recommended below to assess the populations within the study area, identify potential impacts to these species, and mitigate them to below a level of significance.

Table 5. Recommended Additional Surveys

Parcels	Focused Sensitive Plant and/or Wildlife Species Surveys	Wetland Delineation
1	✓	
2	✓	
7	✓	✓
8	✓	✓
9	✓	✓
10	✓	
11	✓	✓
12	✓	
13	✓	
14	✓	

4.0 ASSESSMENT OF POTENTIAL IMPACTS

This section presents a general impact analysis of the proposed Fogarty Substation 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 substation. A complete project impact analysis will be possible once the 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 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. Special-status plant species found in the study area are related to specific sensitive soils (alkali and clay types) (Figure 5) and riparian/wetland habitats (Figure 6). Permanent direct impacts to sensitive species and their associated habitats may occur as a result of this project.

In addition, permanent direct impacts may occur to coastal sage scrub vegetation which 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. As such, any direct impacts to sage scrub vegetation would be a significant impact.

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. Indirect impacts which could potentially occur as a result of this project are described in the subsequent sections.

4.1.2.1 Runoff, Erosion, and Siltation

Siltation and erosion resulting from proposed construction activities may cause significant indirect impacts to wetland and riverine habitats that are present within the project area. 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 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 out-compete 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 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

Noise impacts during the construction of the proposed Fogarty Substation project 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.

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 and the Southern California rufous crowned sparrow or riparian-nesting birds such as the Bell's sage sparrow (*Amphispiza belli belli*) 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 (L_{eq} 1 hour) during the breeding season.

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. If construction were to occur outside of the breeding season for these species, noise impacts would be considered not significant.

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. These impacts would not be considered significant if the activities were temporary in nature and of short duration. Any extended periods of noise-producing activities could result in significant impacts to wildlife movement.

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 demolition and construction onsite.

4.1.2.6 Fugitive Dust

Trenching, grading, and vehicle operations associated with the construction of the proposed Fogerty Substation can produce fugitive dust that enters adjacent habitats. 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 sensitive plant and animal species would be the largest impacts from the project. As such, steps should be taken to minimize or eliminate these impacts.

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.
- When construction activities occur in close proximity to sensitive plant species (e.g. less than 50-feet), seeds from special-status species in these areas shall be collected during the appropriate fruiting time and prior to construction activities. Once construction activities have ceased, the topsoil within these areas shall be removed (6-inches), seeds shall be dispersed and topsoil shall be replaced.
- Fence 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 sensitive habitat (i.e. gnatcatcher- occupied sage scrub) during the gnatcatcher 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.

- 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.

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Appendix A

Plant Species Observed

APPENDIX A PLANT SPECIES OBSERVED

Family	Scientific Name	Common Name	Native/Exotic
Amaranthaceae Amaranth Family			
	<i>Amaranthus albus</i>	White Tumbleweed	N
Anacardiaceae Sumac Family			
	<i>Schinus molle</i>	Brazilian Pepper Tree	E
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
Asteraceae (Compositae) Sunflower Family			
	<i>Ambrosia psilostachya</i>	Western Ragweed	N
	<i>Ambrosia pumila</i>	San Diego Ambrosia	MSHCP Narrow Endemic
	<i>Anthemis cotula</i>	Mayweed	E
	<i>Artemisia californica</i>	California Sagebrush	N
	<i>Artemisia douglasiana</i>	Douglas' Mugwort	N
	<i>Baccharis salicifolia</i>	Mule Fat	N
	<i>Centaurea melitensis</i>	Tocalote	E
	<i>Chaenactis glabriuscula</i>	Yellow Pincushion	N
	<i>Conyza canadensis</i>	Horseweed	N
	<i>Cotula coronopifolia</i>	African Brass Buttons	E
	<i>Deinandra (Hemizonia) fasciculata</i>	Fascicled Tarplant	N
	<i>Deinandra paniculata</i>	San Diego Tarplant	N
	<i>Ericameria palmeri var. pachylepis</i>	Box Spring Goldenbush	N
	<i>Encelia farinosa</i>	Brittlebush	N
	<i>Eriophyllum confertiflorum</i>	Flat-Topped Golden Yarrow	N
	<i>Filago gallica</i>	Narrow Leaf Filago	E
	<i>Gnaphalium californicum</i>	California Everlasting	N
	<i>Gnaphalium luteo-album</i>	Everlasting	E
	<i>Gutierrezia sarothrae</i>	Matchweed	N
	<i>Hedypnois cretica</i>	Hedypnois	E
	<i>Helianthus annuus</i>	Western Sunflower	N
	<i>Heterotheca grandiflora</i>	Telegraph Weed	N
	<i>Lactuca serriola</i>	Prickly Lettuce	E

Family	Scientific Name	Common Name	Native/Exotic
	<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's Goldfields	MSHCP Narrow Endemic
	<i>Lasthenia californica</i>	Common Goldfields	N
	<i>Layia glandulosa</i>	White Layia	N
	<i>Lessingia filaginifolia</i>	San Diego Sand Aster	N
	<i>Picris echioides</i>	Bristly Ox-Tongue	E
	<i>Sonchus asper</i>	Prickly Sow Thistle	E
	<i>Sonchus oleraceus</i>	Common Sow Thistle	E
	<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>Cryptantha intermedia</i>	Nievitans	N
	<i>Harpoganella palmeri</i>	Palmer's Grapplinghook	MSHCP Narrow Endemic
	<i>Heliotropium curassavicum</i>	Salt Heliotrope	N
	<i>Pectocarya penicillata</i>	Winged Pectocarya	N
	<i>Plagiobothrys collinus</i> ssp. <i>californicus</i>	California Popcorn Flower	
Brassicaceae (Cruciferae) Mustard Family			
	<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>Raphanus sativus</i>	Wild Radish	E
	<i>Rorippa nasturtium-aquaticum</i>	Watercress	N
Cactaceae Cactus Family			
	<i>Opuntia ficus-indica</i>	Mission Prickly Pear	E
Caryophyllaceae Pink Family			
	<i>Spergularia marina</i>	San Spurry	N
Chenopodiaceae Goosefoot Family			
	<i>Atriplex coronata</i> var. <i>notiator</i>	San Jacinto Valley Brittnescale	N
	<i>Atriplex rosea</i>	Tumbling Oracle	E
	<i>Atriplex semibaccata</i>	Australian Saltbush	E
	<i>Atriplex triangularis</i>	Spearscale	N
	<i>Chenopodium album</i>	Pigweed	E
	<i>Salsola tragus</i>	Russian Thistle	E

Family	Scientific Name	Common Name	Native/Exotic
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
			MSHCP Narrow Endemic
	<i>Cressa truxillensis</i>	Alkali Weed	N
Crassulaceae Stonecrop Family			
	<i>Crassula connata</i>	Sand Pygmyweed	N
Euphorbiaceae Spurge Family			
	<i>Chamaesyce albomarginata</i>	Rattlesnake Weed	N
	<i>Eremocarpus setigerus</i>	Doveweed	N
Fabaceae (Leguminosae) Pea Family			
	<i>Lotus hamatus</i>	Small-Flowered Lotus	N
	<i>Lotus purshianus</i>	Spanish Clover	N
	<i>Lupinus bicolor</i>	Miniature Lotus	N
	<i>Lupinus sparsifolius</i>	Coulter's Lupine	N
	<i>Medicago polymorpha</i>	Bur-Clover	E
Frankeniaceae Frankenia Family			
	<i>Frankenia salina</i>	Alkali Heath	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
Hydrophyllaceae Water Leaf Family			
	<i>Nemophilla menziesii</i>	Baby Blue Eyes	N
Lamiaceae (Labiatae) Mint Family			
	<i>Marrubium vulgare</i>	Horehound	E
	<i>Salvia apiana</i>	Cleveland Sedge	N
	<i>Salvia columbariae</i>	Chia	N
	<i>Salvia mellifera</i>	Black Sage	N

Family	Scientific Name	Common Name	Native/Exotic
Liliaceae Lily Family			
	<i>Calochortus splendens</i>	Splendid Mariposa Lily	N
	<i>Chlorogalum parviflorum</i>	Small Flower Soap Plant	N
Malvaceae Mallow Family			
	<i>Malva parviflora</i>	Cheeseweed	E
	<i>Malvella leprosa</i>	Alkali Mallow	N
Nyctaginaceae Four O'Clock Family			
	<i>Mirabilis laevis</i>	Wishbone Plant	N
Onagraceae Evening Primrose Family			
	<i>Camissonia bistorta</i>	Southern Sun Cup	N
	<i>Clarkia purpurea</i>	Purple Clarkia	N
Oxalidaceae Wood Sorrel Family			
	<i>Oxalis ces-caprae</i>	Burmuda Buttercup	E
Plantaginaceae Plantain Family			
	<i>Plantago erecta</i>	California Plantain	N
Poaceae (Gramineae) Grass Family			
	<i>Avena fatua</i>	Wild Oat	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>Hordeum murinum</i>	Mediterranean Barley	E
	<i>Nassella pulchra</i>	Purple Needlegrass	N
	<i>Phalaris paradoxa</i>	Canary Grass	E
	<i>Polypogon monspeliensis</i>	Rabbitfoot Grass	E
	<i>Vulpia myuros</i>	Fescue	E
Polygonaceae Buckwheat Family			
	<i>Chorizanthe polygonoides</i>		
	<i>Eriogonum fasciculatum</i> var. <i>fasciculatum</i>	California Buckwheat	N
	<i>Polygonum arenastrum</i>	Common Knotweed	E
	<i>Rumex crispus</i>	Curly Dock	E

Family	Scientific Name	Common Name	Native/Exotic
	<i>Rumex salicifolius</i>	Willow-Leaved Dock	N
Portulacaceae Purslane Family			
	<i>Calandrinia</i> sp.		N
	<i>Anagallis arvensis</i>	Scarlet Pimpernel	E
	<i>Portulaca oleracea</i>	Puselane	E
	<i>Stellaria</i> sp.	Chickweed	E
Ranunculaceae			
	<i>Clematis pauciflora</i>	Southern California Clematis	N
Rubiaceae Madder Family			
	<i>Galium angustifolium</i>	Narrow-Leaf Bedstraw	N
	<i>Galium aparine</i>	Annual Bedstraw	N
Salicaceae Willow Family			
	<i>Salix gooddingii</i>	Goodding's Willow	N
	<i>Salix lasiolepis</i>	Arroyo Willow	N
Scrophulariaceae Figwort Family			
	<i>Antirrhinum nuttallianum</i>	Nuttall's Snapdragon	N
	<i>Mimulus guttatus</i>	Common-Monkey Flower	N
Solanaceae Nightshade Family			
	<i>Datura wrightii</i>	Jimson Weed	N
	<i>Nicotiana glauca</i>	Tree 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>Dichelostemma capitatum</i>	Blue Dicks	N

Family	Scientific Name	Common Name	Native/Exotic
Typhaceae Cattail Family			
	<i>Typha</i> sp.		N
Urticaceae Nettle Family			
	<i>Urtica dioica</i>	Stinging Nettle	N
Verbenaceae Vervain Family			
	<i>Verbena lasiostachys</i>	Weedy Verbena	N

Appendix B

Sensitive Plant and Animal Species with Potential to Occur in the Proposed Fogarty Substation Project

**APPENDIX B
 SENSITIVE PLANT AND ANIMAL SPECIES
 WITH POTENTIAL TO OCCUR IN THE
 PROPOSED FOGARTY SUBSTATION 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	Moderate. Suitable habitat exists.
<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	Moderate. Suitable habitat exists in Parcel 1, 2, 10-14.
<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. Present within Parcels 10 and 11.
<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 in Parcel 2, 13 and 14.
<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. Present within Parcel 8.

Scientific Name ¹	Common Name	Status ²	Blooming Period	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<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 Parcels 8-14.
<i>Atriplex pacifica</i>	South Coast Saltscale	1B.2 MSHCP Covered Species	Mar-Oct	Coastal bluff scrub, coastal dunes, coastal scrub, playas	Low. No habitat present.
<i>Atriplex parishii</i>	Parish's Brittle-scale	1B.1 MSHCP Criteria Species	Jun-Oct	Coastal scrub, playas, vernal pools	Moderate. Suitable habitat exists in Parcels 2, 13 and 14.
<i>Atriplex serenana</i> var. <i> davidsonii</i>	Davidson's Saltscale	1B.2 MSHCP Criteria Species	Apr-Oct	Coastal bluff scrub, coastal scrub/alkaline	High. Alkaline soils exist within Parcels 8-14.
<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	Moderate. Suitable habitat exists in Parcels 1, 2, 8 10-14.
<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	Moderate. Suitable habitat exists within Parcels 1, 2,8, 10-14.
<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 within Parcels 1, 2, 8, 10-14.
<i>Calochortus weedii</i> var. <i> intermedius</i>	Intermediate Mariposa Lily	1B.2 MSHCP Covered Species	May-July	Chaparral, coastal scrub, valley and foothill grassland/rocky	Moderate. Suitable habitat exists within Parcels 1, 2, 8, 10-14.
<i>Centromadia pungens</i> ssp. <i> laevis</i>	Smooth Tarplant	1B.1 MSHCP Criteria Species	Apr-Sept	Chenopod scrub, meadows, playas, riparian woodland, valley and foothill grassland	Moderate. Suitable habitat exists within Parcels 1, 2, 8, 10-14.

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 within Parcels 2, 13 and 14.
<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. Present within Parcel 1.
<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>Convolvulus simulans</i>	Small-Flowered Morning Glory	4.2 MSHCP Covered Species	Mar-July	Chaparral (openings), coastal scrub, valley and foothill grassland/clay, serpentinite seeps	High. Present within Parcel 13.
<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/(alluvian fan)/sandy	Moderate. Suitable habitat exists within Parcels 2, 7, 9, 13, and 14.
<i>Dudleya cymosa</i> ssp. <i>ovatifolia</i>	Santa Monica Mountains Dudleya	1B.2 FT	Mar-Jun	Chaparral, coastal scrub	Low. No habitat present.
<i>Dudleya multicaulis</i>	Many-Stemmed Dudleya	1B.2 MSHP Narrow Endemic	Apr-Jul	Chaparral, coastal scrub, valley and foothill grassland/often clay	Moderate. Suitable habitat exists within Parcels 2, 13 and 14.

Scientific Name ¹	Common Name	Status ²	Blooming Period	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<i>Dudleya viscida</i>	Sticky Dudleya	1B.2 MSHCP Covered Species	May-Jun	Coastal bluff scrub, chaparral, coastal scrub/rocky	Low. No habitat present.
<i>Erodium macrophyllum</i>	Round-Leaved Filaree	2.1 MSHCP Criteria Species	Mar-May	Cismontane woodland, valley and foothill grassland/clay	Moderate. Suitable habitat exists within Parcels 1, 2, 8 10-14.
<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>Harpagonella palmeri</i>	Palmer's Grapplinghook	4.2 MSHCP Covered Species	Mar-May	Chaparral, coastal scrub, valley and foothill grassland/clay	High. Present within Parcels 2 and 13.
<i>Hordeum intercedens</i>	Vernal Barley	3.2 MSHCP Covered Species	Mar-Jun	Coastal dunes, coastal scrub, valley and foothill grassland, vernal pools	Moderate. Suitable habitat exists within Parcels 1, 2, 8 10-14.
<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 within Parcel 2, 13 and 14.
<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	High. Present within Parcel 8
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's Pepper-Grass	1B.2 MSHCP Covered Species	Jan-July	Chaparral, coastal scrub	Moderate. Suitable habitat exists within Parcel2, 13 and 14.
<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.

Scientific Name ¹	Common Name	Status ²	Blooming Period	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<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.
<i>Monardella macrantha</i> ssp. <i>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</i> ssp. <i>apus</i>	Little Mousetail	3.1 MSHCP Criteria Species	Mar-Jun	Valley and foothill grassland, vernal pools(alkaline)	Moderate. Suitable habitat exists within Parcels 8-14.
<i>Navarretia fossalis</i>	Spreading Navarretia	1B.1/FT MSHP Narrow Endemic	Apr-Jun	Chenopod scrub, marsh and swamp (assorted shallow fresh water), playas, vernal pools	Moderate. Mesic alkaline soils present within Parcels 7-9.
<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 Parcels 7-9.
<i>Nolina cismontanas</i>	Chaparral Nolina	1B.2	May-July	Chaparral, coastal scrub/sandstone or gabbro	Moderate. Suitable habitat exists within Parcels 2, 13 and 14.
<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</i> ssp. <i>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	Moderate. Suitable habitat exists within Parcels 2, 11 and 13.
<i>Senecio aphanactis</i>	Rayless Ragwort	2.2	Jan-Apr	Chaparral, cismontane woodland, coastal scrub/alkaline	Moderate. Suitable habitat exists within Parcels 2, 11

Scientific Name ¹	Common Name	Status ²	Blooming Period	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
					and 13.
<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i>	Southern Skullcap	1B.2 MSHCP Covered Species	Jun-Aug	Chaparral, cismontane woodland, lower montane coniferous forest /mesic	Low. No habitat present.
<i>Sibaropsis hammittii</i>	Hammitt's Clay-Cress	1B.2	Mar-Apr	Chaparral, valley and foothill grassland	Low. No habitat present.
<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 within Parcels 7-9.
<i>Sphaerocarpos drewei</i>	Bottle Liverwort	1B.1	n/a	Chaparral, coastal scrub/opening, soil	Moderate. Suitable habitat exists within Parcels 2, 13 and 14.
<i>Symphotrichum 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 within Parcels 2, 7-9 11, 13 and 14.
<i>Tetracoccus dioicus</i>	Parry's Tetracoccus	1B.2 MSHCP Covered Species	Apr-May	Chaparral, coastal scrub	Low. No habitat present.
<i>Tortula californica</i>	Californica Screw Moss	1B.2	n/a	Chenopod scrub, valley and foothill grassland/ sandy, bare 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. Mesic alkaline soils present within Parcels 7-9.

Scientific Name ¹	Common Name	Status 2	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
Wildlife				
Invertebrates				
<i>Euphydryas editha quino</i>	Quino Checkerspot Butterfly	FE, MSHCP Covered Species	Grasslands, sage scrub, chaparral with open areas	Low. Has low potential to occur within study area in Parcels 2, 12 - 14. <i>Plantago erecta</i> occurs on 13
<i>Streptocephalus woottoni</i>	Riverside Fairy Shrimp	FE, MSHCP Covered Species	Vernal pools or shallow ponded water within grassland, scrub, chaparral	Absent. Habitat is not present
Amphibians				
<i>Scaphiopus hammondii</i>	Western Spadefoot Toad	CSC, MSHCP Covered Species	Ephemeral pools, grassland, scrub, chaparral	Absent. Habitat is not present
Reptiles				
<i>Aspidoscelis (Cnemidophorus) hyperythra beldingi</i>	Orange-throated Whiptail	CSC, MSHCP Covered Species	Open sage scrub, chaparral, sandy wash, woodland	High. Has potential to occur within study area.
<i>Aspidoscelis (Cnemidophorus) tigris stejnegeri</i>	Coastal Western Whiptail	CNDDDB: 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	CNDDDB: G4G5S3S4	Dry, rocky brushlands and arid habitats, prefers rock outcrops	Low. Has low potential to occur within study area, mainly in 2.
<i>Crotalus ruber ruber</i>	Northern Red Diamond Rattlesnake	CSC, MSHCP Covered Species	Scrub, chaparral	Low. Has low potential to occur within study area, mainly in Parcel 2.
<i>Diadophis punctatus modestus</i>	San Bernardino Ringneck Snake	CNDDDB S2?	Most common in open, relatively rocky areas. often in somewhat moist microhabitats near intermittent streams.	Low. Has potential to occur within study area, mainly in Parcels 2, 7, and 9.
<i>Phrynosoma coronatum (blainvillei)</i>	Coast (San Diego) Horned Lizard	CSC, MSHCP Covered Species	Coastal sage scrub, chaparral, forests	High. Has potential to occur within study area.
<i>Salvadora hexalepis virgulata</i>	Coast Patch-nosed Snake	CSC	Open habitats, brush	Moderate. Has potential to occur within study area, especially in Parcels 2 and 13.
<i>Thamnophis hammondi</i>	Two-striped Garter Snake	CSC	Creeks and ponds, nearby upland habitats	Low. Has low potential to occur within study area in 7 and 9.

Scientific Name ¹	Common Name	Status 2	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
Birds				
<i>Accipiter cooperii</i>	Cooper's Hawk	CSC (nesting), MBTA, MSHCP Covered Species	Oak woodland, eucalyptus, mature riparian forest	Present. Seen foraging near Parcel 1. Potential to nest in study area at 7 and 9.
<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 foraging winter migrant, especially in Parcels 7 and 9
<i>Agelaius tricolor</i>	Tri-colored Blackbird (Nesting Colony)	FBCC, CSC, MBTA, MSHCP Covered Species	Marshes, fields	Foraging: low Nesting: absent
<i>Aimophila ruficeps canescens</i>	Southern California Rufous-crowned Sparrow	CSC, MBTA, MSHCP Covered Species	Open coastal sage scrub	High- Has potential to occur in parcels with sage scrub: 2, 13 and 14.
<i>Amphispiza belli belli</i>	Bell's Sage Sparrow	FBCC, CSC, MBTA, MSHCP Covered Species	Coastal sage scrub, chaparral	Low. Has low potential to occur in parcels with sage scrub: 2, 13 and 14
<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>Asio otus</i>	Long-eared Owl	FBCC, CSC, MBTA	Nesting in old nests in riparian bottomlands grown to tall willows & cottonwoods; also, belts of live oak paralleling stream courses. Requires adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	Low. Has low potential to forage within study area. Potential to nest in study area in Parcels 7 and 9.
<i>Athene cunicularia</i>	Burrowing Owl	FSC, FBCC, CSC (Burrow sites) , MBTA, MSHCP Covered Species	Open land, old ground squirrel burrows	Low. High weedy growth and discing limits potential, but ground squirrel burrows are present. Best areas are 1, 11, 12, 14, 10, 8, 7, 9
<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.

Scientific Name ¹	Common Name	Status 2	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	CSC (nesting), MBTA, MSHCP Covered Species (may require surveys)	Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, and which abut on slow-moving watercourses, backwaters, or seeps. Willow almost always a dominant component of the vegetation.	Low. Has low potential to occur within Parcels 7 and 9.
<i>Elanus leucurus</i>	White-tailed Kite	CFP, MBTA, MSHCP Covered Species	Open habitats with perches	Moderate. Foraging within study area. Potential nesting habitat present in 7 and 9.
<i>Empidonax traillii (extimus)</i>	Willow Flycatcher (Southwestern)	FE (<i>extimus</i>), SE (all subspecies), MBTA, MSHCP Covered Species, but may require surveys (<i>extimus</i>)	Well developed riparian woodland, willow meadows	Low. Has low potential to occur within study area in 7 and 9. Potential nesting habitat present. Potential to nest in study area.
<i>Eremophila alpestris actia</i>	California Horned Lark	CSC, MBTA, MSHCP Covered Species	Open habitats, bare dirt	Low. Current high weedy growth limits potential.
<i>Icteria virens</i>	Yellow-breasted Chat	CSC (nesting), MBTA, MSHCP Covered Species	Mature riparian woodland	Moderate. Has potential to occur within study area in potential nesting habitat present at 7 and 9.
<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>Polioptila californica californica</i>	Coastal California Gnatcatcher	FT, CSC, MBTA, MSHCP Covered Species	Coastal sage scrub	High: Potential to nest in study area in Parcels 2, 13, and 14.
<i>Vireo bellii pusillus</i>	Least Bell's Vireo	FE, SE, MBTA, MSHCP Covered Species but may require surveys	Riparian scrub and low woodland	Moderate. Has potential to occur within study area in 7 and 9. Potential nesting habitat present.

Scientific Name ¹	Common Name	Status 2	Habitat	Potential to Occur in Study Area (High, Moderate, Low)
Mammals				
<i>Dipodomys stephensi</i>	Stephens' Kangaroo Rat	ST/FE, MSHCP Covered Species	Grasslands with sparse to no shrub cover	Low. Has potential to occur within study area.
<i>Lepus californica bennettii</i>	San Diego Black-tailed Jackrabbit	CSC, MSHCP Covered Species	Scrub/grassland interface	Present. Has potential to occur within entire study area, seen in vicinity of Parcel 8.
<i>Neotoma lepida intermedia</i>	San Diego Desert Woodrat	CSC, MSHCP Covered Species	Cactus thickets, chaparral, sage scrub	Moderate. Has potential to occur within study area, mainly Parcel 2, also Parcels 13 and 14.
<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.

Appendix C

Western Riverside MSHCP Narrow Endemic and Criteria Area Plant Species Accounts

APPENDIX C WESTERN RIVERSIDE MSHCP NARROW ENDEMIC AND CRITERIA AREA PLANT SPECIES ACCOUNTS

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, pinyon 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

USFWS: None

NO PHOTO AVAILABLE

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 Zimmiti

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



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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



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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



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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

Spreading Navarretia

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 (CNSP 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

Wright's Trichocoronis

USFWS: None

CDFG: None

CNPS: 2.1

MSHCP: Narrow Endemic Species

NO PHOTO AVAILABLE

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 discing 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).

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