DRAFT

MSHCP NARROW ENDEMIC AND CRITERIA AREA PLANT SPECIES SURVEYS FOR THE VALLEY-TO-IVYGLEN TRANSMISSION LINE PROJECT RIVERSIDE COUNTY, CALIFORNIA

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1.0 INTRODUCTION

At the request of Southern California Edison (SCE), AMEC Earth & Environmental, Inc. (AMEC) conducted a special-status plant species survey for the proposed Valley-Ivyglen Transmission Line Project which is designed to improve reliability and meet projected electrical load requirements in the western Riverside County area.

The proposed project is located in western Riverside County; the proposed transmission line route traverses unincorporated Riverside County, the cities of Lake Elsinore, Corona, Perris, and Sun City, California (Figure 1). The proposed transmission line route traverses portions of the following U.S. Geological Survey (USGS) 7.5-minute series topographic quadrangles: Alberhill, Lake Elsinore, and Romoland.

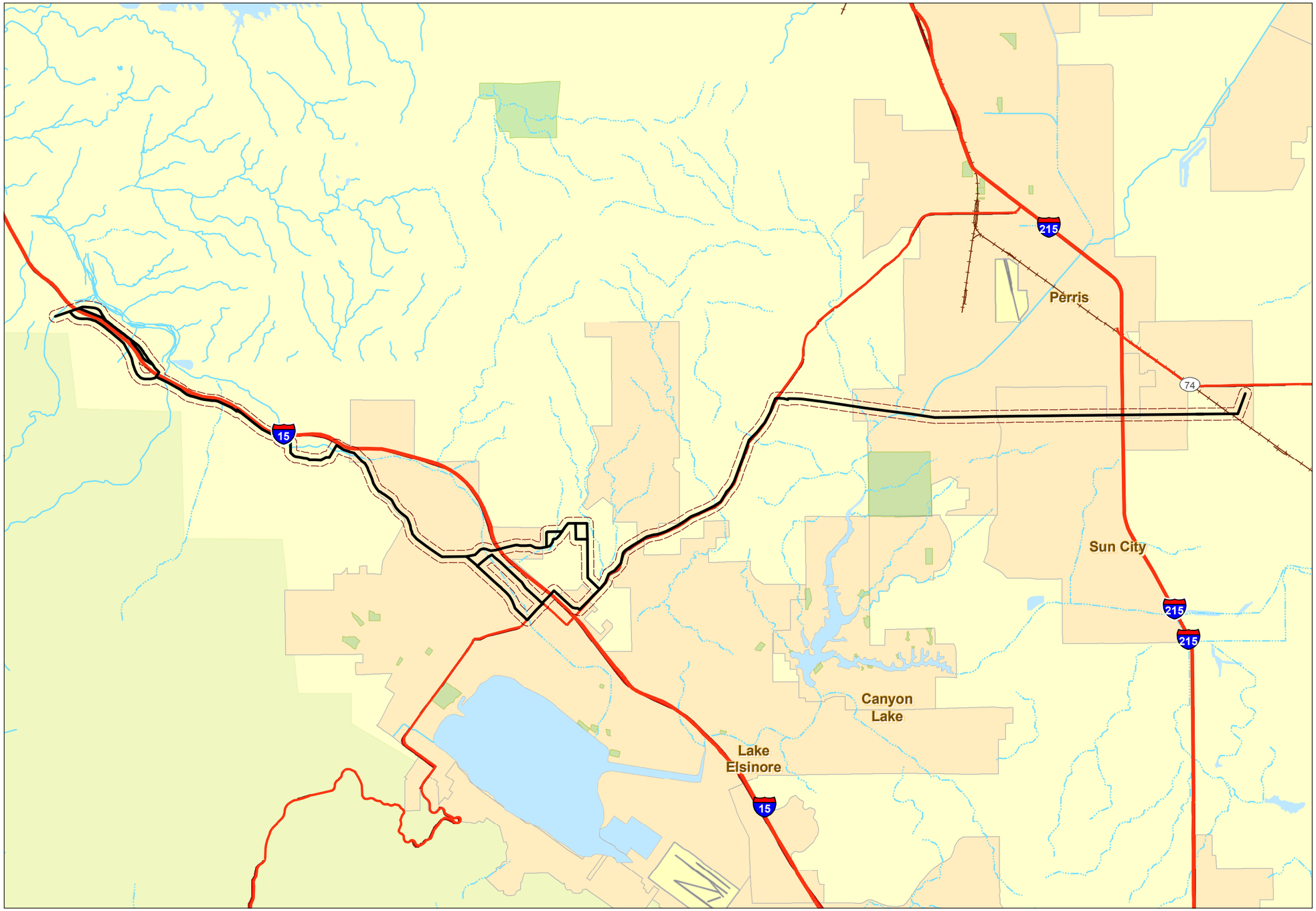
The Valley-Ivyglen Transmission Line Project involves the construction of a new 115 kilovolt (kV) transmission line which will connect the Valley Substation to the Ivyglen Substation (Figure 1). The Valley Substation is located in the southwest corner of an unincorporated area known as Romoland, adjacent to the City of Perris. The Ivyglen Substation is located in the southeastern portion of unincorporated Corona, along Temescal Canyon Road and near Glen Ivy Hot Springs.

1.1 Project Background

The proposed Valley-Ivyglen Transmission Line 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.

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

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 14 narrow endemic plants and 13 other sensitive plants within the Criteria Area. Of these species, surveys will be required within suitable habitat areas in locations identified on MSHCP survey maps (Section 6.0 of the MSHCP) and avoidance and minimization measures implemented in accordance with the species-specific objectives for those species. The possibility exists that surveys may be avoided if the project is designed to avoid identified species and their associated habitats.



LEGEND

- Preferred Route (Updated on 08/16/2007)
- Survey Boundary

Base Data

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

LOCATION MAP

MAP NOTE

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

Projection: State Plane, California 406
NAD 83, Feet
Path: w\sd06\bio\SCE\ivy_glen\mxd\
focus_survey\plant_survey\
prj_vicinity.mxd
Date: 01/14/2008

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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Project Vicinity
Plant Survey
Valley - Ivyglen Transmission Line Project, California

FIGURE
1

The Valley-Ivyglen Transmission Line Project lies within identified MSHCP Narrow Endemic Plant Species Survey Areas (Figure 2). Within these areas, site-specific focused surveys for Narrow Endemic Plant Species (Table 1) is required for all public and private projects where appropriate habitat is present.

In addition to the Narrow Endemic Plant Species, other surveys are needed for specific species "*Criteria Area Species*" (Table 1) in conjunction with the MSHCP. The *Additional Survey Needs and Procedures* policies presented in Section 6.3.2 of the MSHCP outlines these habitats and species. Additional surveys shall be conducted within suitable habitat for these species in the MSHCP Criteria Area (Figure 2).

The proposed Valley-Ivyglen Transmission Line Project would also involve the construction of a new communication path, which would connect the Ivyglen Substation to the Valley Substation. This communication path is required for communication and monitoring of the substation and subtransmission line equipment. Along most of the telecommunication route, fiber optic cable will be installed overhead on the new Valley-Ivyglen 115 kV structures. The telecommunication line construction activities would begin subsequent to the construction of the new Valley-Ivyglen 115 kV subtransmission lines. Some sections of the fiber optic line will be installed underground by the use of trenching and/or boring methods. The following sites where underground activities will occur were individually surveyed for sensitive species:

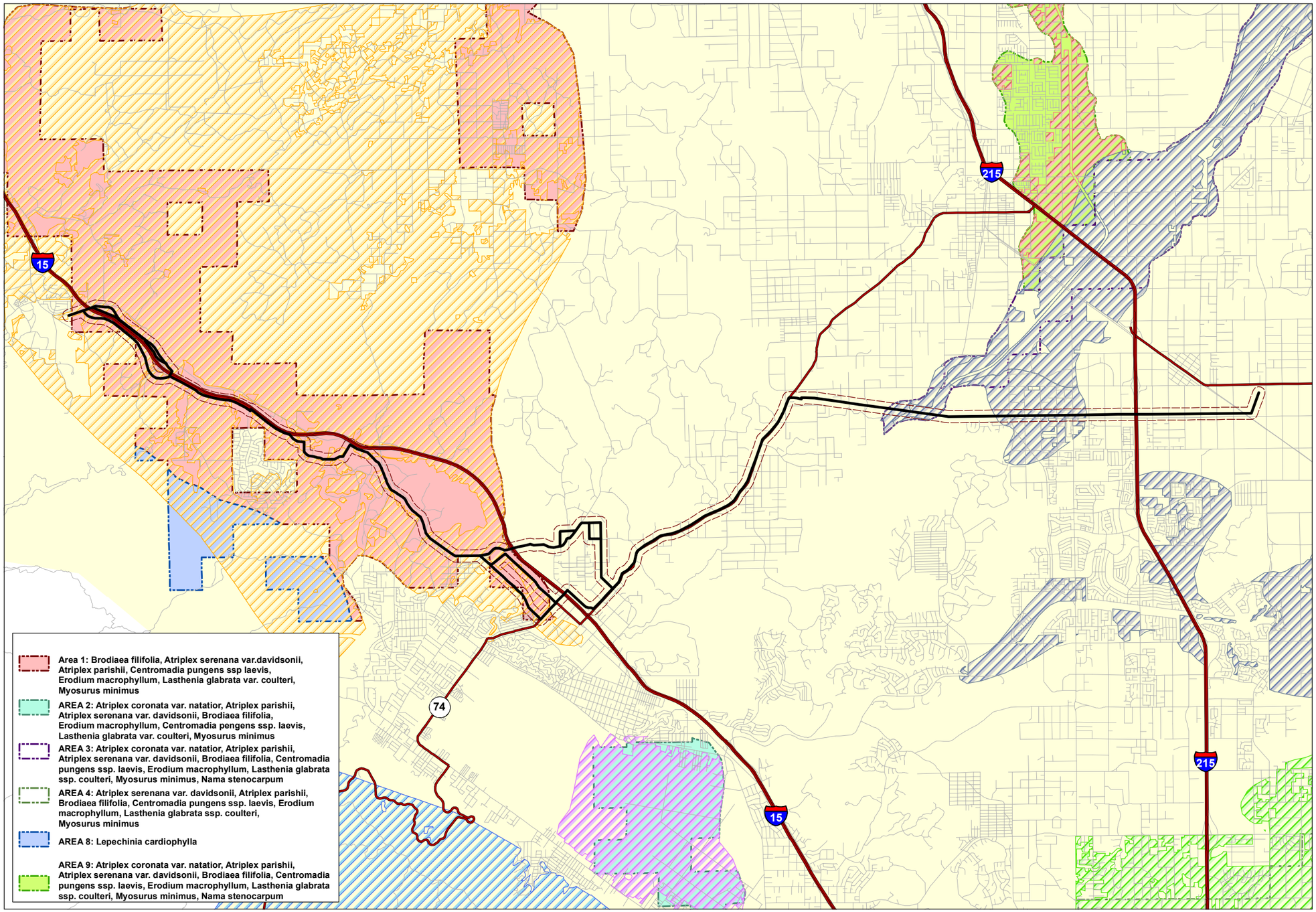
a. Valley Substation – the trenched area includes approximately 500 feet from the substation fence to the Valley-Ivyglen Transmission Line riser pole (Map 1).

b. Crossing at existing Elsinore-Ivyglen 115kV line and Lake Street – the trenched area includes approximately 500 feet beneath Lake Street (Map 29).

c. Crossing I-15 at Hostettler Road – the trenched area includes approximately 500 feet beneath the freeway along Hostettler Road (Map 31).

d. Crossing Existing Elsinore-Ivyglen 115 kV line at Temescal Canyon Road – the trenched area includes approximately 500 feet at crossing beneath Temescal Canyon Road (Map 31).

e. Ivyglen Substation – the trenched area includes approximately 1,500 feet along Temescal Canyon Road beneath the freeway, from Mayhew Road to the Ivyglen Substation (Map 23).



LEGEND

Riverside MSHCP

MSHCP Boundary

Narrow Endemic Plant Species Survey

Allium munzii, Ambrosia pumila, Dodecahema leptoceras, Dudleya multicaulis, Navarretia fossalis, Orcuttia californica, Satureja chandleri, Sibaropsis hammittii, Trichocoronis wrightii var. wrightii

Allium munzii, Ambrosia pumila, Dudleya multicaulis, Navarretia fossalis, Orcuttia californica, Sibaropsis Hammittii, Trichocoronis wrightii var wrightii

Allium munzii, Ambrosia pumila, Dudleya multicaulis, Navarretia fossalis, Orcuttia californica, Trichocoronis wrightii var wrightii

Allium munzii, Ambrosia pumila, Dudleya multicaulis, Navarretia fossalis, Orcuttia californica, Trichocoronis wrightii var. wrightii

Dudleya multicaulis, Orcuttia californica, Navarretia fossalis, Satureja chandleri, Sibaropsis hammittii, Trichocoronis wrightii var. wrightii

Ambrosia pumila, Dudleya multicaulis, Navarretia fossalis, Orcuttia californica, Trichocoronis wrightii var wrightii

Project Data

Preferred Route (Updated on 08/16/2007)

Survey Boundary

Base Data

Major Freeways

Roads

MAP NOTES

Data Source:
AMEC - Project Boundary
RCIP - Riverside MSHCP
SCE - Preferred Route, Base Data

Projection: State Plane, California 406 NAD 83, Feet
Path: w\sd06\bio\SCE\ivy_glen\mxd\ \focus_survey\Plant_survey \MSHCP_NESSA.mxd
Date: 01/14/2008

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

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

FIGURE
2

Table 1. MSHCP Narrow Endemic and Additional Criteria Area Species

Scientific Name	Common Name	Status	Habitat/Elevation	Blooming Period
Narrow Endemic Plant Species				
Allium marvinii	Yucaipa Onion	List 1B.1 CA-Endemic	Chaparral (clay, openings) 760 – 1,065 m	Apr-May
Allium munzii	Munz's Onion	List 1B.1 CA-Endemic ST 1/90 FE 10/98	Chaparral, Cismontane woodland, Coastal scrub Pinyon and juniper woodland Valley and foothill grassland /mesic, clay 300 – 1,070 m	Mar-May
Ambrosia pumila	San Diego Ambrosia	List 1B.1 FE 7/02	Chaparral , Coastal scrub Valley and foothill grassland Vernal pools/often in disturbed areas, sometimes alkaline 20 – 415 m	Apr-Oct
Arabis johnstonii	Johnston's Rockcress	List 1B.2 CA-Endemic	Chaparral , Lower montane coniferous forest/often on eroded clay 1350 – 2,150 m	Feb-Jun
Calochortus palmeri var. *munzii*	Munz's Mariposa lily	List 1B.2 CA-Endemic	Chaparral , Lower montane coniferous forest 1200 – 2,200 m	Jun-Jul
Dodecahema leptoceras	Slender-Horned Spine Flower	List 1B.1 CA-Endemic SE 1/82 FE 9/87	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan)/sandy 200 – 760 m	Apr-Jun
Dudleya multicaulis	Many-Stemmed Dudleya	List 1B.2 CA-Endemic	Chaparral, Coastal Scrub, Valley & Foothill grassland/often clay 15 – 790 m	Apr-Jul
Galium angustifolium ssp. *jacinticum*	San Jacinto Mountains Bedstraw	List 1B.3 CA-Endemic	Lower montane coniferous forest 1,350 – 2,100 m	Jun-Aug

Table 1. MSHCP Narrow Endemic and Additional Criteria Area Species

Scientific Name	Common Name	Status	Habitat/Elevation	Blooming Period
Navarretia fossalis	Spreading Navarretia	List 1B.1 FE 10/98	Chenopod scrub, Marshes and swamps (assorted shallow freshwater), Playas, Vernal pools	Apr-Jun
Orcuttia californica	California Orcutt Grass	List 1B.1 SE 9/79 FE 8/93	Vernal pools 15 – 660 m	Apr-Aug
Phacelia stellaris	Brands Phacelia	List 1B.1 FC	Coastal dunes, Coastal scrub 1 – 400 m	Mar-Jun
Satureja chandleri	San Miguel Savory	List 1B.2	Chaparral , Cismontane woodland, Coastal scrub Riparian woodland, Valley and foothill grassland/rocky, gabbroic or metavolcanic 120 – 1,075 m	Mar-Jul
Sibaropsis hammittii	Hammitt's Clay-Cress	List 1B.2	Chaparral(openings), Valley and foothill grassland/clay 720 – 1,065 m	Mar-Apr
Trichocoronis wrightii var. *wrightii*	Wright's Trichocoronis	List 2.1	Meadows and seeps, Marshes and swamps, Riparian forest Vernal pools/alkaline 5 – 435 m	May- Sep
Criteria Area Species				
Atriplex coronata var. *notatior*	San Jacinto Valley Crownscale	List 1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley & Foothill grassland/alkaline or clay 3 – 460 m	Mar-Oct
Atriplex parishii	Parish's Brittlescale	List 1B.1	Chenopod scrub, Playas, Vernal pools 25 – 1,900 m	Jun-Oct
Atriplex serenana var. *davidsonii*	Davidson's Saltscale	List 1B.2	Coastal bluff scrub, Coastal scrub/alkaline 10 – 200 m	Apr-Oct

Table 1. MSHCP Narrow Endemic and Additional Criteria Area Species

Scientific Name	Common Name	Status	Habitat/Elevation	Blooming Period
Berberis nevinii	Nevin's Barberry	List 1B.1 CA-Endemic SE 01/87 FE 10/13/98	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub/sandy or gravelly 295 – 825 m	Mar-Apr
Brodiaea filifolia	Thread-Leaved Brodiaea	1B.1 SE 01/82 FT 10/13/98	Chaparral, cismontane woodland, coastal scrub, playas, Valley & Foothill 25 – 860 m	Mar-Jun
California macrophyllum	Round-Leaved Filaree	List 1B.1	Cismontane woodland, Valley & Foothill grassland/clay 15 – 1,200 m	Mar-May
Ceanothus ophiochilus	Vail Lake Ceanothus	List 1B.1 CA-Endemic SE 1/94 FT 10/98	Chaparral(gabbroic or pyroxenite-rich outcrops) 580 – 1,065 m	Feb-Mar
Centromadia pungens	Smooth Tarplant	List1B.1 CA-Endemic	Chenopod scrub, meadows, playas, riparian woodland, Valley & Foothill grassland 0 – 480 m	Apr-Sept
Lasthenia glabrata ssp. *coulteri*	Coulter's Goldfields	List 1B.1	Marshes and swamps(coastal salt), Playas, Vernal pools 1 – 1,220 m	Feb-Jun
Lepechinia cardiophylla	Heart-Leaved Pitcher Sage	List 1B.2	Closed-cone coniferous forest, Chaparral, Cismontane woodland 520 – 1,370 m	Apr-Jun
Myosurus minimus	Little Mousetail	List 3.1	Valley and foothill grassland, Vernal pools (alkaline) 20 – 640 m	Mar-Jun

Table 1. MSHCP Narrow Endemic and Additional Criteria Area Species

Scientific Name	Common Name	Status	Habitat/Elevation	Blooming Period
Nama stenocarpum	Mud Nama	List 2.2	Marshes and swamps (lake margins, riverbanks) 5 – 500 m	Jan-Jul
Navarretia prostrata	Prostrate Navarretia	List 1B.1 CA-Endemic	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools/mesic 125 – 700 m	Apr-Jul

2.0 METHODOLOGY

Prior to field surveys, records from the CDFG California Natural Diversity Database (CNDDB) *RareFind3* (CNDDB 2007) and the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plant*s (CNPS 2007) were reviewed for potential occurrence of any sensitive species or habitats within the quadrangles wherein the proposed Valley-Ivyglen Transmission Line Project lies. In addition, two previous studies conducted in association with the project, *Draft Biological Resources Report Valley-Ivyglen Transmission Line Project Riverside County, California* (Entrix, Inc. 2006) and *Final Biological Technical Report for the Valley-Ivyglen Transmission Line Project Riverside County, California* (AMEC 2006), were reviewed.

Field maps were created prior to field visits (1 inch = 400 feet) which depicted the aerial view of the proposed transmission line route, known sensitive species points from CNDDB (2007) data and previous survey efforts (Entrix 2005 and AMEC 2006), and vegetation communities that were mapped during 2006 field surveys (AMEC 2006).

Between 28 May and 5 June 2007, AMEC biologists conducted surveys for MSHCP Narrow Endemic and Criteria Area plant species within the preferred transmission line route. Surveyed areas included a 200-foot-wide corridor centered on the transmission line route. Botanical surveys were conducted following the CDFG *Guidelines for Assessing the Effects of Proposed Project on Rare, Threatened, and Endangered Plants and Natural Communities* (CDFG 2006) and the CNPS *Botanical Survey Guidelines* (CNPS 2001). Botanical surveys were performed when most plant species would be detectable. Areas with potential habitat for special-status species (i.e., mesic sites, rocky outcrops, clay or alkaline soils, etc.) were surveyed on foot. Other areas were surveyed by vehicle in areas where there was little to no potential for special-status species to occur or in highly disturbed areas. All plant species encountered during the field surveys were identified and recorded (Appendix A). Species that could not be identified immediately were brought into the laboratory for further investigation. Scientific and common names of plants follow *The Jepson Manual* (Hickman 1993) or more recently published taxonomical revisions of genera.

As part of the proposed project, a telecommunication route will also be installed along the proposed transmission line route. Areas where telecommunication construction activities will involve trenching and/or boring activities associated with the installation of the telecommunication line were also surveyed.

Biological survey data was collected by numerous techniques including the use of a hand-held Global Positioning System (GPS), standardized data forms, photographs, and aerial field maps. Surveys were conducted according to Table 2, which indicates survey dates.

Table 2. Survey Personnel and Dates

Date	Habitat Assessment	Focused MSHCP Plant Surveys
2006		
April 24	✓	
April 25	✓	
April 26	✓	
April 27	✓	
May 02	✓	
May 03	✓	
May 04	✓	
2007		
May 28		✓
May 29		✓
May 30		✓
May 31		✓
June 1		✓
June 4		✓
June 5		✓

Surveyors:
Matt Amalong; AMEC Biologist
John F. Green; AMEC Botanist/Biologist
Nathan Moorhatch; AMEC Biologist
Patrick McConnell; AMEC Botanist

3.0 EXISTING BIOLOGICAL SETTING

The topography in the study area is generally gentle rolling hills. The approximately 58 miles of study area contains a combination of agricultural, municipal, private, and reserve land, most with previous disturbance.

3.1 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 100º F and winter temperatures fall into the 30s, with an occasional freeze. Average annual temperature ranges are fairly moderate for the area, ranging from 49.3º F to 79.5º F. Average total precipitation for the area is approximately 10 to 15 inches per year (Western Regional Climate Center 2005).

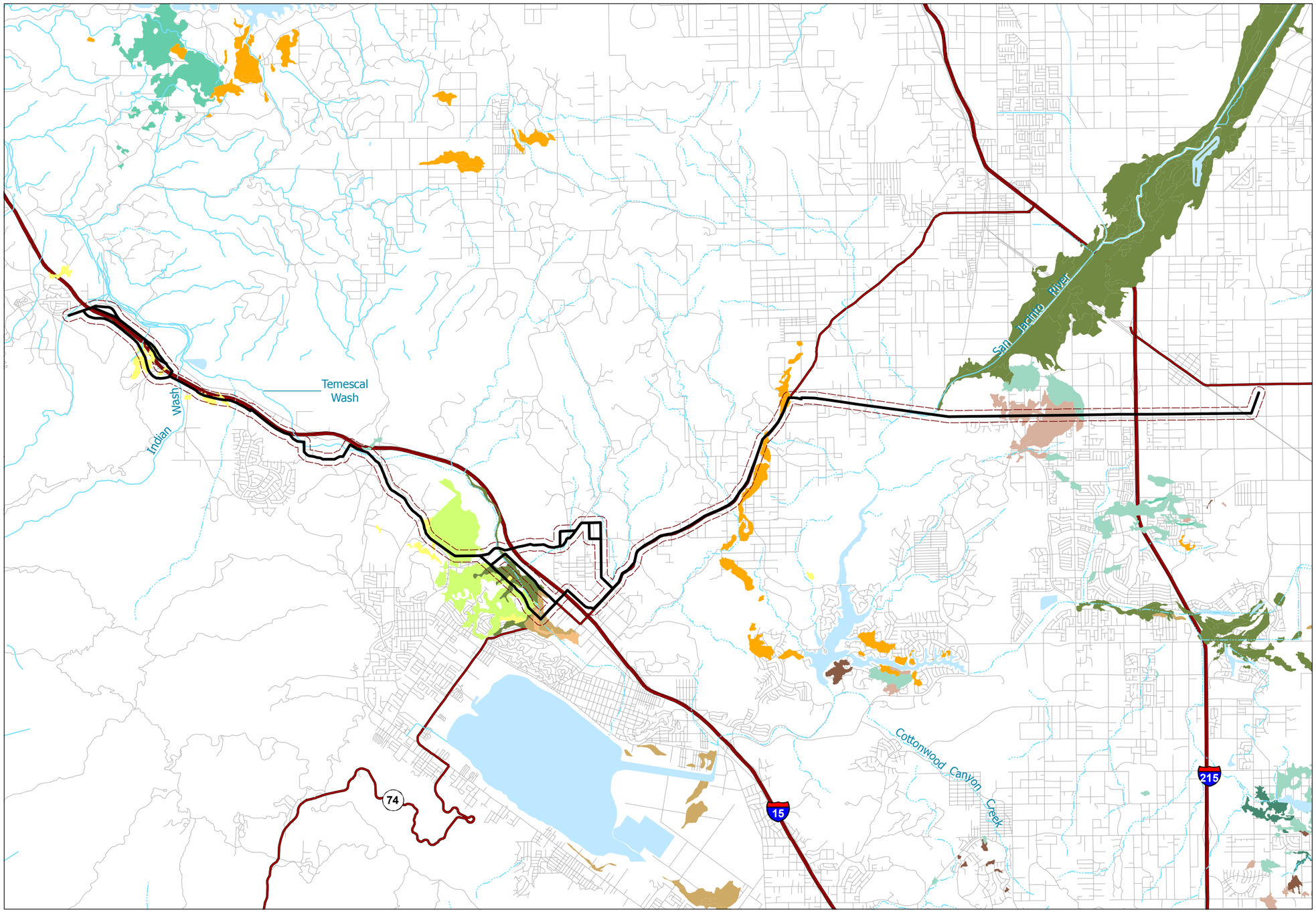
3.1.1 2006/2007 Rain Season

The 2006/2007 rain season (September 2006 through May 2007) was one of the driest winters on record for the Riverside region. The Elsinore station is the closest weather station to the project site with reliable monthly rainfall totals for the 2006/2007 rain season (i.e., no missing days during this period) (DRI 2007). The total rainfall for the 2006/2007 rain season to date was 0.44 inches (in) (1.11 centimeters [cm]), which falls extremely short of the yearly average (11.25 in [28.57 cm]) at this weather station by approximately 10.81 in (27.46 cm) (DRI 2007).

3.2 Soils

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

The Traver-Domino-Willows association is considered a MSHCP sensitive soil type and includes saline-alkali soils largely located along floodplain areas of the San Jacinto River (Figure 3). Sensitive plants which may be supported by the Traver-Domino-Willows soil association include two federally listed species: San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*) and spreading navarretia (*Navarretia fossalis*). Other sensitive plant species found in this association include Parish's brittlescale (*Atriplex parishii*), Davidson's saltscale (*Atriplex serenana* var*. davidsonii*), and vernal barley (*Hordeum intercedens*) (County of Riverside 2003).



LEGEND

MSHCP Sensitive Soil Groups

- Altamont clay
- Altamont cobbly clay
- Auld clay
- Auld cobbly clay
- Bosanko clay
- Porterville clay
- Porterville cobbly clay
- Porterville gravelly clay
- Traver fine sandy loam
- Traver loamy fine sand
- Willows silty clay

Project Data

- Preferred Route (Updated on 08/16/2007)
- Survey Boundary

Base Data

Rivers and Streams

- Perennial Stream
- Intermittent Stream
- Lake

Road Classification

- Major Freeways
- Roads

MAP NOTE

Data Source:
AMEC - Survey Boundary
RCIP - Riverside MSHCP
SCE - Preferred Route, Base Data

Projection: Stateplane, California 406
NAD 83, Feet
Path: w\sd06\bio\SCE\ivy_glen\mxd\
\focus_survey\plant_survey\soilmxd
Date: 01/09/2008

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MSHCP Sensitive Soils
Valley - Ivyglen Transmission Line Project, California

FIGURE
3

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

3.3 Vegetation Communities

The vegetation communities and land cover types in the Valley-Ivyglen Transmission Line Project area are primarily coastal sage scrub, grasslands, agriculture, and developed disturbed land (ruderal habitat). Additional plant communities found within the study area include oak woodlands, Riversidean alluvial fan sage scrub, riparian scrub/woodland/forest, and wetlands (Table 3). Previous agriculture, grazing, fire suppression, and invasion of nonnative plant species have contributed to the disturbed condition of many vegetation communities in the study area.

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

3.3.1 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).

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

Table 3. Preferred Route Vegetation Communities

Vegetation Community		Acreage
Coastal Sage Scrub	Undisturbed	123.24
	Disturbed	666.58
Agriculture		15.87
Agriculture Field Crop		8.81
Agriculture Grove/Orchard		1.52
Disturbed/Developed		1703.78
Nonnative Grassland	Undisturbed	743.09
	Disturbed	38.10
Coast Live Oak Woodland		12.10
Riversidean Alluvial Sage Scrub	Undisturbed	30.09
	Disturbed	2.00
Alkali Marsh		22.75
Open Water		6.76
Seasonal Wetland		0.56
Riparian Scrub, Woodland, Forest	Southern Cottonwood/Willow Riparian Forest	57.12
	Southern Sycamore/Alder Riparian Woodland	4.82
	Southern Willow Scrub	55.83
	Mule Fat Scrub	12.06
	Riparian Scrub	1.31
	Tamarisk Scrub	0.77

3.3.2 Grasslands

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

Valley and foothill grasslands typically contain the perennial bunch grasses purple needlegrass (*Nassella pulchra)* and foothill needlegrass (*N. lepida*). Lesser amounts of other native grasses, such as onion grass (*Melica* spp.), wild rye (*Leymus* spp.), muhly (*Muhlenbergia* spp.), and cane bluestem (*Bothriochloa barbinodis*), may also be present. In addition, nonnative grasses or forbs may be present to varying degrees. Native herbaceous plants commonly found within valley and foothill grasslands include yellow fiddleneck (*Amsinckia menziesii*), common calyptridium (*Calyptridium monardum*), suncup (*Camissonia* spp.), Chinese houses (*Collinsia heterophylla*), California poppy (*Eschscholzia californica*),

tarweed (*Hemizonia* spp.), coast goldfields (*Lasthenia californica*), common tidy-tips (*Layia platyglossa*), lupine (*Lupinus* spp.), popcornflower (*Plagiobothrys* spp.), blue dicks (*Dichelostemma capitata*), muilla (*Muilla* spp.), blue-eyed grass (*Sisyrinchium bellum*), and dudleya (*Dudleya* spp.) (County of Riverside 2003).

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).

3.3.3 Agriculture

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

3.3.4 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).

3.3.5 Woodlands and Forest

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

3.3.6 Riversidean Alluvial Fan Sage Scrub

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

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

3.3.7 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, white alder (*Alnus rhombifolia*), sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), California walnut, Mexican elderberry, wild grape (*Vitis girdiana*), giant reed (*Arundo donax*), mule fat (*Baccharis salicifolia*), tamarisk (*Tamarix* spp.), or any of several species of willow (*Salix* spp.). In addition, various understory herbs may be present, such as saltgrass (*Distichlis spicata*), wild cucumber (*Marah macrocarpus*), mugwort (*Artemisia douglasiana*), stinging nettle (*Urtica dioica*), and poison-oak (County of Riverside 2003). Subcategories of these habitat types within the project area include mule fat scrub, southern cottonwood/willow riparian, and southern sycamore/alder riparian woodland.

3.3.8 Meadows and Marshes

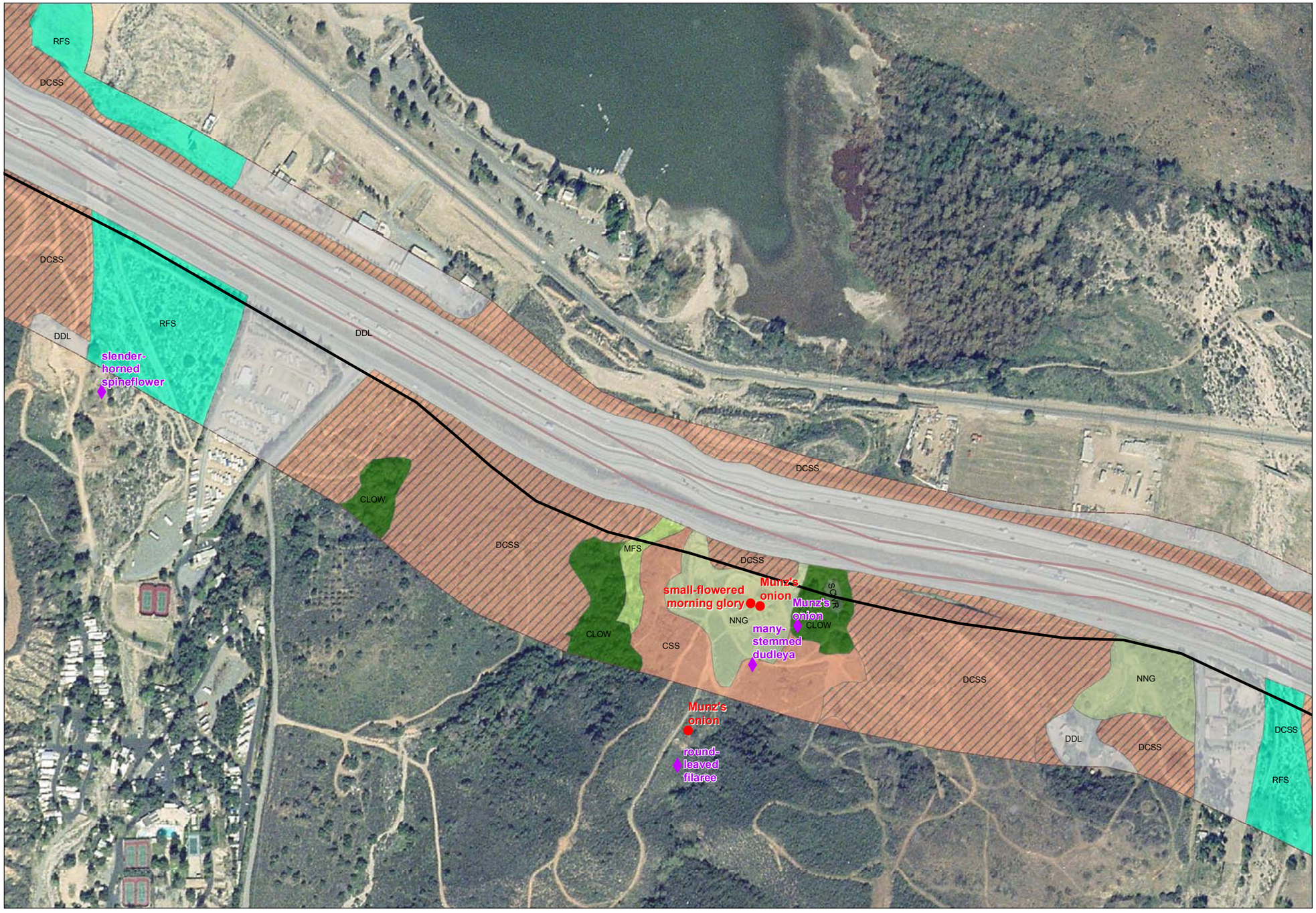
Meadow and marsh vegetation communities occur in both flowing and still water. This vegetation community includes cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), sedges (*Carex* spp.), spike rushes, flatsedges (*Cyperus* spp.), smartweed (*Polygonum* spp.), watercress (*Rorippa* spp.), yerba mansa (*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, such as pennywort (*Hydrocotyle* spp.), water smartweed (*Polygonum amphibium*), pondweeds (*Potamogeton* spp.), and water-parsley (*Oenanthe sarmentosa*) may also be present (County of Riverside 2003).

4.0 RESULTS

4.1 MSHCP Narrow Endemic and Criteria Area Plant Species

Two populations of Munz's onion (Map 32), a MSHCP Narrow Endemic Plant Species, and a population of small-flowered morning glory (*Convolvulus simulans*), a MSHCP Covered Species were identified during surveys conducted in 2006 (AMEC 2006) in association with clay soils along this route (Figure 4). Both populations were revisited during 2007 surveys; the population of small-flowered morning glory was identified within this area; however, Munz' onion was not identified. Entrix, Inc. (2006) additionally identified populations of smooth tarplant and San Diego ambrosia along this route (Figure 5); however, these species were not identified during AMEC's 2006 or 2007 field investigations. No additional MSHCP Narrow Endemic, Criteria Area or other special-status plant species were identified during the botanical surveys of this transmission line route.

Small-flowered morning-glory is restricted to clay soils and serpentine seeps and ridges, occurring below elevations of 700 m in southern valley needlegrass grassland, mixed native and nonnative grasslands and open Riversidian sage scrub (County of Riverside 2003). Small-flowered morning glory is designated as a MSHCP Group 2 species because the species is known from several MSHCP Core Areas and is restricted to particular soils series within the MSHCP area. Although the species has a scattered distribution (Lake Mathews, Alberhill, Santa Rosa Plateau, Murrieta Hot Springs, Vail Lake, Lake Skinner, East Hemet), populations appear to be concentrated in the vicinity of Vail Lake (County of Riverside 2003).



LEGEND

- Sensitive Species (AMEC)
- CNDDB Points (December 2007)

Vegetation Communities

- Coast Live Oak Woodland
- Coastal Sage Scrub
- Disturbed Coastal Sage Scrub
- Mule Fat Scrub
- Non-native Grassland
- Disturbed Non-native Grassland
- Riversidean Alluvial Fan Sage Scrub
- Southern Cottonwood/Willow Riparian
- Residential/Urban/Exotic

Project Data

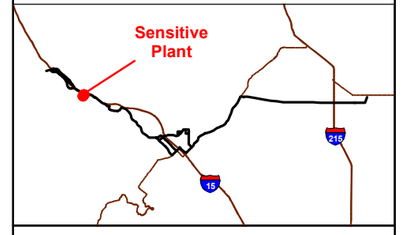
- Preferred Route (Updated on 08/16/2007)
- Survey Boundary

Base Data

Road Classification

- Major Freeways
- Roads

Note:
The small-flowered morning glory was identified in 2006 and 2007; the Munz' onion only in 2006.



MAP NOTE

Data Source:
AMEC - Survey Boundary
RCIP - Riverside MSHCP
SCE - Preferred Route, Base Data

Projection: Stateplane, California 406
NAD 83, Feet
Path: w\sd06\bio\SCE\ivy_glen\mxd\
\focus_survey\plant_survey\plant_1.mxd
Date: 01/14/2008

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

N

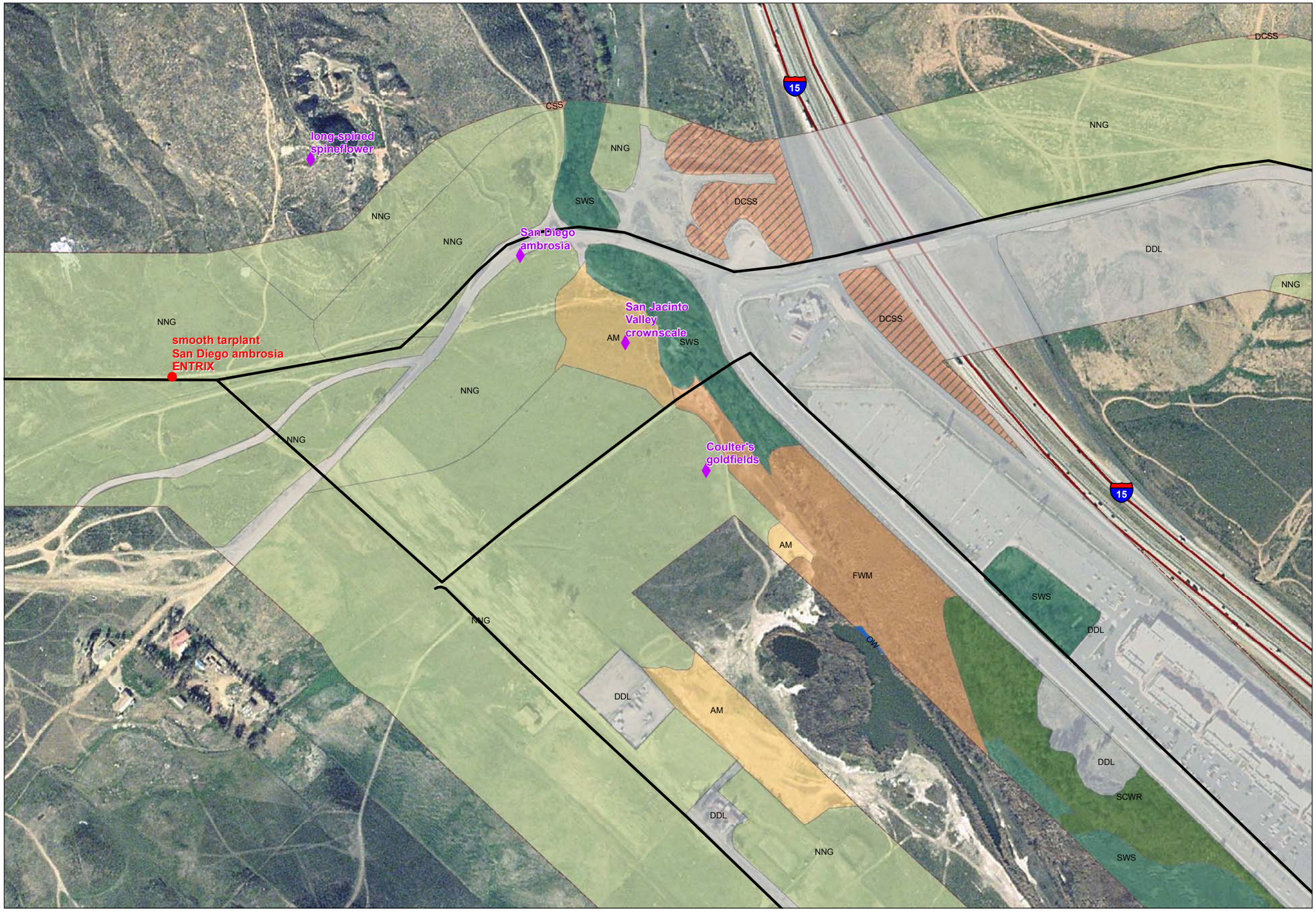
1 inch equals 400 feet

0 200 400 800 Feet

Munz's Onion and Small-Flowered Morning Glory
Valley - Ivyglen Transmission Line Project, California

FIGURE

4



LEGEND

- Sensitive Species (AMEC)
- cnddbpnt

Vegetation Communities

- Alkali Marsh
- Coastal Sage Scrub
- Disturbed Coastal Sage Scrub
- Coastal and Valley Freshwater Marsh
- Non-native Grassland
- Open Water/Reservoir/Pond
- Southern Cottonwood/Willow Riparian
- Southern Willow Scrub
- Residential/Urban/Exotic

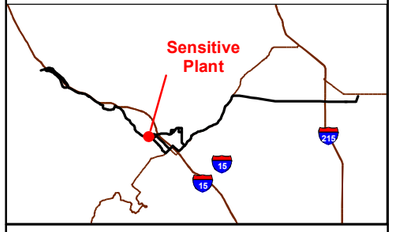
Project Data

- Preferred Route (Updated on 08/16/2007)
- Survey Boundary

Base Data

Road Classification

- Major Freeways
- Roads



MAP NOTE

Data Source:
AMEC - Plant Species Surveyed
SCE - Preferred Route, Base Data

Projection: Stateplane, California 406
NAD 83, Feet
Path: w\sd06\bio\SCE\ivy_glen\mxd\
\focus_survey\plant_survey\plant_2.mxd
Date: 01/14/2008

PROTECTED MATERIALS - Contains Critical Energy Infrastructure Information.

N

1 inch equals 400 feet

0 200 400 800 Feet

Smooth Tarplant and San Diego Ambrosia
Valley - Ivyglen Transmission Line Project, California

FIGURE

5

5.0 RECOMMENDED ADDITIONAL ASSESSMENTS AND SURVEYS

Field surveys of the proposed Valley-Ivyglen Transmission Line Project were conducted during late spring of 2007 (May and June). Additional focused botanical surveys during the spring of 2008 are recommended due to the limited rainfall that was received within the 2006/2007 rain season. These surveys would have to be properly timed to determine the presence or absence of these species with a monthly site visit beginning in March to determine optimal blooming period for peak vegetative analysis.

6.0 REFERENCES

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Appendix A
Plant Species Encountered

Appendix A
Plant Species Encountered

Family	Scientific Name	Common Name	Native/Exotic
Aizoaceae Fig-Marigold			
	Mesembryanthemum nodiflorum	Little Ice Plant	N
	Sesuvium verrucosum	Sea-Purslane	E
Amaranthaceae Amaranth			
	Amaranthus albus	White Tumbleweed	N
	Amaranthus blitoides	Prostrate Amaranth	N
Anacardiaceae Sumac			
	Malosma (Rhus) laurina	Laurel Sumac	N
	Rhus integrifolia	Lemonadeberry	N
	Rhus ovata	Sugar Bush	N
	Schinus molle	Brazilian Pepper Tree	E
	Toxicodendron diversilobum	Poison Oak	N
Apiaceae (Umbelliferae) Carrot			
	Apiastrum angustifolium	Mock Parsley	N
	Daucus pusillus	Wild Carrot	N
	Lomatium utriculatum	Bladder Parsnip	N
Asteraceae (Compositae) Sunflower			
	Ambrosia acanthicarpa	Sand Bur	N
	Ambrosia psilostachya	Western Ragweed	N
	Anthemis cotula	Mayweed	E
	Artemisia californica	California Sagebrush	N
	Artemisia douglasiana	Douglas' Mugwort	N
	Artemisia dracunculus	Tarragon	N
	Baccharis salicifolia	Mule Fat	N
	Baccharis sarothroides	Broom Baccharis	N
	Bebbia juncea	Sweetbrush	N
	Centaurea melitensis	Tocalote	E
	Cnicus benedictus	Blessed Thistle	E
	Conyza canadensis	Horseweed	N
	Conyza coulteri s	Fleabane	E
	Cotula coronopifolia	African Brass Buttons	E

Family	Scientific Name	Common Name	Native/Exotic
	Encelia californica	California Encelia	N
	Encelia farinosa	Brittlebush	N
	Deinandra (Hemizonia) fasciculata	Fascicled Tarplant	N
	Ericameria palmeri var. pachylepis	Box Spring Goldenbush	N
	Erigeron foliosus var. *foliosus*	Leafy Daisy	N
	Eriophyllum confertiflorum	Flat-Topped Goldern Yarrow	N
	Filago californica	Fluffweed	E
	Filago gallica	Narrow Leaf Filago	E
	Gnaphalium californicum	California Everlasting	N
	Gnaphalium luteo-album	Everlasting	E
	Gnaphalium palustre	Lowland Cudweed	N
	Gutierrezia californica	California Matchweed	N
	Hedypnois cretica	Hedypnois	E
	Helianthus annuus	Western Sunflower	N
	Helianthus gracilentis	Slender Sunflower	N
	Heterotheca grandiflora	Telegraph Weed	N
	Iva axillaris	Poverty Weed	N
	Lactuca serriola	Prickly Lettuce	E
	Lepidospartum squamatum	Scale Broom	N
	Lessingia filaginifolia	San Diego Sand Aster	N
	Matricaria globifera	Cattle Bush	E
	Matricaria matricarioides	Pineapple Weed	E
	Osmadenia tenella	Osmadenia	N
	Picris echioides	Bristly Ox-Tongue	E
	Pluchea sericea	Arrow Weed	N
	Rafinesquia sp.	Chickory	N
	Senecio flaccidus	Butterweed	N
	Silybum marianum	Milk Thistle	E
	Sonchus asper	Prickly Sow Thistle	E
	Sonchus oleraceus	Common Sow Thistle	E
	Stephanomeria virgata	San Diego Wreath Plant	N
	Stylocline gnaphalioides	Everlasting Nest Straw	N
	Tetradymia comosa	Cotton-Thorn	N
	Uropappus lindelyi	Silver Puffs	N
	Xanthium strumarium	Cocklebur	N
Boraginaceae Borage			

Family	Scientific Name	Common Name	Native/Exotic
	Heliotropium curassavicum	Salt Heliotrope	N
	Pectocarya linearis	Comb-Bur	N
Brassicaceae (Cruciferae) Mustard			
	Athysanus pusillus	Dwarf Athysanus	N
	Brassica geniculata	Mediterranean Mustard	E
	Brassica rapa	Field Mustard	E
	Capsella bursa-pastoris	Shephard's Purse	E
	Hirschfeldia incana	Short-Pod Mustard	E
	Lepidium nitidum	Peppergrass	E
	Lepidium dictyotum var. dictyotum	Peppergrass	N
	Lepidium latifolium	Broad-Leaved Peppergrass	E
	Raphanus sativus	Wild Radish	E
	Rorippa nasturtium-aquaticum	Watercress	N
	Sisymbrium irio	London Rocket	E
Cactaceae Cactus			
	Cylindropuntia parryi	Cholla	N
	Opuntia ficus-indica	Mission Prickly Pear	E
	Opuntia littoralis	Coastal Prickly Pair	N
Caprifoliaceae Honeysuckle			
	Sambucus mexicana	Blue Elderberry	N
Caryophyllaceae Pink			
	Spergularia bocconii	Boccone's Sandspurry	E
	Spergularia rubra	Ruby Sand Spurry	E
Chenopodiaceae Goosefoot			
	Atriplex argentea	Silverscale Saltbush	N
	Atriplex rosea	Tumbling Oracle	E
	Atriplex semibaccata	Australian Saltbush	E
	Atriplex suberecta	Peregrine Saltbush	E
	Bassia hyssopifolia	Fivehook	E
	Chenopodium californicum	California Pigweed	N
	Chenopodium murale	Nettle-Leaved Goosefoot	E
	Chenopodium pumili	Clammy Goosefoot	E

Family	Scientific Name	Common Name	Native/Exotic
	Salsola tragus	Russian Thistle	E
Convolvulaceae Morning Glory			
	Calystegia macrostegia	Morning Glory	N
	Convolvulus arvensis	Field Bindweed	E
	Convolvulus simulans	Small-Flowered Bindweed	N CNPS list 4.2/MSHCP
	Cressa truxillensis	Alkali Weed	N
Cuscutaceae Dodder			
	Cuscuta californica	California Dodder	N
	Cuscuta salina	Salt Marsh Dodder	N
Crassulaceae Stonecrop			
	Crassula connata	Sand Pygmyweed	N
	Dudleya lanceolata	Live-Forever	N
	Dudleya pulverulenta	Chalk Live-Forever	N
Cyperaceae Sedge			
	Carex sp.	Sedge	N
	Cyperus eragrostis	Tall Flatsedge	N
	Cyperus	Bearded	N
	Eleocharis macrostachya	Common Spikerush	N
	Scirpus acutus	Hardstem Bulrush	N
	Scirpus californicus	California Bulrush	N
Euphorbiaceae Spurge			
	Croton californicus	California Croton	N
	Chamaesyce albomarginata	Rattlesnake Weed	N
	Chamaesyce polycarpa	Ground Spurge	N
	Eremocarpus setiger	Doveweed	N
	Ricinus communis	Castor Bean	E
	Stillingia linearifolia	Linear-Leaf Stillingia	N
Fabaceae (Leguminosae) Pea			
	Astragalus pomonensis	Pomona Rattleweed	N
	Lotus hamatus	Small-Flowered Lotus	N

Family	Scientific Name	Common Name	Native/Exotic
	Lotus purshianus	Spanish Clover	N
	Lotus salsuginosus	Alkali Lotus	N
	Lotus scoparius ssp. *brevialatus*	Deerweed	N
	Lotus strigosus	Strigose Bird's Foot Treifoil	N
	Lupinus bicolor	Miniature Lotus	N
	Lupinus excubitus	Grape Soda Lupine	N
	Lupinus succulentus	Collar Lupine	N
	Medicago polymorpha	Bur-Clover	E
	Parkinsonia aculeata	Mexican Palo Verde	E
	Trifolium obtusiflorum	Clammy Clover	N
	Vicia benghalensis	Purple Vetch	E
Fagaceae Oak			
	Quercus agrifolia var. agrifolia	Coast Live Oak	N
	Quercus berberidifolia	Scrub Oak	N
Frankeniaceae Frankenia			
	Frankenia salina	Alkali Heath	N
Gentianaceae Gentian			
	Centaurium venustum	Canchalagua	N
Geraniaceae Geranium			
	Erodium botrys	Long-Beak Filaree	E
	Erodium cicutarium	Red-Stem Filaree	E
Hydrophyllaceae Waterleaf			
	Phacelia distans	Wild Heliotrope	N
	Phacelia minor	California Bluebells	N
	Phacelia ramosissima var. *latifolia*	Branching Phacelia	N
Juncaceae Rush			
	Juncus bufonius	Toad Rush	N
	Juncus mexicanus	Mexican Rush	N
Lamiaceae (Labiatae) Mint			
	Lamium ampexicaule	Henbit	E

Family	Scientific Name	Common Name	Native/Exotic
	Marrubium vulgare	Horehound	E
	Robinia sp.	Black Locust	E
	Salvia apiana	Cleveland Sedg	N
	Salvia mellifera	Black Sage	N
	Stachys ajugoides	Hedge Nettle	N
Liliaceae Lily			
	Chlorogalum parviflorum	Small Flower Soap Plant	N
Lythraceae Loosestrife			
	Lythrum californicum	California Loosestrife	N
	Lythrum hyssopifolia	Grass Poly	E
Malvaceae Mallow			
	Malacothamnus fasciculatus	Bush Mallow	N
	Malva parviflora	Cheeseweed	E
	Malvella leprosa	Alkali Mallow	N
Onagraceae Evening Primrose			
	Camissonia bistorta	Southern Sun Cup	N
	Camissonia californica	False Mustard	N
	Epilobium ciliatum	Willow Herb	N
Papaveraceae Poppy			
	Eschscholzia californica	California Poppy	N
	Romneya coulteri	Matilija Poppy	N
Plantaginaceae Plantain			
	Plantago erecta	California Plantain	N
	Plantago lanceolata	Narrow-Leaf Plantain	E
	Plantago major	Plantain	E
Platanaceae Plane Tree			
	Platanus racemosa	Western Sycamore	N
Poaceae (Gramineae) Grass			
	Arundo donax	Giant Reed	E

Family	Scientific Name	Common Name	Native/Exotic
	Avena fatua	Wild Oat	E
	Bromus catharticus	Rescue Grass	E
	Bromus diandrus	Ripgut Grass	E
	Bromus hordeaceus	Soft Chess	E
	Bromus madritensis ssp. rubens	Red Brome	E
	Distichlis spicata	Saltgrass	N
	Elymus condensatus	Giant Wild Rye	N
	Hordeum marinum	Mediterranean Barley	E
	Lolium multiflorum	Italian Ryegrass	E
	Lolium perenne	Perennial Ryegrass	E
	Phalaris paradoxa	Canary Grass	E
	Polypogon monspeliensis	Rabbitfoot Grass	E
	Bromus	Ripgut	E
	Bromus	Ripgut	E
Polygonaceae Buckwheat			
	Chorizanthe staticoides	Turkish Rugging	N
	Eriogonum elongatum	Long-Stemmed Eriogonum	N
	Eriogonum fasciculatum var. *foliolosum*	Leafy Buckwheat	N
	Eriogonum gracile	Slender Buckwheat	N
	Polygonum aviculare	Prostrate Knotweed	E
	Rumex crispus	Curly Dock	E
	Rumex salicifolius	Willow-Leaved Dock	N
Portulaceae Purslane			
	Anagallis arvensis	Scarlet Pimpernel	E
Primulaceae Primrose			
	Ceanothus crassifolius	Hoaryleaf Ceanothus	N
	Rhamnus crocea	Red-Berry	N
Rosaceae Rose			
	Adenostoma fasciculatum	Chamise	N
Salicaceae Willow			
	Salix gooddingii	Goodding's Willow	N

Family	Scientific Name	Common Name	Native/Exotic
Scrophulariaceae Figwort			
	Keckiella antirrhinoides	Chaparral Beard-Tongue	N
	Mimulus brevipes	Hillside Monkeyflower	N
	Mimulus cardinalis	Scarlet Monkeyflower	N
	Mimulus guttatus	Common-Monkey Flower	N
Selaginellaceae Spike Moss Fmily			
	Selaginella bigelovii	Bigelow's Spikemoss	N
Simaroubaceae Quassia			
	Ailanthus altissima	Tree Of Heaven	E
Solanaceae Nightshade Family			
	Datura wrightii	Jimson Weed	N
	Nicotiana quadrivalvis	Indian Tobacco	E
	Solanum douglasii	White Nightshade	N
Saururaceae Lizard-Tail			
	Anemopsis californica	Yerba Mansa	N
Urticaceae Nettle			
	Urtica dioica	Stinging Nettle	N
Verbenaceae Vervain			
	Verbena lasiostachys	Weedy Verbena	N