Dudek and Associates, Inc., "2004 Sensitive Plant Survey Results for the Entrada Site, Los Angeles County, California" (October 2004; 2004H)

2004 Sensitive Plant Survey Results

Entrada

Los Angeles County, California

OCTOBER 2004

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for the

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1.0 INTRODUCTION

The purpose of this report is to document the results of surveys for sensitive plant species within the 550-acre Entrada Site for the 2004 field season. Surveys placed an equal emphasis on the identification of populations of the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina;* SFVS) and other sensitive plant species.

2.0 SITE DESCRIPTION

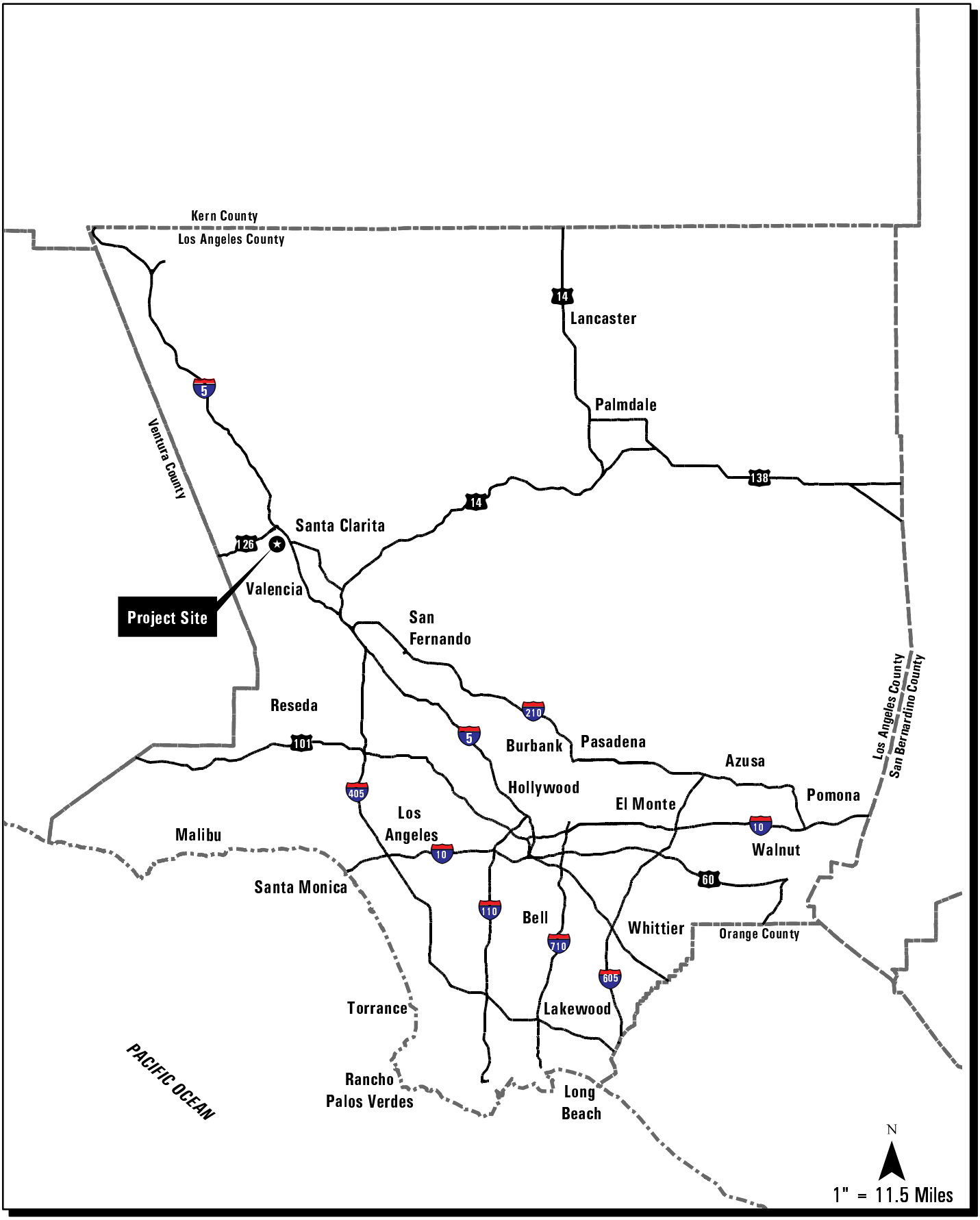
The 550-acre Entrada site is located in an unincorporated portion of the Santa Clara River Valley in northwestern Los Angeles County (*Figure 1*). The Entrada site lies just west of Interstate 5 (I-5) and south of the Santa Clara River. The City of Santa Clarita is immediately east of the project site on the other side of I-5 (*Figure 2*).

The southern portion of the Entrada site is dominated by several north/south trending ridges. A narrow panhandle (roughly 100 meters wide) extends along the western portion of the site to an agricultural field adjacent to the Santa Clara River. The northeastern portion of the site contains a large agricultural field with fragments of relictual oak woodlands and California sagebrush and California buckwheat scrub. Site elevations range from approximately 1,000 feet above mean sea level (AMSL) along the Santa Clara River to approximately 1,550 feet AMSL on the ridges in the southwestern portion of the site (*Figure 2*).

Slope gradients range from moderate to very steep in the hillside areas to very gentle adjacent to the Santa Clara River, tributary canyons and associated mesas. Distinctive geographic features include the north/south trending ridges on the southern portion of the site; a wash that drains north through the site to a concrete-lined drainage channel that passes through the Six Flags Amusement Park; and the Santa Clara River on the northwestern portion of the site.

2.1 Plant Communities and Land Covers

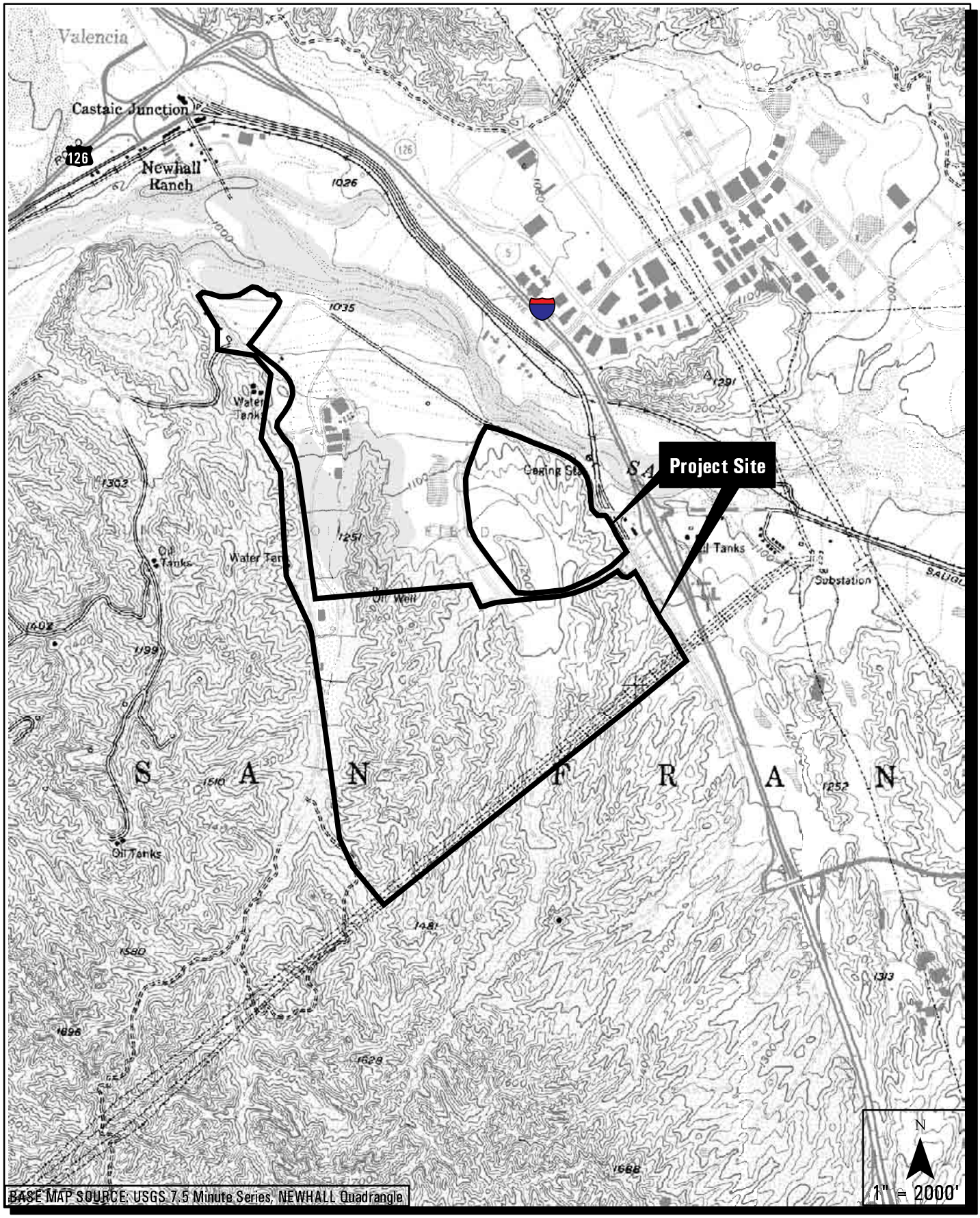
Native and naturalized habitats within the Entrada site are representative of those found in this region and provide examples of those plant communities found in the Santa Susana Mountains and the Santa Clara River ecosystems. California sagebrush, California



Entrada

Regional Map

FIGURE 1



Entrada

Vicinity Map

FIGURE 2

buckwheat, purple sage, big sagebrush, chamise and mixed chaparrals, Valley oak, and California grasslands series are the major upland plant communities on the site. Ephemeral drainages onsite provide habitat for alluvial habitats including big sagebrush series and scalebroom series. The northeast portion of the site includes an agriculture field with some intact upland habitats. While upland habitats dominate the landscape within the site, the Santa Clara River is immediately adjacent to it and supports a variety of riparian plant communities. These include Fremont cottonwood, arroyo willow, black willow, mule fat, arrow weed, and cattail series.

The Newhall Land and Farming Company leases out portions of the site for oil and natural gas production, as well as for cattle grazing and agricultural operations. Grazing activities have had a noticeable effect on much of the natural habitat onsite. Scrub habitats have been displaced by non-native grasslands, apparently as a result of grazing. Southern California Edison and Southern California Gas Company have transmission lines within easements along the southern portion of the site as well. The easements/ transmission lines are actively maintained.

2.2 Geology and Soils

Geologically, the site is located within the Transverse Range geomorphic province of southern California in the eastern portion of the Ventura depositional basin. This basin "was produced by tectonic downwarping in the geologic past to produce a large-scale synclinal structure in which a thick sequence of Cenozoic sediments has accumulated. These sediments have been lithified into a sequence of sedimentary rock that has subsequently been uplifted, tilted, and tectonically deformed (Allan E. Seward 2002, 2004)." They are cut by segments of the Del Valle and Salt Creek faults. Bedrock formations found in the area include the Modelo, Towsley, Pico, Saugus, and Pacoima formations, as well as Quaternary Terrace deposits. Surficial deposits include Quaternary alluvium, slopewash, soil, and artificial fill (Allan E. Seward 2002, 2004).

3.0 METHODS AND SURVEY LIMITATIONS

Data regarding botanical resources present on the project site were obtained through a review of the pertinent literature; field reconnaissance; and focused surveys for sensitive species, all of which are described below.

2004 Sensitive Plant Survey Results
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3.1 Literature Review

General floristic and sensitive botanical resources present or potentially present on the Entrada site were identified through a literature search using the following sources: the California Natural Diversity Database for the Newhall Santa Susana, Oat Mountain, Mint Canyon, San Fernando, Green Valley, Warm Springs Mountain, Whitaker Peak, Cobblestone Mountain, Piru, Simi, Thousand Oaks, and Val Verde quadrangle maps (CDFG 2004b); 2002 and 2003 Sensitive Plant Survey Results for Newhall Ranch Specific Plan Area (Dudek 2002, 2004a); 2003 Sensitive Plant Survey Results for Valencia Commerce Center, Castaic Mesa, Isola and Ventura Homestead Sites, Magic Mountain Entertainment Center (Entrada) Site, Castaic Junction Site, and Salt Creek (Dudek 2004b-g); ***Biological Resource Assessment of the Proposed Santa Susana Mountains/Simi Hills Significant Ecological Area*** (PCR, November 2000); CalFlora (University of California, Berkeley, May 2002); U.S. Fish and Wildlife Service (USFWS 1999); California Department of Fish and Game (CDFG 2002); ***Inventory of Rare and Endangered Plants of California*** (CNPS 2001); ***Vascular Flora of the Liebre Mountains, Western Transverse Ranges, California*** (Boyd 1999); ***Checklist of Rare Ventura County Plant Species*** (Magney 2002); ***A Flora of the Santa Barbara Region, California*** (Smith 1976); ***A Flora of the Santa Monica Mountains*** (Raven ***et al.*** 1986); ***Biology of the San Fernando Valley Spineflower, Ahmanson Ranch, Ventura County, California*** (Glenn Lukos Associates, Inc. and Sapphos Environmental, Inc. 2000); ***Report to the Fish and Game Commission on the Status of San Fernando Valley Spineflower*** (CDFG 2001); ***Biota Report, Newhall Ranch Specific Plan*** (RECON and Impact Sciences, Inc. 1996); and herbarium specimens from Rancho Santa Ana Botanic Garden (RSA) and the University of California, Riverside (UCR) Herbarium. General information regarding vegetation communities was obtained from Holland (1986) and Sawyer and Keeler-Wolf (1995). Plant species nomenclature follows Hickman (1993).

3.2 Field Reconnaissance Methods

Botanical surveys for sensitive plant species were conducted by Dudek & Associates, Inc. (Dudek) staff biologists Megan Enright, Vipul Joshi, Michelle Balk, Dave Flietner and Doug Gettinger; and FL*x* sub-consultants Nathan Gale and Anuja Parikh. All surveys were conducted on-foot. Resumes for survey personnel are provided in ***Appendix A.***

Botanical surveys of the site were conducted in April and August (for a brief follow-up) of 2004 in accordance with the schedule provided in ***Table 1***. Approximately 165 person-hours (16.5 person-days) were spent conducting botanical surveys within the study area. Surveys were conducted in teams of two or more biologists, with at least one senior-level

biologist included with each team. Biologists were able to observe reference populations of the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*; SFVS) and other sensitive plant species in order to develop a search-image prior to conducting surveys of the project site. Surveys focused on the identification and location of all federally- and state-listed (including SFVS), proposed for listing, and candidate species and California Native Plant Society (CNPS) List 1A, 1B, and 2 species (see the list of target species in *Table 2*).

TABLE 1
SURVEY SCHEDULE AND PERSONNEL
ENTRADA SITE

Date	Biologists	Purpose
4-14-04	Megan Enright, Dave Flietner, Michelle Balk, Doug Gettinger	Focused survey for SFVS and other sensitive plant species
4-15-04	Megan Enright, Dave Flietner, Michelle Balk, Doug Gettinger	Focused survey for SFVS and other sensitive plant species
4-16-03	Megan Enright, Dave Flietner, Michelle Balk, Doug Gettinger	Focused survey for SFVS and other sensitive plant species
4-20-04	Vipul Joshi	Focused survey for SFVS and other sensitive plant species
4-21-04	Vipul Joshi	Focused survey for SFVS and other sensitive plant species
4-24-04	FLx	Focused survey for SFVS and other sensitive plant species
8-19-04	Michelle Balk	Focused survey for SFVS and other sensitive plant species

TABLE 2
SENSITIVE PLANT SPECIES SUBJECT OF FIELD SURVEYS

Scientific Name	Common Name
Arenaria paludicola	marsh sandwort
Astragalus brauntonii	Braunton's milk-vetch
Atriplex coulteri	Coulter's saltbush
Atriplex serenana var. *davidsonii*	Davidson's saltscale
Baccharis malibuensis	Malibu baccharis
Berberis nevinii	Nevin's barberry
Brodiaea filifolia	thread-leaved brodiaea
Calochortus clavatus var. *gracilis*	slender mariposa lily
Calochortus plummerae	Plummer's mariposa lily
Calochortus weedii var. *vestus*	late-flowered mariposa lily
Calystegia peirsonii	Peirson's morning-glory
Calystegia sepium ssp. *binghamiae*	Santa Barbara morning-glory
Centromadia [=*Hemizonia*] *parryi* ssp. *australis*	southern tarplant
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower
Deinandra [=*Hemizonia*] *minthornii*	Santa Susana tarplant
Dodecahema leptocerus	slender-horned spineflower

TABLE 2
SENSITIVE PLANT SPECIES SUBJECT OF FIELD SURVEYS

Scientific Name	Common Name
Dudleya blochmaniae var. *blochmaniae*	Blochman's dudleya
Dudleya cymosa ssp. *marcescens*	marcescent dudleya
Dudleya cymosa ssp. *ovatifolia*	Santa Monica Mountains dudleya
Dudleya multicaulis	many-stemmed dudleya
Dudleya parva	Conejo dudleya
Erodium macrophyllum	round-leaved filaree
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower
Horkelia cuneata var. *puberula*	mesa horkelia
Malacothamnus davidsonii	Davidson's bush mallow
Nama stenocarpum	mud nama
Nolina cismontane	chaparral nolina
Opuntia basilaris var. *brachyclada*	short-joint beavertail
Pentachaeta lyonii	Lyon's pentachaeta
Rorippa gambelii	Gambel's water cress
Senecio aphanactis	rayless ragwort
Sidalcea neomexicana	salt spring checkerbloom
Thelypteris puberula var. *sonorensis*	Sonoran maiden fern

All plant species encountered during the field surveys were identified and recorded for inclusion in *Appendix B*. A majority of the species encountered was vouchered and will be reposited at the herbarium at the University of California, Riverside. Latin and common names of plants follow *The Jepson Manual* (Hickman 1993) or other recent published taxonomic treatments. Where not listed in Hickman (1993), common names were taken from Abrams (1923). Where not found in this reference, a variety of sources were used (*e.g.*, Dale 1986, or Roberts 1998).

Surveys for the sensitive plant species listed in *Table 2* were conducted based upon: **(1)** the habitat preference, habit, and phenology for each species; **(2)** professional experience; and **(3)** any other additional information gathered from those sources discussed in *Section 3.1* above. Surveys for SFVS were focused in open areas of California sagebrush-purple sage, California buckwheat, California sagebrush and California annual grassland series (Sawyer and Keeler-Wolf 1995) on ridgelines, slopes, and escarpments with a southern, southwestern, or southeastern exposure. This strategy was based on information gathered during the documentation of SFVS populations flagged by CDFG; information gathered during past surveys by Dudek for SFVS populations on the Newhall Ranch project site (Dudek 2002, 2004a) and adjacent project sites (Dudek 2004b-g);

information contained in the report prepared by Glenn Lukos Associates, Inc. and Sapphos Environmental, Inc. (2000); the status report prepared for the Fish and Game Commission (CDFG 2000); and conversations with Rick Reifner, the botanist who re-discovered SFVS at Ahmanson Ranch in 1999.

While surveying in the field and mapping SFVS, a four-meter (m) rule was used to separate polygons for mapping purposes. This distance is a heuristic mapping tool based on the topography, vegetation, detectability of the plants, the general accuracy of the GPS, and time constraints. This heuristic criterion is not specifically tied to SFVS biology (*i.e.*, reproductive biology, seed dispersal) and thus is not intended to reflect reproductively isolated sub-populations, the total extent of the SVFS seed bank, or any other feature of the species life history.

The outer perimeter of each spineflower polygon was searched in one continuous direction until returning to the starting point, with plants being located within at least every one to four m along the boundary, and points were stored with a Trimble GPS (that has sub-meter accuracy) manually to form the boundaries of the polygon. GPS points were taken within at least every one to four m. The various spineflower polygons were given a unique identifier (*i.e.*, numbers and/or letters) in the field. Field data sheets were completed for each of the spineflower polygons that include data on site conditions (*i.e.*, plant number estimates, associated species). Polygons were analyzed in the lab and delineated based on a four m minimum convex polygon rule (all polygons within four m of each other will be joined using GIS software (*e.g.*, ArcGIS, AutoCAD), then delineated as one polygon with the outer boundary represented by a minimum convex polygon.

A modified magnitude scale was used to arrive at an estimate of the number of spineflower individuals (or other sensitive species when observed) within each polygon. After mapping the boundaries of the polygon, the number of individuals were counted/estimated in a rectangular "sample estimation area" (to account for the "clumped" nature of this species), which is a subset of the total polygon. The sample estimation area was between 200 centimeter^2 (cm^2)(10 by 20 cm) and two m^2 (one m by two m) depending on various factors regarding the polygon (*e.g.*, size of the polygon, plant densities, variations in plant densities within the polygon). The number of subsets within the total polygon was determined and added/multiplied, resulting in a total estimate of the number of individuals of the polygon (*e.g.*, 4x125=500, 8x12=96, 9x100=900). This number was then rounded to the nearest magnitude or multiple of a magnitude (*e.g.*, 500; 100; 1,000).

Polygons for other sensitive species were mapped with the GPS unit, by drawing polygons directly onto a 200-scale (1"=200') topographic map overlaid onto an aerial photograph (Psomas 2003, 2004), or by a combination of the two. Professional judgment and experience were used to delineate these polygons based on the detectability of the species, topography, and vegetation. Perennial sensitive plants were mapped at a 10 to 20 m scale due to their population dynamics (including seed dispersal and pollination range), observability, habit, habitat limitations, and mapping accuracy. Information regarding the mapping for each sensitive species is included in the sections below (*Sections 4.2.1* through *4.2.7*).

3.2.1 Sensitive Plant Species

Sensitive plant species are those species that have been given special recognition by federal, state, or local conservation agencies and organizations due to limited, declining, or threatened population sizes. This includes those species listed by the state and federal government as threatened or endangered, those species proposed for state and/or federal listing or candidates, those plant species found on Lists 1A, 1B or 2 of the CNPS *Inventory of Rare and Endangered Plants of California* (CNPS 2001; *Inventory*), and those plant species which are found on the list of "Threatened and Endangered Species and Species of Concern, Los Angeles County" (http://www.losangelesalmanac.com/topics/Environment/ev14b.htm). CNPS List 3 or List 4 species were included in discussions only when incidentally encountered during the field surveys.

3.2.2 Survey Limitations

Surveys were conducted in the late spring and early summer of 2004. Surveys were conducted during a year with a less-than-average (Western Regional Climate Center 2004) amount of rainfall. Therefore, the survey conditions were not optimal for determining the diversity of species (including sensitive plants) onsite or mapping their presence, abundance, and distributions more accurately (when necessary). The timing of the surveys was coincident with the blooming period for SFVS and other early blooming annual species. This maximized the potential for detection of SFVS during the survey effort.

Focused surveys were directed towards the detection of sensitive species, particularly those identified in *Table 2*. Surveys for SFVS and other sensitive species were concentrated in areas of suitable habitat. Surveys for SFVS were concentrated on south-facing slopes, while surveys for slender mariposa lily (*Calochortus clavatus* var. *gracilis*) were

concentrated on north-facing slopes. All surveys were conducted during daylight hours under weather conditions which did not preclude observation of sensitive plant species (*e.g.*, surveys were not conducted during heavy fog or rain).

4.0 RESULTS OF SURVEYS

4.1 Botany - Floral Diversity

The site is situated at the nexus of the Transverse, Coast, and Sierra Nevada ranges; the Mojave Desert; and coastal plains (Hickman 1993). Ecotone areas such as this are often characterized by higher biological diversity than similar-sized areas within the core of a physiographic region (Boyd 1999). As such, a high diversity of plant species is expected during a year of at least average rainfall amounts for the area.

A total of 351 plant species were identified within the Entrada site. Of these, 265 species (75%) are native to the region and 86 species (25%) are non-native. The cumulative list of plant species identified on the site in 2002, 2003, and 2004 is provided as *Appendix B*.

4.2 Sensitive Plant Species

Sensitive plant species observed within the study area during the course of our 2004 surveys include: San Fernando Valley spineflower, slender mariposa lily, Coulter's goldfields *(Lasthenia glabrata* ssp. c*oulteri*), Peirson's morning glory *(Calystegia peirsonii*), southern California black walnut and island mountain-mahogany *(Cercocarpus betuloides* var. *blancheae*). These and other sensitive species that have the potential to occur on the Entrada site, based on the presence of suitable habitat and soils, are listed in ***Table 3.*** This list is confined primarily to those species listed by the state and federal government as threatened or endangered, those species proposed for state and/or federal listing or candidates, those plant species found on Lists 1A, 1B, or 2 of the CNPS *Inventory of Rare Endangered Plants of California* (CNPS 2001).

TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING AT THE ENTRADA SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
Arenaria paludicola	marsh sandwort	FE/SE	1B	dense freshwater marsh/perennial herb/May-August	Not observed during 2004 field season, however, entire site not surveyed. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrences are in the Santa Ana River and in Santa Barbara. Limited suitable habitat onsite; very low likelihood of occurrence within the study area.
Astragalus brauntonii	Braunton's milk-vetch	FE/None	1B	chaparral, coastal sage scrub, grasslands; often on carbonate substrates/perennial herb/March-July	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrence is in the Simi Hills. Suitable habitat exists onsite. Moderate likelihood of occurrence within study area.
Atriplex coulteri	Coulter's saltbush	None/None	1B	coastal sage scrub and grasslands on alkaline or clay substrate/perennial herb/March-October	Not observed during 2004 field season, however, entire site not surveyed. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists onsite. Moderate likelihood of occurrence within study area.
Atriplex serenana var. davidsonii	Davidson's saltscale	None/None	1B	coastal bluff scrub and coastal sage scrub on alkaline substrate/annual herb/May-October	Not observed during 2004 field season, however, entire site not surveyed. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists onsite. Low likelihood of occurrence within the study area.
Baccharis malibuensis	Malibu baccharis	None/None	1B	chaparral, coastal sage scrub, cismontane woodland/deciduous shrub/August	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; closest known populations are in the western Santa Monica Mountains near Malibu. Not expected to occur within the study area.
Berberis nevinii	Nevin's barberry	FE/SE	1B	chaparral, coastal sage scrub, riparian scrub, cismontane woodland on sandy or gravelly substrate/evergreen shrub/March-April	Not observed during 2004 field season. CNDDB records exist for San Francisquito Canyon at confluence with Santa Clara River; suitable habitat present onsite. Moderate likelihood of occurrence within study area.

TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING AT THE ENTRADA SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
Brodiaea filifolia	thread-leaved Brodiaea	FT/SE	1B	clay substrate openings in chaparral, sage scrub, and grasslands/perennial herb (geophyte)/March-June	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrence is in San Dimas. Suitable habitat present onsite. Low likelihood of occurrence within study area.
Calachortus catalinae	Catalina mariposa lily	None/None	4	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/ perennial herb (geophyte)/ February-May	Not observed during 2004 field season. In 2002, a *Calochortus* species with a wide seed capsule and a mebranaceous bulb coat was observed onsite that was *likely C. catalinae*. A search of this area in 2004 only revealed *C. venustus* and *C. clavatus* var. *gracilis*. Low to moderate to high likelihood of occurrence in study area.
Calochortus clavatus var. gracilis	slender mariposa lily	None/None	1B	chaparral and coastal sage scrub/perennial herb (geophyte)/March-May	Observed 73 polygons predominantly on steep, north-facing slopes in California sagebrush throughout the study area. Overall onsite population estimate is 419 individuals within occurrence polygons covering 4.0 acres of the site. CNDDB records for mouth of Pico Canyon.
Calochortus plummerae	Plummer's mariposa lily	None/None	1B	chaparral, coastal sage scrub, cismontane woodland, grasslands on rocky granitic substrate/perennial herb (geophyte)/May-July	Not observed during 2004 field season. A *Calochortus* species with narrow seed capsules and a fibrous bulb coat was observed onsite in 2002, but could not be confirmed as *C. plummerae*. A search of this area in 2004 only revealed *C. venustus*. Moderate likelihood of occurrence within study area.
Calochortus weedii var. vestus	late-flowered mariposa lily	None/None	1B	chaparral, cismontane & riparian woodland/perennial herb (geophyte)/ June-August	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, habitat similar to where species occurs in eastern Ventura County is present onsite. likelihood of occurrence within study area. Moderate

TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING AT THE ENTRADA SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
Calystegia peirsonii	Pierson's morning-glory	None/None	4	Chaparral, coastal sage scrub, cismontane woodland, grassland/ perennial herb/ May-June	Observed in chaparral and California sagebrush throughout the survey area.
Calystegia sepium ssp. Binghamiae	Santa Barbara morning-glory	None/None	1A	marshes and swamps/perennial herb/ April-May	Not observed during 2004 field season, however, entire site not surveyed. No CNDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present onsite. Low likelihood of occurrence within study area.
Centromadia [=Hemizonia] parryi ssp. Australis	southern tarplant	None/None	1B	mesic edges of marshes in grasslands/annual herb/May-November	Not observed during 2004 field season, however, entire site not surveyed. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists onsite. Low likelihood of occurrence within study area.
Cercocarpus betuloides var. blancheae	island mountain-mahogany	None/None	4	Chaparral, closed-cone coniferous forest/ evergreen shrub/ February-May	Observed in mixed chaparral in the study area.
Chorizanthe parryi var. fernandina	San Fernando Valley spineflower	FC/SE	1B	coastal sage scrub, sandy soils/annual herb/April-June	Observed 26 polygons in the southeastern, central, and western portions of the site. Total onsite population estimate is 45,733 individuals within occurrence polygons covering 0.5 acres of the site.
Deinandra [=Hemizonia] minthornii	Santa Susana tarplant	None/SR	1B	chaparral and coastal sage scrub on rocky substrate/deciduous shrub/July-November	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, records exist for the Simi Hills and Oat Mountain. Suitable habitat exists onsite. Low likelihood of occurrence within study area.
Delphinium parryi ssp. Blochmaniae	dune larkspur	None/None	1B	maritime chaparral, coastal dunes/ perennial herb/ April-may	Not observed during the 2004 field season. Not expected to occur.
Dodecahema leptoceras	slender-horned spineflower	FE/SE	1B	alluvial scrub on sandy substrate/ annual herb/April-June	Not observed during 2004 field season. Historic CNDDB records exist for the Newhall or Val Verde quads in alluvial habitat similar to those present onsite. Moderate to high likelihood of occurrence onsite.

TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING AT THE ENTRADA SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
Dudleya blochmaniae var. blochmaniae	Blochman's Dudleya	None/None	1B	clay openings in chaparral and coastal sage scrub, grasslands/perennial herb/April-June	Not observed during 2004field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat present onsite. Low to moderate likelihood of occurrence within study area.
Dudleya cymosa ssp. Marcescens	marcescent Dudleya	FT/CR	1B	chaparral, often on volcanic substrate/perennial herb (geophyte)/ April-June	Not observed during 2004field season. No CNDDB records exist for Newhall and Val Verde quads. Low likelihood of occurrence within study area.
Dudleya cymosa ssp. Ovatifolia	Santa Monica Mountains Dudleya	FT/None	1B	chaparral and coastal sage scrub, often on volcanic substrate/perennial herb (geophyte)/April-June	Not observed during 2004field season. No CNDDB records exist for Newhall and Val Verde quads. Suitable habitat present onsite. Low likelihood of occurrence within study area.
Dudleya multicaulis	many-stemmed Dudleya	None/None	1B	coastal bluff scrub, coastal sage scrub, valley and foothill grassland, rocky, often clay substrate/perennial herb/ April-June	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; closest known occurrences are in Calabasas and San Dimas. Suitable habitat exists onsite. Low to moderate likelihood of occurrence within study area.
Dudleya parva	Conejo Dudleya	FT/None	1B	coastal sage scrub and grassland on rocky, gravelly clays/perennial herb/May-June	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists onsite. Low to moderate likelihood of occurrence within study area.
Erodium macrophyllum	round-leaved filaree	None/None	2	cismontane woodland and grasslands on clay substrate/annual herb/March-May	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, records exist for Simi Valley and this plant was observed in the hills east of Castaic Lake in 2003. Suitable habitat present onsite; moderate likelihood of occurrence in study area.

TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING AT THE ENTRADA SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
Helianthus nuttallii ssp. Parishii	Los Angeles sunflower	None/None	1A	marshes and swamps/perennial herb/ August-October	Not observed within study area during 2004 field season. *Helianthus* population, discovered in 2002 at Castaic Spring, on the south side of the Santa Clara River between Middle Canyon and San Jose Flats, was determined by some experts to be this species, but determined by other experts not to be this species. Based on pollen electron microscopy and chromosome counts, it is likely that the Newhall *Helianthus* species is a hybrid between *H. nuttallii* and *H. californicus* or an intermediate evolutionary step between the two species (Porter and Fraga 2004). No suitable habitat observed in study area.
Horkelia cuneata var. puberula	Mesa horkelia	None/None	1B	chaparral, cismontane woodland, coastal sage scrub on sandy or gravelly substrate/perennial herb/February-December	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat present onsite. Low likelihood of occurrence within study area.
Lasthenia glabrata ssp. Coulteri	Coulter's goldfields	None/None	1B	Marshes, swamps, plays, vernal pools/ annual herb/ February-June	Observed as a component of an erosion control seed mix applied along dirt roads associated with the gas and power transmission line easement running the southeastern edge of the study area. These plants are growing in conditions outside the natural habitat for this species.
Malacothamnus davidsonii	Davidson's bush mallow	None/None	1B	chaparral, coastal sage scrub, riparian woodland/ deciduous scrub/June-January	Not observed during 2004 field season. Nearest occurrences are in Van Nuys and Sunland quads. Suitable habitat present onsite. Moderate likelihood of occurrence within study area.

TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING AT THE ENTRADA SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
Nama stenocarpum	mud nama	None/None	2	edges of lakes, rivers, ponds, vernal pools/annual/January-July	Not observed during 2004 field season, however, entire site not surveyed. Moderate likelihood of occurrence on banks of Santa Clara River and other mesic areas onsite. No CNDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present onsite. Low likelihood of occurrence within study area.
Nolina cismontane	chaparral nolina	None/None	1B	chaparral, coastal sage scrub on sandstone or gabbro substrate/ perennial shrub/May-July	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present onsite. Low likelihood of occurrence within study area.
Opuntia basilaris var. brachyclada	short-joint beavertail	None/None	1B	chaparral, Joshua tree woodland, Mojavean desert scrub/succulent shrub/ April-June	This variety was identified onsite by Dudek in 2002; however, recent investigations indicate that these plants are not consistent with *Opuntia basilaris var. brachyclada*. Therefore, *O. basilaris* plants were not mapped during surveys of the study area in 2004.
Pentachaeta lyonii	Lyon's pentachaeta	FE/SE	1B	openings in chaparral and coastal sage scrub, grasslands/annual herb/March-August	Not observed during 2004 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrences are in the Simi Valley. Suitable habitat present onsite. Moderate likelihood of occurrence within study area.
Rorippa gambelii	Gambel's watercress	FE/ST	1B	Marsh and swamps (freshwater and brackish)/ perennial herb/April-June	Not observed during 2004 field season, however, entire site not surveyed. No CNDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present onsite. Very low likelihood of occurrence within study area.

TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING AT THE ENTRADA SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
Senecio aphanactis	rayless ragwort	None/None	2	chaparral, coastal sage scrub, cismontane woodland on alkaline substrate/annual herb/January-April	Not observed during 2004 field season. Historic CNDDB record for Saugus, south of Santa Clara River. Suitable habitat exists onsite. Low to moderate likelihood of occurrence within study area.
Sidalcea neomexicana	Salt spring checkerbloom	None/None	2	chaparral, coastal sage scrub, and playas on alkaline substrate/perennial herb/March-June	Not observed during 2004 field season, however, entire site not surveyed. No CNDDB records exist for the Newhall or Val Verde quads; suitable habitat exists onsite. Moderate likelihood of occurrence within study area.
Thelypteris puberula var. sonorensis	Sonoran maiden fern	None/None	2	meadows and seeps/perennial herb/ fertile January-September	Not observed during 2004 field season, however, entire site not surveyed. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrence at Point Dume. Limited suitable habitat present onsite. Low likelihood of occurrence within study area.

Legend

FE: Federally-listed as endangered
FT: Federally-listed as threatened
FC: Federal candidate for listing
SC: State candidate for listing
SE: State-listed as endangered
ST: State-listed as threatened
SR: State-listed as rare

CNPS List 1A: Plants presumed extinct in California
CNPS List 1B: Plants rare, threatened, or endangered in California and elsewhere
CNPS List 2: Plants rare, threatened, or endangered in California but more common elsewhere
CNPS List 3: Plants about which we need more information – a review list
CNPS List 4: Plants of limited distribution – a watch list

Those species that were observed during the 2004 field surveys are discussed in greater detail below. A number of species found on CNPS Lists 3 or 4 also have the potential to occur onsite (*e.g., Acanthomintha obovata* ssp. *cordata, Calochortus catalinae, C. clavatus* var. *clavatus, Mucronea californica*); however, due to their relatively low sensitivity level, they are only discussed in the following sections if observed onsite. *Figures 3* through *5* show the distributions of SFVS onsite. *Figures 6* and *7* show the distribution of *Calochortus clavatus* var. *gracilis*).

4.2.1 San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*)

San Fernando Valley spineflower is state-listed as endangered, a candidate for federal listing, and a CNPS List 1B species. Until its rediscovery in 1999 at Laskey Mesa on Ahmanson Ranch in Ventura County, it was thought to be extinct. A review of information of historic occurrence of SFVS in the CNDDB indicate that it was previously thought to occur in sandy to gravelly soils of washes, riverbeds, and upland areas primarily on the margins of the San Fernando Valley at the base of the Santa Susana Mountains, San Gabriel Mountains, and the Simi Hills. Munz (1974) provides distribution information to include Orange and San Diego counties.

SFVS polygons were identified in several areas onsite including the southeastern portion of the site, the central area in and beside the wash, and the western portion of the site adjacent to the Magic Mountain Theme Park on the south side and west side. These polygons are depicted on *Figures 3* through *5*. Labels for each of the polygons in these figures correlate with those in *Table 4*, which contains estimates for the numbers of individuals within each polygon.

Most of the SFVS were found on slopes with a south-facing component in habitat ecotonal between California sagebrush and grasslands and California buckwheat and grasslands. Elevations of the SFVS polygons on this site range from approximately 1,150 to 1,205 feet AMSL.

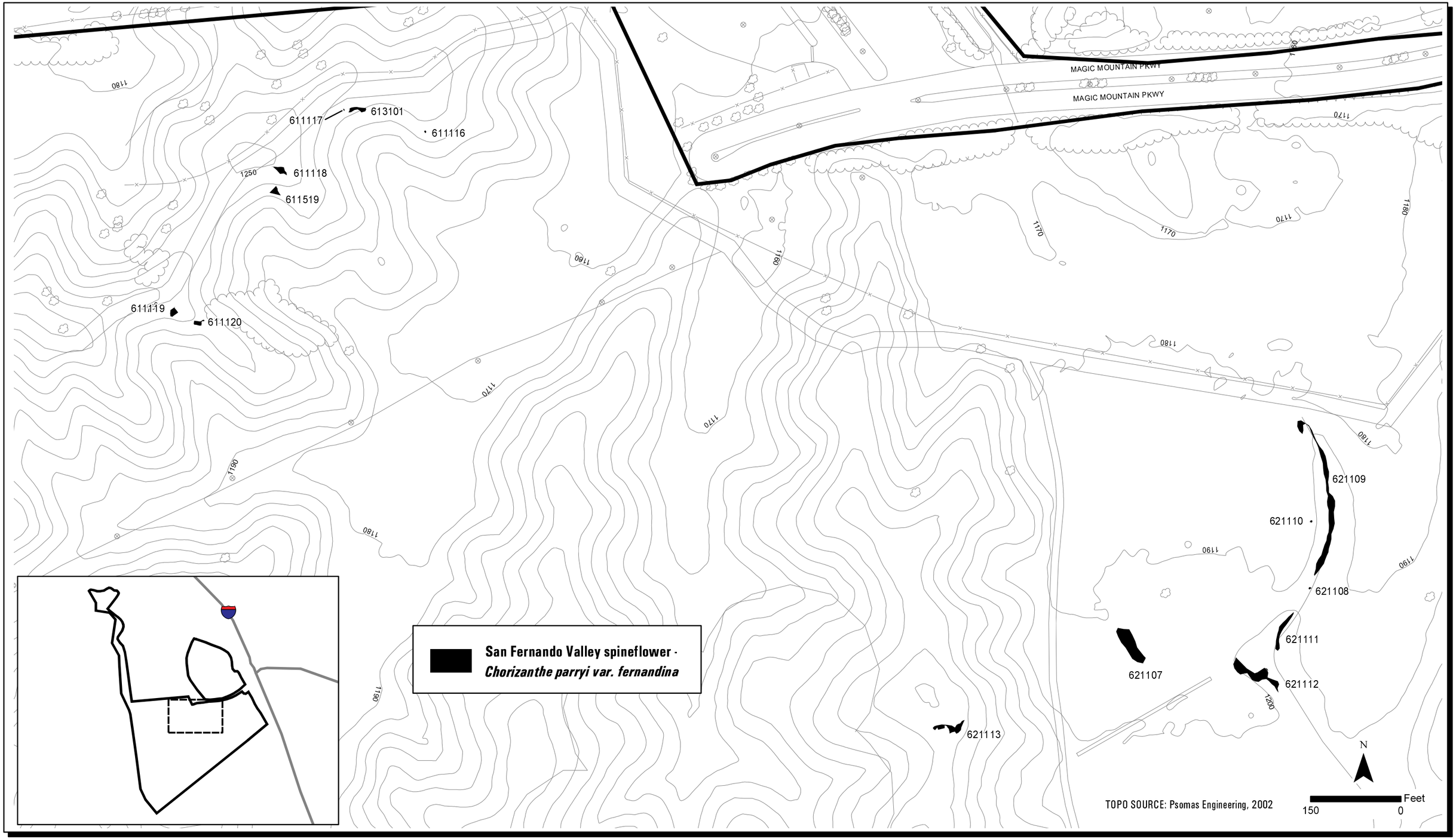
Vegetative cover in the area of SFVS occurrences ranged from ten to 95 percent, but was more commonly between 60 and 90 percent. The soil type for all mapped SFVS occurrences on the project site consisted of sandy loams. A total of 26 SFVS polygons were mapped ranging in size from two to 6,096 square feet. The number of individuals within each polygon ranges from one to 30,000. CNDDB forms are included in *Appendix C* for each occurrence onsite.

639702
639701
631504
631503
631101
631102
631501
631103
631104
631502
San Fernando Valley spineflower -
Chorizanthe parryi var. fernandina
TOPO SOURCE: Psomas Engineering, 2002
N
Feet
150
0

Entrada

2004 San Fernando Valley spineflower Results

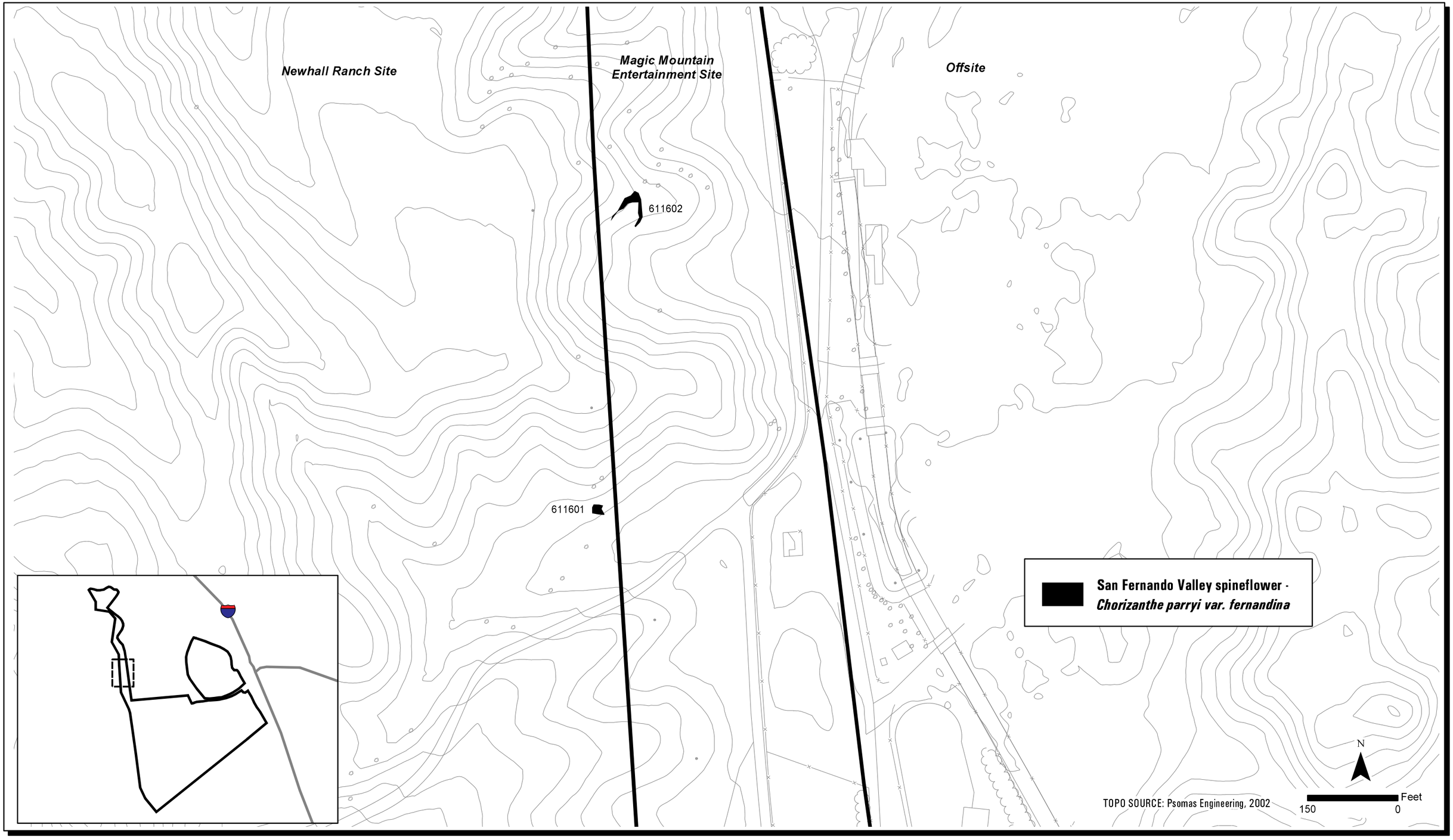
FIGURE 3



Entrada

2004 San Fernando Valley spineflower Results

FIGURE 4



Entrada

2004 San Fernando Valley spineflower Results

FIGURE 5

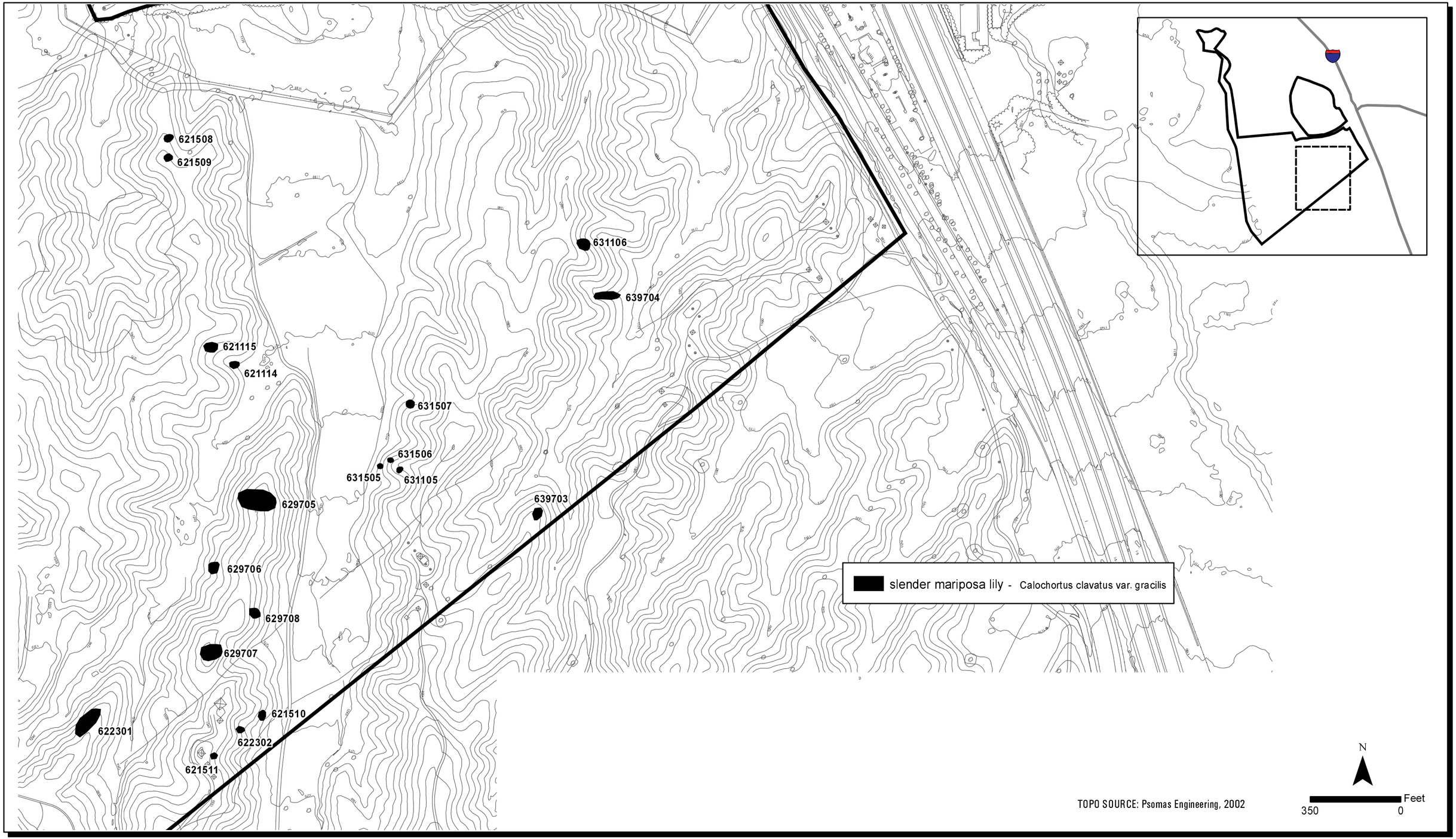
slender mariposa lily - Calochortus clavatus var. gracilis

611603
611604
611605
611606
611607
611608
611609
619622
619625
619642
619621
619623
619643
619641
619626
622306
619640
619624
622305
621518
629618
629620
619627
622303
621517
629619
619639
622304
619635
619638
621516
621515
621514
621513
619631
619636
619637
621512
629617
619630
619629
619632
619628
619634
619633
619615
619614
619616
619613
619611
629710
619612
629709
619610
619609
N
TOPO SOURCE: Psomas Engineering, 2002
Feet
300
0

Entrada

2004 Sensitive Plant Survey Results

FIGURE 6



TOPO SOURCE: Psomas Engineering, 2002

Entrada

2004 Sensitive Plant Survey Results

FIGURE 7

TABLE 4
SAN FERNANDO VALLEY SPINEFLOWER
SUMMARY OF OCCURRENCE DATA FOR
ENTRADA SITE

Polygon Number	Area (square feet)	Population Estimate
611116	9	1
611117	5	1
611118	160	240
611519	124	25
611119	124	30
611120	94	23
621107	1,227	1,200
621108	11	25
621109	1,990	10,000
621110	11	1
621111	380	380
621112	1,051	1,178
631501	2	6
631101	2,352	560
631102	528	210
631103	454	120
631104	342	130
639701	680	480
639702	556	160
631503	6,096	30,000
631504	30	9
611602	763	270
611601	276	32
621113	406	69
613101	160	43
631502	3,459	540
TOTALS	**21,290**	**45,733**

4.2.2 Slender Mariposa Lily (*Calochortus clavatus* var. *gracilis)*

Slender mariposa lily has no state or federal status but is a CNPS List 1B plant. It is typically found in chaparral, coastal sage scrub, and grasslands, often on clay, and/or rocky soils. It has been documented to occur at the mouth of Pico Canyon and other canyons in the vicinity (Newhall Quad; CDFG 2004b). Other varieties of this species are documented from southern California: club-haired mariposa lily (*Calochortus clavatus* var. *clavatus*) and pale mariposa lily (*C. clavatus* var. *pallidus*). The club-haired mariposa lily differs in that it is virtually a serpentine endemic (restricted to serpentine soils) and a very robust species, generally attaining a height of one meter. Pale mariposa lily differs in that the petals are a paler yellow, the anthers are paler (yellow to pale purple), and the hairs on the petals are not as knobby or club shaped. Neither the club-haired mariposa lily nor pale mariposa are known to have a red line above the nectary on the petal, as is the case with the slender mariposa lily.

Multiple slender mariposa lily polygons were mapped within the study area by drawing boundaries on aerial photograph field maps around the areas that contained the mariposa lily. The *Calochortus* plants were scattered within these polygons and estimates of the number of flowering individuals (not total number of individuals) were made based on visual estimations. Geophytes like *Calochortus* generally only have a percentage of the plants flower in any given year and the non-flowering individuals are not as visible.

Within the Entrada study area, the slender mariposa lily was found primarily on east, northeast, and southeast-facing ridges and slopes in California sagebrush, California buckwheat scrub and grasslands (*Figures 6* and *7*). The plants were generally mapped in areas of high vegetative cover and a variety of soil types (*e.g.,* gravelly loam, sandy loam, rocky clay). This species is locally abundant within the study area: 73 polygons were mapped with a polygon size ranging from 200 to 26,434 square feet. The estimated number of individuals within each polygon ranges from 1 to over 90, with a total of approximately 405 individuals observed within the project site (see *Table 5*). CNDDB forms for each occurrence on this site and are included in *Appendix C*.

TABLE 5
SLENDER MARIPOSA LILY
SUMMARY OF OCCURRENCE DATA FOR
THE ENTRADA SITE

Polygon Name	Polygon Size (Square Feet)	Estimated Number of Individuals
629710	594	2
629709	2,345	1
629707	4,956	1
629708	1,535	2
629706	1,755	2
629705	10,519	6
639703	1,526	3
639704	2,847	2
611609	1,253	1
611608	5,113	15
611607	9,427	40
611606	2,712	15
611605	7,973	90
611604	11,303	18
611603	1,651	3
622301	6,167	10
622302	742	1
622306	1,049	3
622305	1,051	1
622303	704	1
622304	584	1
621511	624	1
621510	1,049	1
631505	464	1
631506	465	1
621512	1,061	3
621513	696	3
621514	112	2
621516	348	6
621517	252	1
621518	227	3
621508	988	1
621509	896	1
621115	1,897	1
621114	1,005	2
631105	577	4
631507	944	2
631106	2,023	1
619609	979	1

TABLE 5
SLENDER MARIPOSA LILY
SUMMARY OF OCCURRENCE DATA FOR
THE ENTRADA SITE

Polygon Name	Polygon Size (Square Feet)	Estimated Number of Individuals
619610	4,790	4
619613	485	4
619612	384	1
619611	463	3
619616	591	2
619614	1,643	4
619615	478	1
619633	769	3
619634	570	1
619628	548	1
619629	221	1
619630	1,168	5
619632	1,404	4
619631	876	1
619635	1,020	2
619636	349	1
619637	200	1
619638	3,156	3
619639	553	1
619627	26,435	27
619640	9,822	14
619641	1,483	3
619626	6,181	1
619642	862	4
619625	473	1
619624	2,802	8
619621	311	1
619622	305	1
619623	1,455	12
629620	343	1
629618	961	8
629619	622	1
629617	12,695	26
619643	330	1
TOTALS	**175,161**	**419**

4.2.3 Island Mountain-mahogany (*Cercocarpus betuloides* var. *blancheae*)

Island mountain-mahogany has no state or federal status, but is found on List 4 of the CNPS *Inventory*. It is an evergreen shrub that occurs as part of the chaparral in Los Angeles and Ventura counties, as well as on several of the Channel Islands (CNPS 2001). This species was not observed during limited focused surveys for sensitive plant species conducted in 1992 (Dames and Moore 1993) or general botany surveys conducted in 1995 (RECON and Impact Sciences 1996). Onsite, island mountain-mahogany occurs as an occasional component of chaparral at the base of north-facing slopes in the Entrada site. This species was not mapped due to its relatively low sensitivity level. CNDDB forms were not completed for this species because of this same reason.

4.2.4 Peirson's morning glory (*Calystegia peirsonii*)

Peirson's morning-glory has no state or federal status, but is found on List 4 of the CNPS *Inventory*. This morning-glory is a rhizomatous perennial that typically is found in more desert-like areas (*e.g.*, creosote bush scrub, Joshua tree woodland) at elevations which exceed 3,000 feet AMSL, although there are records in the CNDDB for lower elevations in the local area. While never abundant, Peirson's morning-glory is widespread onsite and was observed on virtually all ridges and slopes, weakly climbing over mixed chaparral, California sagebrush, California buckwheat, and in grasslands throughout the 550-acre study area. Due to the widespread nature of Peirson's morning-glory on the Entrada site and relatively low sensitivity level, it was not mapped. CNDDB forms were not completed for this species because of these same reasons.

4.2.5 Coulter's goldfield (*Lasthenia glabrata* ssp. *coulteri*)

Coulter's goldfield is a CNPS List 1B plant that previously had not been documented to occur in the immediate vicinity of the project site (Hickman 1993; CNPS 2001). This variety is generally restricted to alkali playas, vernal pools, and some freshwater habitats in Riverside, San Diego, and Los Angeles counties (CNPS 2001). The Coulter's goldfields plants on the Entrada site appear to be the result of the application of an erosion control hydroseed mix along the gas and power transmission line easements. The plants are growing in areas that are not typical habitat for this species. They are growing on cut banks and in the graded road as opposed to alkali playas or other areas with standing water. These plants appear to be a non-native introduction; therefore CNDDB data forms are not included.

4.2.6 Southern California black walnut (*Juglans californica*)

Southern California black walnut has no state or federal status, but is found on List 4 of the CNPS *Inventory*. Within its distributional range in southern California, this species is found as scattered occurrences throughout chaparral, cismontane woodlands, and coastal and alluvial scrub habitats (CNPS 2001). This large shrub to tree was incidentally observed as an occasional component of mixed chaparral, California sagebrush and alluvial scrub onsite. CNDDB forms were not completed for this species because of its relatively low sensitivity.

4.2.7 Bryophytes (Non-vascular Plants) and Lichens

Bryophytes (non-vascular plants including mosses, liverworts, and hornworts) include plants which lack specialized water- or nutrient-conducting tissue. Lacking water-transporting tissue, bryophytes must live in proximity to a moisture source and are commonly found in damp or shady microhabitats. Overall, the Entrada site is fairly arid and supports little of this type of habitat; however, limited quantities of mosses were found on north-facing slopes, chaparrals, along shady banks and cut faces of ephemeral stream channels.

Lichens, in contrast, are not classified as plants but are instead unique mutualistic associations of fungi with green algae and/or cyanobacteria. Lichens are extremely widespread in nature; they are found at nearly every latitude and altitude on earth. Lichens often grow on exposed rocks but are also found on bare soil, tree trunks, or in one instance, completely submerged in water (Raven *et al*. 1992). Generally, the Entrada site contains little habitat appropriate for the growth of lichens as rocky substrates are limited.

No sensitive non-vascular plants or lichens were observed onsite or are known to occur in the proximity of the Entrada site.

5.0 ACKNOWLEDGMENTS

Megan S. Enright and Marc Doalson prepared this report, with review by Sherri L. Miller and staff at The Newhall Land and Farming Company. Mark McGinnis provided graphics and GIS mapping analyses. Terri Parsons and Tonette Foster provided word processing.

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APPENDIX A
RESUMES OF SURVEY PERSONNEL

MICHELLE L. BALK
ENVIRONMENTAL SPECIALIST

Education

- M.S., Biology with emphasis Ecology and Evolution, University of Akron (1999)
- B.S., Zoology, Iowa State University (1997)

Professional Affiliations

- California Native Plant Society
- Southern California Botanists
- California Botanical Society

Professional Certifications

- Quino Checkerspot Butterfly 10a Survey Permit (USFWS Federal Permit)
- CDFG Rare, Threatened, and Endangered Plant Voucher Collection Permit

Experience

Ms. Balk has over three years of experience in environmental document preparation and resource conservation planning. Project experience includes biological resource surveys, data collection and analysis, environmental assessments, wetlands delineations, permitting, mitigation design and monitoring, and sensitive species surveys. Ms. Balk has engaged in interagency coordination and public outreach efforts due to the complexities of each project. Ms. Balk has also participated in the development of habitat conservation plans pursuant to Section 10 of the Federal Endangered Species Act.

Water/Wastewater/Reclaimed Water

- Miramar Trunk Sewer Replacement and Permanent Access Project, City of San Diego Metropolitan Waste Water Department, City of San Diego, California. Performed delineation of "waters of the United States" and wetlands under the jurisdiction of the U.S. Army Corps of Engineers and California Department of Fish and Game. Completed vegetation mapping and sensitive plant surveys on this 13-acre project site. Conducted focused plant surveys for the state- and federally-listed willowy monardella and Encinitas baccharis. Coordinated with others on specific project design and prepared biological resources report.

- North Agua Hedionda Sewer Rehabilitation Project, City of Carlsbad, California. Performed wetlands delineation, rare plant surveys, and exotic species mapping for half-mile sewer rehabilitation and shoreline protection project adjacent to coastal lagoon.

- 60th Street Canyon Sewer Replacement and Permanent Access Project, City of San Diego Metropolitan Waste Water Department, City of San Diego, California. Completed vegetation mapping, floristic surveys, and sensitive plant surveys on this 7-acre project site. Coordinated with others on specific project design and prepared biological resources report.

- Lexington/Manzanita Canyon Sewer Replacement and Permanent Access Project, City of San Diego Metropolitan Waste Water Department, City of San Diego, California. Completed vegetation mapping, floristic surveys, sensitive plant surveys, and potential revegetation site surveys on this project site. Coordinated with others on specific project design and prepared biological resources report.

Transportation

- State Route125 South, California Department of Transportation, City of San Diego, California. Conducted rare plant surveys and Quino checkerspot butterfly surveys for mitigation site alternatives.

- Sorrento-Miramar Curve Realignment and Second Main Track Project, North County Transit District, City of San Diego, California. Conducted a focused plant survey for the CNPS List 1B Palmer's grapplinghook along the approximately 180-acre linear rail corridor.

Master Planned Communities (includes mixed-use projects)

- Newhall Ranch Development Project, Newhall Land and Farming Company, Valencia, California. Served as team leader for botanical surveys on Newhall Land and Farming Company parcels. Directed field team in performing general sensitive plant surveys and focused surveys for the state-listed endangered San Fernando Valley spineflower on project sites totaling 14,500 acres in Los Angeles and Ventura Counties in 2003.

- Planning Area 1 Project, The Irvine Company, County of Orange, California. Conducted potential native grassland mitigation site surveys and rare plant surveys for CNPS List 1B sensitive plant species including intermediate mariposa lily as a member of a team of botanists within a portion of the 4,200-acre project site.

- Village 3 Project, Otay Ranch Company, City of Chula Vista, California. Conducted rare plant surveys, including focused surveys for the federally-listed threatened and state-listed endangered Otay tarplant, on 263 acres in 2003.

- Fanita Ranch, Santee, California. Conducted rare plant surveys on 2,000 acres in 2003.

Residential (Subdivisions)

- Nickel Creek Project, Ramona, California. Performed rare plant mapping for the CNPS List 1B smooth tarplant for 14-acre multi-family residential development on the Santa Maria River.

- Quantum Estates II Project, Quantum Estates II, LLC, County of San Diego, California. Conducted wetlands delineation and floristic survey for 39-acre residential development.

- Camelot Project, Western Pacific Housing, City of San Diego, California. Conducted a delineation of "waters of the United States" and wetlands under the jurisdiction of the U.S. Army Corps of Engineers, California Department Fish Game, and California Regional Water Quality Control Board for the approximately 39-acre site. Performed floristic and rare plant surveys for site.

- Levatino Property Project, Marker Development, Inc., Carlsbad, California. Provided wetlands delineation and floristic surveys for 20-acre property.

- Barracuda Property Project, Private Individual Land Owner, Laguna Beach, California. Performed focused survey for the CNPS List 4 western dichondra within conservation easement on the property.

- Oxnard Shores Project, City of Oxnard, California (2.8 acres); Concho Circle Project, Oceanside, California (2.4 acres); Harbor Project, City of Oxnard, California (1.2 acres). Performed vegetation mapping, general floristic surveys, and focused sensitive plant surveys for residential subdivision properties throughout southern California. Prepared biological reports summarizing results and implications of site surveys.

- Single Family Residence Projects for Individual Land Owners, Cities of Laguna Beach (Third Avenue Project, Stan Oak Drive Project, Crestview Drive Project, Zell Project) and City of San Diego (Paul Girdner Residence). Conducted vegetation mapping, general floristic surveys, and focused sensitive plant surveys for single family residence projects throughout southern California. Prepared biological reports summarizing results and implications of site surveys.

Electricity Facilities

- Pole Maintenance Project/Bark Beetle Project, Southern California Edison, San Bernardino and San Jacinto Mountains, California. Conducted botanical surveys and habitat assessments for sensitive plants at pole replacement locations and along electric lines at numerous locations in the San Bernardino and San Jacinto Mountains.

Publications

- "Phenotypic effects of leptin in an ectotherm: a new tool to study the evolution of life histories and endothermy?" with P.H. Niewiarowski and R.L. Londraville. The Journal of Experimental Biology 203:295-300, 2000.

Relevant Experience

- "Spring Flora across Kern County" presented by the Jepson Herbarium. May 6-9, 2004.

- "Basic Wetland Delineation"presented by the Wetland Training Institute, Inc. August 2-6, 2004.

- "Morphology and Identification of Flowering Plants" workshop at Jepson Herbarium, Berkeley, CA. March, 2003.

- "Summer Annuals and Fall-Blooming Shrubs of the Eastern Mojave Desert" class through the Jepson Herbarium, Berkeley, CA. September 2003.

- Volunteer, Project Wildlife, San Diego, CA. Cared for injured wildlife and reared baby birds at wildlife rescue organization.

- "Sunday Birds" field ornithology course with San Dieguito Adult School, Encinitas, CA.

MEGAN S. ENRIGHT
BIOLOGIST

Education

- B.S., Biology-Ecology, Behavior and Evolution, University of California, San Diego (1997)

Professional Affiliations

- Member, California Native Plant Society
- Member, Women's Environmental Council
- Member, Southern California Botanists

Permits

- Federal Permit to conduct Fairy Shrimp Survey (permit number-TE022524-0)
- CDFG Rare, Threatened, and Endangered Plant Voucher Collection Permit (05006)

Experience

Ms. Enright is a biologist with seven years experience in habitat restoration and biological assessments. She participated in coastal sage scrub restoration at the City of San Diego Miramar Landfill. The project included restoration design, native plant nursery management, and revegetation monitoring. Her current role at Dudek & Associates includes biological resources assessments and impact analyses, wetland delineations and permitting, vegetation mapping, rare plant surveys, and vernal pool studies.

Water/Wastewater/Reclaimed Water

- Pipeline 6 Project, Metropolitan Water District of Southern California, County of Riverside, California. Conducted wetlands delineation and assisted in permit coordination for the Section 401 and Section 404 permits and 1601 Streambed Alteration Agreement. Conducted initial site reconnaissance, rare plant survey, and fairy shrimp survey for the proposed alignment. In addition, assisted in siting geotechnical activities.

- Yucaipa Non-Potable Water Distribution System, Yucaipa Valley Water District, Counties of San Bernardino and Riverside, California. Conducted biological surveys including vegetation mapping, wetlands delineation and rare plant surveys within a project study area, which included the construction of five reservoirs, four pump stations and 39,120 linear feet of pipelines. Focused surveys were conducted for the state- and federally-listed Santa Ana River woolly-star and slender-horned spineflower.

Transportation

- Oceanside to Escondido Rail Project, North County Transportation District, Cities of Oceanside, Vista, San Marcos, Escondido and County of San Diego, California. Delineated wetlands and prepared vegetation map within the Loma Alta Creek, Buena Vista Creek, Buena Creek, Agua Hedionda Creek, San Marcos Creek, and Escondido Creek Watersheds. Prepared Section 401 and Section 404 permit applications and 1601 Streambed Alteration Agreement for impacts to non-tidal, adjacent wetlands; impacts were associated with the rail system. Prepared alternatives analysis, functional values assessment, and Conceptual Wetlands Mitigation Plan. Assisted in the preparation of an Exotics Removal Plan, Uplands Mitigation Plan, Brown-Headed Cowbird

Trapping Plan, and a California gnatcatcher and least Bell's vireo Habitat Management and Monitoring Plan in accordance with the Biological Opinion issued by the United States Fish and Wildlife Service. Assisted in the preparation of the biological resources report and California Environmental Quality Act and National Environmental Policy Act documentation.

- Camino Ruiz Road Alignment, Western Pacific Housing, City of San Diego - Future Urbanizing Area Subarea IV, California. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys. Prepared Section 401 and Section 404 permit applications and 1603 Streambed Alteration Agreement for impacts to non-tidal, adjacent wetlands; impacts were associated with the roadway corridor. Prepared functional values assessment.

- San Marcos Creek Roadway Improvements Project, City of San Marcos, City of San Marcos, California. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys along San Marcos Creek from State Route 78 to Lake San Marcos.

Flood Control/Flood Storage/Stormwater

- Buena Vista Creek Channel Maintenance Project, City of Carlsbad-Engineering Division, Cities of Carlsbad and Oceanside. Project Manager for preparation of technical reports for California Environmental Quality Act documentation and wetlands permitting. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys. Prepared biological resources report for California Environmental Quality Act documentation. Facilitated pre-application agency meetings with the U.S. Army Corps of Engineers, California Department of Fish and Game, and the California Regional Water Quality Control Board. Prepared a 1601 Memorandum of Understanding in accordance with Section1600 of the California Fish and Game Code and assisted in the preparation of an Exotics Removal Plan.

- Salt Creek Channel Stage 6 Channel Widening Project, Riverside County Flood Control and Water Conservation District, County of Riverside, California. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys, which included a focused survey for smooth tarplant *(Centromadia [Hemizonia] pungens*). Prepared biological resources report for California Environmental Quality Act documentation.

- Canada Gobernadora, Santa Margarita Water District, Orange County, California. Project Manager for preparation of technical reports for California Environmental Quality Act documentation and wetlands permitting. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys, which included a focused survey for San Diego tarplant (*Deinandra [Hemizonia] paniculata*), southern tarplant (*Centromadia parryi* spp. *Australis)*, and many-stemmed dudleya (*Dudleya multicaulis*). Project also included focused surveys for least Bell's vireo, southwestern willow flycatcher and southwestern arroyo toad.
- biological constraints on the site during the due diligence phase of the project.

Residential Subdivision

- Rancho Santalina Project, City of San Marcos, City of San Marcos, California. Conducted a delineation of "waters of the United States" under the jurisdiction of the U.S. Army Corps of Engineers, California Department Fish Game, and California Regional Water Quality Control

Board, prepared vegetation map, and conducted focused rare plant survey, which included the federally-listed threatened and state-listed endangered thread-leaved brodiae (*Brodiae filifolia*). Prepared biological resources report for California Environmental Quality Act documentation.

Master Planned Communities

- Planning Areas 18 and 39, The Irvine Company, City of Irvine, California. Conducted a delineation of "waters of the United States" and wetlands under the jurisdiction of the U.S. Army Corps of Engineers, California Department Fish Game, and California Regional Water Quality Control Board and prepared vegetation map within the 1,200-acre project site. Developed wetlands permitting strategies with client. In addition, Dudek conducted focused surveys for least Bell's vireo, southwestern willow flycatcher, and California gnatcatcher.

- Planning Area 1, The Irvine Company, County of Orange, California. Project Manager for preparation of biological technical reports for California Environmental Quality Act documentation for the Planning Area 1 Project, which encompasses over 4,200 acres, within which the northern half (approximate) would be permanent open space as part of a larger natural resources preserve, and the southern half (approximate) would be developed as a new community that includes residential, commercial, institutional (*i.e.,* schools), agricultural, and open space uses. Prepared vegetation map and conducted rare plant surveys within the 4,200-acre project site. Prepared biological resources report for California Environmental Quality Act documentation and assisted in the preparation of wetlands permitting data.

Park and Recreation Facilities

- Surfer's Point, Surfer's Point, LLC, City of Encinitas, California. Conducted vegetation mapping and floristic surveys and prepared biological resources report for California Environmental Quality Act documentation for the 34-unit timeshare resort project. Project dealt with coastal issues because it was located directly adjacent to Batiquitos Lagoon just east of Coast Highway 101.

Focused Rare Plant Surveys

- Newhall Ranch Project, Newhall Land and Farming Company, Los Angeles and Ventura County, California. Served as field task manager for botanical surveys on Newhall Land and Farming Company parcels. Directed field team in performing general sensitive plant surveys and focused surveys for the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina)* and other sensitive plants on approximately 6,000 acres in 2002 and 14,500 acres in 2003. In addition, collected San Fernando Valley spineflower seed from nine occurrences on Newhall Ranch in 2003. Prepared vegetation mapping for San Fernando Valley spineflower occurrence areas and assisted in the preparation of the draft conservation and management plan for this species.

- Quantum Estates II Projects, Quantum Estates II, LLC, County of San Diego, California. Conducted focused surveys for the state-listed endangered and federally-listed threatened Encinitas bacchairs (*Baccharis vanessae)* on approximately 40 acres in 2003.

- Perris Valley Channel Lateral "B" State 2 Project, Riverside County Flood Control and Water Conservation District, County of Riverside, California. Conducted rare plant surveys along 9,600 linear feet of the Perris Valley Channel in 2003.

- Village 3 Project, Otay Ranch Company, City of Chula Vista, California. Conducted rare plant surveys, including focused surveys for the federally-listed threatened and state-listed endangered Otay tarplant, on 263 acres in 2003.

- Fanita Ranch, Santee, California. Conducted rare plant surveys on 2,000 acres in 2003.

DAVID FLIETNER
BIOLOGIST

Education

- M.S., Botany, University of Florida (1987)
- B.S., Plant Science, University of California, Davis (1983)
- GIS Certificate, University of California, Riverside extension (1996)

Registration/Certifications

- County of San Diego Certified Biologist
- Quino checkerspot butterfly, USFWS Permit #TE-008031
- Riverside fairy shrimp, conservancy fairy shrimp, longhorn fairy shrimp, vernal pool fairy shrimp, San Diego fairy shrimp, vernal pool tadpole shrimp, USFWS Permit #TE-797665
- Licensed Agricultural Pest Control Advisor #4577 (weed control)
- Qualified Applicator License #31356 (landscape, agriculture, and aquatic)
- Certified for flat-tailed horned lizard surveys, BLM (2001)
- Certificate of Educational Achievement in Revegetation/ Restoration Planning, California Society for Ecological Restoration (2001)
- Certificate of Completion, Desert Tortoise Council Surveying, Monitoring and Handling Techniques Workshop (2002)

Affiliations

- California Invasive Plant Council
- California Native Plant Society
- Southern California Botanists

Experience

Mr. Flietner is a biologist with eight years experience conducting biological resource surveys, endangered species presence/absence surveys, wetland delineations, and construction and restoration monitoring. Biological resource survey experience includes vegetation mapping, floristic inventories, and focused surveys for sensitive plant species, arroyo toad, and flat-tailed horned lizard. He conducts surveys for Quino checkerspot butterfly and has conducted surveys San Diego fairy shrimp, and Riverside fairy shrimp. His experience includes wetlands delineations in accordance with U.S. Army Corps of Engineers guidelines and applications for Clean Water Act Section 401 and 404 permits and California Department of Fish and Game Streambed Alteration agreements. In addition, he performs qualitative and quantitative assessments of revegetation projects; writes biological technical reports, wetland delineation reports, habitat restoration plans and annual progress reports. He has conducted annual pesticide training for field applicators and nursery workers in Spanish and has written pest control recommendations for habitat restoration projects.

Electric Utility/Fiber Optics/Energy

- Los Angeles to San Diego Fiber-Optic Line, Southern Portion, San Diego County. San Diego Gas and Electric. Conducted floristic inventory, vegetation mapping, and focused surveys for quino checkerspot butterfly in vicinity of seven "pull sites" for line stringing operation. Prepared biological letter report summarizing results of surveys.

Water/Wastewater/Reclaimed Water

- Potential Reservoir Sites, San Diego County, California. Otay Water District. Conducted focused presence/absence surveys for quino checkerspot butterfly at three potential reservoir sites for Otay Water District. Prepared report according to U.S. Fish and Wildlife Service requirements.

- Oceanside Country Club Site, Oceanside California. City of Oceanside. Conducted vegetation mapping, floristic inventory, and post-impact assessment for sewer repair operations. Prepared biological technical report assessing impacts to wetland habitats, and conceptual wetlands mitigation and monitoring plan. Prepared Section 1601 Streambed Alteration Agreement, Section 404 Nationwide Permit application, and Section 401 Regional Water Quality Board permit application.

- Rose and Tecolote Creek Clean Beaches Initiative Project, San Diego, California. City of San Diego Strom Water and Pollution Prevention Program. Conducted vegetation mapping, floristic inventory, and wetlands delineation for two pipeline projects to recirculate water in Mission Bay Regional Park. Prepared biological technical resources report, pre-construction notification under Nationwide Permit 12, Coastal Development Permit application to California Coastal Commission, and Section 401 application to Regional Water Quality Control Board.

Flood Control/Flood Storage/Stormwater

- Gavilan Hills/Smith Road Channel and Sediment Basin, Riverside County, California. Riverside County Flood Control and Water Conservation District. Mapped vegetation communities, conducted floristic inventory, and delineated wetlands in 71-acre project site. Prepared biological technical report including potential onsite mitigation for project impacts for Riverside County Flood Control and Water Conservation District.

- County Line Channel Project, San Bernardino and Riverside Counties, California. Riverside County Flood Control and Water Conservation District. Mapped vegetation communities, conducted floristic inventory, identified potential Delhi sands flower-loving fly habitat, and identified occupied burrow owl habitat in approximately 2.5 linear mile project area. Prepared biological technical report including results of focused surveys for Delhi sands flower-loving fly surveys for Riverside

- Santa Ana River Maintenance Project, Riverside, California. Riverside County Flood Control and Water Conservation District. Mapped vegetation communities in approximately 500-acre flood control channel project area. Identified potential habitat of Santa Ana woolly-star and slender-horned spineflower. Prepared biological technical report describing resources and avoidance, minimization, and mitigation measures to be implemented in long-term flood control channel maintenance program.

- Wildrose Business Park Regional Drainage Facility, Riverside County, California. Ridge Properties, LLC. Mapped vegetation communities, conducted floristic inventory, and performed wetlands delineation for approximately 1700 linear feet storm drain project. Prepared biological technical report and 1601 Streambed Alteration Agreement for project.

- Cloverdale Leasehold, Escondido, California. County of San Diego Water Department. Performed wetland delineation on 90-acre parcel adjacent to Escondido Creek for renewal of leased property. Wrote biological letter report describing results of wetlands delineation, property use plan, and conceptual wetlands mitigation plan, including recommendation for control of *Lepidium latifolium*.

Transportation

- Wilson Creek Crossing, San Diego County, California. County of San Diego Department of Public Works. Mapped vegetation communities, conducted floristic inventory, performed wetlands delineation, and conducted presence/absence surveys for arroyo toad. Prepared biological technical report, conceptual wetlands mitigation and monitoring plan, Nationwide Permit 39 notification, and Section 1601 Agreement for San Diego County Water Department.

- Gird Road Crossing, San Diego County, California. County of San Diego Department of Public Works. Mapped vegetation communities, conducted arroyo toad habitat assessment, floristic inventory, and wetlands delineation for San Diego Public Works Department. Prepared biological technical report including conceptual mitigation plan for impacts to CDFG-jurisdictional riparian vegetation.

Schools

- San Diego Jewish Academy, San Diego, California. San Diego Jewish Academy. Monitored habitat coastal sage scrub and riparian, and restoration and wart-stemmed ceanothus revegetation projects for first two years of five-year implementation plan. Conducted quantitative and qualitative analysis and prepared two annual progress reports comparing site conditions with performance criteria. Recommended and monitoring additional maintenance measures, seeding, and plantings.

Master-Planned Communities

- Riverside County Agricultural Preserve, Riverside County, California. Conducted habitat mapping, and biological resource inventory, including potential Delhi sands flower-loving fly habitat for proposed mixed-use development of 8,000 acre area. Prepared constraints analysis report including recommendations to avoid impacts to least Bell's vireo and southern willow flycatcher critical habitat.

DOUGLAS GETTINGER
HABITAT RESTORATION SPECIALIST

Education

- B.S. Landscape Architecture, California State Polytechnic University at Pomona (1979)
- B.S. Ornamental Horticulture, California State Polytechnic University at Pomona (1980)

Registration/Certifications

- California Agricultural Pest Control Adviser License No. 01369 (expires 12/31/04)

Professional Affiliations

- Member, Society for Ecological Restoration
- Member, California Invasive Plant Council
- Member, California Agricultural Production Consultants Association

Experience

Mr. Gettinger has more than a decade of experience in habitat restoration work, including biological construction monitoring, and the design, implementation, and monitoring of habitat restoration projects. His training in landscape architecture and ornamental horticulture, coupled with his experience working on large construction projects help bring habitat restoration and endangered species habitat creation projects to a successful conclusion. He holds a California Pest Control Adviser License, which allows him to legally act as an expert and make recommendations for the control of invasive plant species. His project experience includes restoration of chaparral, coastal sage scrub, coastal salt marsh, freshwater marsh, limestone forest, riparian woodland, southern willow scrub, and oak woodland habitats implemented under agreements with various federal, state, and local agencies. He has experience working safely around the large earth-moving equipment found at various construction projects and has worked at hazardous materials sites requiring OSHA 40-hour hazardous worker training.

Water/Wastewater/Reclaimed Water

- Metropolitan Wastewater Department As-needed Biological Services Contract 2000-2005, San Diego Metropolitan Wastewater Department, City of San Diego, California. Served as a biological construction monitor on numerous emergency sewer repair and maintenance projects in sensitive habitat areas located in canyons for the City of San Diego Metropolitan Wastewater Department on the as-needed biological services contract 2000-2005. Many tasks included emergency sewer repair projects where sewage was flowing into live stream conditions, which required immediate response from DUDEK staff. Other tasks included monitoring emergency sewer cleaning activities where temporary equipment access was needed in sensitive habitat canyon areas. Scheduled and coordinated the work of other biological monitors, as needed. Initial assessment reports, biological resources reports, and/or impact assessment reports were then prepared for each task, depending on project requirements.

- San Diego County Water Authority Emergency Storage Reservoir Program, San Diego County Water Authority, County of San Diego, California. Assisted in focused biological surveys and helped prepare alternatives analysis for the environmental impact report for the San Diego County Water Authority Emergency Storage Reservoir Program. Performed extensive tree inventory surveys and mapping of coast live oak (*Quercus agrifolia*) and mesa oak (*Q. engelmannii*) in proposed project alternative areas.

- Metropolitan Water District Pipeline Project, Metropolitan Water District of Southern California, Hemet, California. Collected seed from several sensitive species, including San Jacinto Valley crownscale (*Atriplex coronata var. nutatior*), little mousetail (*Myosurus minimus ssp. apus*), dwarf peppergrass (*Lapidium latipes*), and woolly marbles (*Psilocarpus brevissumus*) on a Metropolitan Water District pipeline right-of-way prior to construction in Riverside County, California. Seed was sent to Rancho Santa Ana Botanic Garden for counting, cleaning, and storage. Later sewed seed in appropriate locations along right-of-way after pipeline construction was completed. Also counted population and collected seed for Parish's brittlescale (*Atriplex parishii*) , a species formerly presumed extinct.

Transportation

- Cannon Road Extension Project, City of Carlsbad Engineering Department, City City of Carlsbad, California. Biological construction monitor for Phase 2 of the Cannon Road Extension Project in Carlsbad, California through sensitive habitat containing wetlands habitat for the federally endangered least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and western clapper rail (*Rallus longirostris*), as well as coastal sage scrub habitat for the federally-listed threatened coastal California gnatcatcher (*Polioptila californica*). Prepared monthly project progress reports and reported permit violations to the agencies. Project included oversight of subcontractors performing paleontological monitoring and recovery, and construction noise monitoring. Also monitored the installation and 120-day maintenance period for the temporary impacts wetland mitigation area.

- Scripps Poway Parkway Extension Project, City of Poway Engineering Department, City of Poway, California. Biological monitor during two years of road construction through four miles of sensitive habitat for the Scripps Poway Parkway Extension Project in Poway, California. Located appropriate preserve habitat in the City and transplanted Coast Barrel Cactus (*Ferrocactus viridescens*) growing in the project right-of-way prior to impacts. Worked with City inspectors, surveyors, and the contractor to insure that impacts stayed within permitted limits. Monitored erosion and sediment control implementation and maintenance, and revegetation planting and seeding.

Landfills

- Puente Hills Landfill Wetland Mitigation Project, Sanitation Districts of Los Angeles County, City of Whittier, California. Provided horticultural and botanical monitoring for the wetland habitat restoration project associated with the Puente Hills Landfill in Whittier, California. Work was performed for the Sanitation Districts of Los Angeles County. The wetland restoration area is adjacent to the Puente Hills Landfill and also provides visual screening of the landfill for adjacent residents. Also directed staff performing the required wildlife monitoring and provided consultation for coast live oak (*Quercus agrifolia*) mitigation being implemented on weedy mustard covered slopes adjacent to the landfill, coastal sage scrub restoration being attempted on the landfill's canyon fill slopes, and ornamental buffer landscape to provide visual screening.

Commercial/Office/Industrial

- Rocketdyne Ecological Risk Assessment Project, Boeing Integrated Defense Systems, County of Ventura, California. Assisted with focused biological surveys to map vegetation communities and search for sensitive plant and wildlife species at a contaminated site. Surveys were the first stage in conducting an ecological risk assessment for the Santa Susana Field Laboratory, Ventura County, California.

Residential (subdivisions)

- Rancho Pacfifica Cottages Habitat Enhancement Plan, Taylor-Woodrow Homes, Inc., City of Encinitas, California. Prepared a plan to control invasive exotic plant species such as giant reed (*Arundo donax*) that infests the creek channel within a biological open space being preserved on the property. The plan provides for the removal and control of invasive plant species and the planting of native wetland and upland species in their place.

- Village 11 Project, Brookfield Homes, Chula Vista, California. Biological construction monitor for grading of the Village 11) project in Otay Ranch in Chula Vista, California. Grading of the approximately 500-acre site in the eastern portion of the Otay Valley was adjacent to the Salt Creek Open Space Preserve containing wetlands and habitat for the federally-listed threatened coastal California gnatcatcher. Dudek directed and monitored soil and biomass salvaging from suitable habitat areas within the project footprint and is currently monitoring installation of the wetland mitigation area.

- Rolling Hills Ranch Wetland Mitigation Monitoring Project, McMillin Land Development, City of Chula Vista, California. Biological construction monitor for the installation and long-term monitoring of Phases I and II of the wetland mitigation for the Rolling Hills Ranch development in Chula Vista, California. Rolling Hills Ranch is an approximately 300-acre mixed use project. The wetland mitigation program, involves expanding wetland habitat along Salt Creek and controlling invasive, exotic salt cedar on the project site. The wetland mitigation was installed in two phases, approximately two years apart. Oversaw the collection of botanical data and preparation of the annual reports for the two phases.

- Henry Ranch Biological Construction Monitoring and Wetland Mitigation Project, William Lyon Homes, City of San Ramon, California. Directed staff performing pre-construction surveys for federally-listed threatened California red-legged frog (*Rana aurora draytonii*) and nesting birds, and biological construction monitoring for permitted wetland impacts and initial land clearing at the Henry Ranch Project in San Ramon, California. Also oversaw and directed implementation of conceptual wetland mitigation pond plan, as well as other required enhancement measures.

- Fieldstone Brush Management and Summer Holly Preservation Project, The Fieldstone Company, City of San Diego, California. Supervised a brush management and summer holly (*Comarostaphylos diversifolia*) preservation program at a housing project on the rim of Los Peñasquitos Canyon Preserve, San Diego, California.

- Baldwin *Brodiaea* Preserve, The Baldwin Company, City of San Marcos, California. Supervised the planting of native purple needlegrass (*Nasella pluchra*) plants in a preserve for the federal and State-listed endangered thread-leaf brodiaea (*Brodiaea filifolia*) in San Marcos, California.

Master Planned Communities (including mixed use projects)

- Newhall Ranch, Newhall Land and Farming Company, County of Los Angeles, California. Assisted with focused surveys for the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina)* on the approximately 6,000 acres in 2002 and 14,500 acres in 2003 on Newhall Ranch in Los Angeles County, California.

- Talone Lake Wetland Mitigation Project, Gatlin Development Company, City of Oceanside, California. Designed a wetland mitigation plan, oversaw construction impacts and mitigation installation for the loss of wetland habitat associated with a mixed use project development for the Rancho del Oro project around Talone Lake, in Oceanside, California. Project site includes habitat for the federally-listed endangered least Bell's vireo (*Vireo bellii pusillus*). Assisted in preparation of a draft habitat management plan for the project and processed the 404 application with the U.S. Army Corps of Engineers and 1603 Streambed Alteration Agreement with the California Department of Fish and Game. Project included coastal sage scrub buffer zone around a wetland.

Parks and Recreation Facilities (includes golf courses and water feature projects)

- Ocean Trails Habitat Restoration Project, Ocean Trails L.P., City of Rancho Palos Verdes, California. Biological and horticultural monitor at the 92 acres Ocean Trails Restoration Project in Rancho Palos Verdes, California. The Ocean Trails project is restoring coastal sage scrub, southern cactus scrub, and coastal bluff scrub in ruderal and degraded native habitat. The restoration program is creating additional habitat for the federally-listed threatened coastal California gnatcatcher (*Polioptila californica*), which is already expanding into the still developing habitat.

Habitat Restoration Plans

- Potrero Canyon Wetland Mitigation Plan, City of Los Angeles Department of Recreation and Parks, City of Los Angeles, California. Developed a riparian mitigation plan for impacts in a coastal canyon being filled to stabilize landslides and prevent further property losses at Potrero Canyon in the Pacific Palisades neighborhood in Los Angeles, California. Made an extensive search for offsite mitigation alternatives in the area. Attended community workshops to explain mitigation and learn neighborhood concerns about the project. Plan was prepared for presentation to the California Coastal Commission.

VIPUL JOSHI
BIOLOGIST

Education
- B.S., Evolution, Behavior, Ecology, University of California, San Diego (1997)

Experience
Mr. Joshi has five years professional experience as a biological consultant specializing in botanical surveying, permit acquisition, permit compliance, and project management. Mr. Joshi is well experienced with southern California flora and environmental regulations. Mr. Joshi also has had experience managing constraints analysis, entitlement processing, permit acquisition, and biological construction monitoring for a variety of public and private projects.

Mr. Joshi has specific experience with CEQA processing with a variety of local jurisdictions, state and federal Endangered Species Act permit processing, wetlands permitting including Nationwide and Individual Permits from the U.S. Army Corps of Engineers, and management of permit compliance. Specific biological survey skills include full rare plant surveys, focused presence/absence surveys for the state- and federally-listed quino checkerspot butterfly and vernal pool fairy shrimp, project-level vegetation mapping, wetlands delineation, vernal pool identification, vernal pool watershed mapping, and general biological assessment of functions and values.

Residential (subdivisions)

- Cielo del Norte - San Diego County, California. Provided baseline vegetation and rare plant surveys for project in Harmony Grove area. Drafted biological technical report and endangered species permitting strategy for 500-acre development in a critical preserve planning area. Participated in multiple screencheck EIR processing with the County. Provide project management for ongoing entitlement process.

- Nickel Creek – Ramona, California. Provided baseline vegetation, wetlands delineation, and rare plant mapping for 14-acre multi-family residential development on the Santa Maria River. Coordinated with architect on least impactive development design and coordinated with County of San Diego to design a multi-use trail connection along the river while avoiding impacts to jurisdictional waters. Provided Biological Resources Technical Report evaluating project impacts pursuant to CEQA.

- Manchester Avenue Residential Development – Encinitas, California. Provided project management for entitlement processing of medium-scale residential subdivision on coastal property supporting numbers rare vegetation communities and plant species. Project capabilities included vegetation mapping, rare plant surveys, wetlands delineation, impact assessment pursuant to CEQA, and permitting strategy for impacts to jurisdictional wetlands, state- and federal endangered species.

- Levatino Property – Carlsbad, California. Provided biological resource mapping, rare plant surveys, and wetlands delineation for 20-acre property. Evaluated development constraints in consideration of regional planning efforts, state and federal regulations.

- Maldanado Property – Carlsbad, California. Provided biological resource mapping, rare plant surveys, and wetlands delineation for 50-acre property. Evaluated development constraints in consideration of regional planning efforts, state and federal regulations.

- Santa Fe Meadows – Santa Fe Valley, California. Provided vegetation mapping, rare plant survey, and wetlands delineation for 40-acre residential development area.

- Shaw Property – San Diego, California. Provided vegetation mapping, rare plant, and wetlands delineation for 40-acre property.

- Via de la Valle – San Diego, California. Provided biological resources mapping, wetlands delineation, rare plants survey, and development constraints analysis for 20-acre property on

Institutional Facilities

- Our Lady of Mt. Carmel Catholic Church – San Diego, California. Conducted baseline vegetation surveys, wetlands delineation, rare plants survey, vernal pool identification, and vernal pool watershed mapping. Drafted Biological Resources Technical Report for Mitigated Negative Declaration and participated in community meetings and response to comments. Drafted Resource Management Plan for onsite open space management and avoidance of long-term impacts to adjacent USFWS National Wildlife Refuge property.

- Lux Art Institute – Encinitas, California. Provided biological resource mapping, including vegetation mapping, wetlands delineation, and rare plant survey for 20-acre property. Provided constraints analysis, evaluation of project impacts pursuant to a Habitat Loss Permit under Section 4(d) of the federal Endangered Species Act, and management of permit compliance.

Commercial/Industrial

- Fry's Electronics - San Marcos, California. Provided initial vernal pool identification and mapping, utilizing portable GPS system, wetlands delineation, and rare plant mapping. Rare plant mapping included pool by pool floral inventory and mapping of state- and federally-listed endemic vernal pool plant species.

- San Jacinto Valley – Riverside County, California. Provided biological resource mapping, wetland delineation, and rare plant survey for endemic alkali species within San Jacinto River floodplain.

- San Marcos Creek Roadway Improvements Project, City of San Marcos, City of San Marcos, California. Delineated wetlands, prepared vegetation map, and conducted rare plant surveys along San Marcos Creek from State Route 78 to Lake San Marcos.

Master Planned Communities

- Otay Ranch - Chula Vista, California. Provided biological resource surveys and documentation for various developments covering over 4,000 acres of vacant land. Tasks have included vegetation mapping, rare plants surveys, wetlands delineations, fairy shrimp surveys, and quino checkerspot surveys. Provided Biological Resource Technical Report pursuant to CEQA documentation, assisted in preparation of Second Tier EIR, development wetlands and endangered species permitting strategies, preparing and processing Section 404 Nationwide Permits 14 and 39, Section 401 Water Quality Certification, Section 1601 Streambed Alternation

Agreement, and Section 7 Biological Opinion, and managing compliance with various permit conditions.

- Irvine Company - Irvine, California. Provided vegetation mapping, wetlands delineation, and rare plant mapping for over 5,000 acres of vacant land.

- Fanita Ranch – Santee, California. Provided vegetation mapping, rare plant, and wetlands delineation for 2,000 acre property.

Water/Wastewater/Reclaimed Water

- Salt Creek Gravity Sewer - City of Chula Vista, California. Developed project alternatives permitting strategy with City and project engineers for 11-mile gravity sewer along north edge of Otay River Valley. Provided baseline vegetation mapping, wetlands delineation, and rare plant surveys. Prepared biological technical report and EIR biological evaluation for CEQA compliance. Submitted and coordinated acquisition of Section 404 Nationwide Permit 12, Section 401 Water Quality Certification, Section 1603 Streambed Alternation Agreement, and Section 7 Biological Opinion, including identification of mitigation alternatives. Coordinated construction monitoring and permit compliance.

- North Agua Hedionda Sewer Rehabilitation - City of Carlsbad, California. Provided project management for half-mile sewer rehabilitation and shoreline protection project adjacent to coastal lagoon. Assignments included vegetation mapping, tidal wetlands delineation, rare plant surveys, development of engineering alternatives, permitting strategies, public scoping meetings, analysis of alternative impacts, EIR biological resources documentation, tidal wetlands mitigation identification, permit preparation for Section 404 Nationwide Permit 14, Section 401 Water Quality Certification, Section 1603 Streambed Alternation Agreement, Coastal Development Permit, Section 7 Biological Opinion, and project planning in terms of scheduling and budget.

- Yucapia Non-Potable Water Distribution System, Yucapia Valley Water District, Counties of San Bernardino and Riverside, California. Provided baseline vegetation mapping, wetlands delineation, and rare plant surveys for 500-acre riparian study area.

- Pipe 6, Metropolitan Water District – Riverside County, California. Conducted rare plant surveys and quino checkerspot butterfly surveys over approximately 20 mile long alignment.

Flood Control/Flood Storage/Stormwater

- Perris Valley Storm Drain, Lateral B – Riverside County Flood Control District, California. Provided wetlands delineation and focused rare plant surveys for the two mile long open flood control channel for deepening and widening project. Analyzed CEQA and wetlands permitting strategies and provided Biological Resources Technical Report and wetlands permit applications for Section 404 Nationwide Permits 3, 12, and 14, Section 1603 Streambed Alteration Agreement, and Section 401 Water Quality Certification. Met with ACOE staff to confirm wetlands delineation.

- Canada Gobernadora, Santa Margarita Water District, Orange County, California. Conducted rare plant surveys, which included a focused survey for San Diego tarplant (*Deinandra [Hemizonia] paniculata*), southern tarplant (*Centromadia parryi* spp. *australis)*, and many-stemmed dudleya (*Dudleya multicaulis*).

Transportation

- SR-125 South - Caltrans/CTV. Provided support in preparation of Section 7 Biological Assessment and permit compliance negotiations. Conducted vegetation mapping, rare plant, and quino checkerspot surveys for various mitigation site alternatives. Drafted conceptual revegetation and management plans for various mitigation sites including sites on south edge of Otay River Valley, Otay Mesa, and Otay Mountain..

Parks and Recreational Facilities

- LaBorde Canyon off-Highway Vehicle Park Study, County of Riverside, California. Provided baseline vegetation mapping and plant species inventory.

APPENDIX B
VASCULAR PLANT SPECIES OBSERVED ENTRADA SITE (2002-2004)

APPENDIX B

VASCULAR PLANT SPECIES
ENTRADA SITE

FERNS

PTERIDACEAE - BRAKE FAMILY

Pellaea andromedifolia var. *andromedifolia* – coffee fern
Pentagramma triangularis - goldenback fern

CONIFERS

CUPRESSACEAE - CYPRESS FAMILY

Cupressus sp. - cypress
Juniperus californica - California juniper

PINACEAE - PINE FAMILY

* *Pinus halepensis* – Allepo pine

ANGIOSPERMAE (DICOTYLEDONES)

AMARANTHACEAE - AMARANTH FAMILY

* *Amaranthus albus* - tumbleweed
* *Amaranthus retroflexus* - rough pigweed

ANACARDIACEAE - SUMAC FAMILY

Rhus ovata - sugar-bush
Rhus trilobata - squaw bush
* *Schinus molle* - Peruvian pepper-tree
Toxicodendron diversilobum - poison-oak

APIACEAE - CARROT FAMILY

Apiastrum angustifolium - wild celery
Bowlesia incana – American bowlesia
Daucus pusillus – rattlesnake weed
Lomatium utriculatum - common lomatium

APPENDIX B (Cont.)

ASCLEPIADACEAE - MILKWEED FAMILY

Asclepias californica – California milkweed
Asclepias eriocarpa - Indian milkweed
Asclepias fascicularis - narrow-leaf milkweed

ASTERACEAE - SUNFLOWER FAMILY

Acourtia microcephala - sacapellote
Ambrosia acanthicarpa - annual burweed
Ambrosia confertifolia - weak-leaved burweed
Ambrosia psilostachya – western ragweed
* *Arctotheca calendula* - capeweed
Artemisia californica - coastal sagebrush
Artemisia douglasiana – California mugwort
Artemisia dracunculus - tarragon
Artemisia tridentata - Great Basin sagebrush
Baccharis pilularis - coyote brush
Baccharis salicifolia - mule fat
Baccharis sarothroides - chaparral broom
Brickellia californica - California brickellbush
Brickellia nevinii – Nevin's brickellbush
* *Carduus pycnocephalus* - Italian thistle
* *Centaurea melitensis* - star thistle
Chaenactis glabriuscula - yellow pincushion
* *Chamomilla suaveolens* - pineapple weed
Chrysothamnus sp. – rabbitbrush
Chrysothamnus nauseosus – rubber rabbitbrush
Cirsium occidentale var. *californicum*- California thistle
Cirsium occidentale var. *occidentale* – cobwebby thistle
* *Cirsium vulgare* - bull thistle
* *Cnicus benedictus* - blessed thistle
Conyza canadensis – common horseweed
Conyza coulteri – Coulter's horseweed
Coreopsis bigelovii – tickseed
* *Cotula australis* – cotula
* *Cotula coronopifolia* – African brass-buttons
Deinandra (*Hemizonia*) *fasciculata* - fascicled tarweed
* *Dimorphotheca sinuata* - African daisy
Encelia actoni – Acton's encelia
Encelia californica - California bush sunflower

APPENDIX B (Cont.)

Encelia farinosa - brittlebush, incensio
Ericameria palmeri var. *pachylepis* – goldenbush
Erigeron foliosus – leaf daisy
Eriophyllum confertiflorum - long-stem golden yarrow
Euthamia occidentalis - western goldenrod
Filago californica - California fluffweed
Gnaphalium californicum - California everlasting
Gnaphalium canescens ssp. *microcephalum* – white everlasting
* *Gnaphalium luteo-album* - white cudweed
Gnaphalium palustre - lowland cudweed
Hazardia squarrosa ssp. *grindelioides* - saw-toothed goldenbush
Helianthus annuus - common sunflower
Heterotheca grandiflora - telegraph weed
Heterotheca sessiliflora - golden aster
* *Hypochaeris glabrata* – smooth cats ear
Isocoma menziesii - goldenbush
* *Lactuca serriola* - prickly lettuce
Lasthenia californica - coast goldfields
Lasthenia glabrata ssp. *coulteri* – Coulters goldfields
Layia platyglossa - common tidy-tips
Lepidospartum squamatum - scale-broom
Lessingia filaginifolia – California aster
Lessingia filaginifolia var. *filaginifolia* – California aster
Lessingia glandulifera – valley vinegar-weed
Madia gracilis – slender tarweed
Malacothrix saxatilis var. *commutata* – cliff desertdandelion
Malacothrix saxatilis var. *tenuifolia* - cliff malacothrix
* *Matricaria matricarioides* – pineapple weed
Osmadenia tenella – southern rosinweed
* *Picris echioides* – bristly ox-tongue
Pluchea sericea – arrow weed
Rafinesquia californica - California chicory
Senecio californica - California groundsel
Senecio flaccidus var. *douglasii* – butterweed
* *Senecio vulgaris* - common groundsel
* *Silybum marianum* - milk thistle
* *Sonchus asper* - prickly sow-thistle
* *Sonchus oleraceus* – common sow-thistle
Stebbinsoseris heterocarpa – grassland stebbinsoseris

APPENDIX B (Cont.)

Stephanomeria virgata - twiggy wreathplant
Stylocline gnaphalioides - everlasting nest-straw
Tetradymia comosa – cotton thorn
Uropappus lindleyi - silver puffs
Xanthium spinosum - spiny cocklebur
Xanthium strumarium - cocklebur

BORAGINACEAE - BORAGE FAMILY

Amsinckia menziesii var. intermedia- common fiddleneck
Amsinckia menziesii var. menziesii - rigid fiddleneck
Amsinckia tessellata var. *tessellata* – devil's lettuce
Cryptantha sp. - forget-me-not
Cryptantha intermedia - common forget-me-not
Cryptantha micrantha – purple root cryptantha
Cryptantha microstachys – Tejon cryptantha
Cryptantha muricata - prickly cryptantha
Cryptantha nevadensis – Nevada catseye
Heliotropium curassavicum - wild heliotrope
Pectocarya linearis - slender pectocarya
Pectocarya penicillata – winged pectocarya
Pectocarya setosa - pectocarya
Plagiobothrys sp. - popcorn flower
Plagiobothrys arizonicus – Arizona popcornflower
Plagiobothrys canescens – valley popcornflower
Plagiobothrys collinus - California popcornflower
Plagiobothrys fulvus – fulvous popcornflower
Plagiobothrys nothofulvus – rusty popcornflower

BRASSICACEAE - MUSTARD FAMILY

* *Brassica nigra* - black mustard
* *Capsella bursa-pastoris* - shepard's purse
* *Cardaria draba* - heart-podded hoary cress
Erysimum capitatum ssp. *capitatum* - western wallflower
* *Hirschfeldia incana* - short-podded mustard
Lepidium virginicum - wild peppergrass
* *Raphanus sativus* - wild radish
* *Rorippa nasturtium-aquaticum* – water cress
* *Sisymbrium irio* - London rocket
* *Sisymbrium orientale* - Oriental mustard

APPENDIX B (Cont.)

Thysanocarpus curvipes - hairy fringepod
Thysanocarpus laciniatus - lacepod
Tropidocarpum gracile - slender dobie-pod

CACTACEAE - CACTUS FAMILY
Opuntia basilaris var. *basilaris* - beavertail
Opuntia californica var. *parkeri* - cane cholla
* *Opuntia ficus-indica* – Indian-fig
Opuntia littoralis - coastal prickly-pear
Opuntia parryi – snake cholla

CAPPARACEAE – CAPER FAMILY
Isomeris arborea – bladderpod

CAPRIFOLIACEAE - HONEYSUCKLE FAMILY
Lonicera subspicata - southern honeysuckle
Sambucus mexicana - Mexican elderberry

CARYOPHYLLACEAE - PINK FAMILY
* *Silene gallica* - common catchfly
Spergularia sp. – sand-spurrey
* *Spergularia rubra* – sand-spurrey
* *Stellaria media* - common chickweed

CHENOPODIACEAE - GOOSEFOOT FAMILY
Atriplex canescens - four-winged saltbush
* *Atriplex heterosperma* – weedy orache
Atriplex lentiformis- big saltbush
* *Atriplex rosea* - redscale
* *Atriplex semibaccata* - Australian saltbush
Atriplex serenana var. *serenana* - bractscale
* *Atriplex suberecta* - peregrine saltbush
* *Bassia hyssopifolia* - five-hooked bassia
* *Chenopodium album* - lamb's quarters
* *Chenopodium ambrosioides* - Mexican tea
Chenopodium berlandieri - pitseed goosefoot
Chenopodium californicum - California goosefoot
* *Chenopodium murale* - nettle-leaved goosefoot
* *Salsola tragus* - Russian-thistle

APPENDIX B (Cont.)

CONVOLVULACEAE - MORNING-GLORY FAMILY

Calystegia macrostegia ssp. *cyclostegia* – morning-glory
Calystegia peirsonii - Peirson's morning-glory
* *Convolvulus arvensis* - bindweed

CRASSULACEAE - STONECROP FAMILY

Crassula connata - dwarf stonecrop
Dudleya lanceolata - lanceleaf dudleya

CUCURBITACEAE - GOURD FAMILY

Cucurbita foetidissima - coyote-melon, calabazilla
Marah horridus – Sierran wild cucumber
Marah macrocarpus - wild cucumber

CUSCUTACEAE – DODDER FAMILY

Cuscuta californica – California dodder

EUPHORBIACEAE - SPURGE FAMILY

Chamaesyce albomarginata - rattlesnake spurge
Chamaesyce polycarpa - small-seed sand mat
Croton californicus – California croton
Eremocarpus setigerus – doveweed
Stillingia linearifolia – linear-leaved stillingia

FABACEAE - PEA FAMILY

Astragalus didymocarpus - common dwarf locoweed
Astragalus gambelianus - Gambell's dwarf locoweed
Astragalus trichopodus var. *phoxus* – Santa Barbara locoweed
Lotus hamatus - grab lotus
Lotus humistratus – hill lotus
Lotus purshianus - Spanish-clover
Lotus salsuginosus – coastal lotus
Lotus scoparius - deerweed
Lotus strigosus - strigose deerweed
Lotus wrangelianus – Chilean birds-foot trefoil
Lupinus bicolor - Lindley's annual lupine
Lupinus excubitus var. *hallii* - grape soda lupine
Lupinus formosus var. *formosus* - lupine
Lupinus hirsutissimus - stinging lupine

APPENDIX B (Cont.)

Lupinus microcarpus - chick lupine
Lupinus microcarpus var. *densiflorus* - chick lupine
Lupinus sparsiflorus - Coulter's lupine
Lupinus succulentus - arroyo lupine
Lupinus truncatus - collar lupine
* *Medicago polymorpha* - California burclover
* *Melilotus alba* - white sweet-clover
* *Melilotus indica* - yellow sweet-clover
* *Robinia pseudoacacia* - black locust
Trifolium albopurpureum - Indian clover
Trifolium ciliolatum - tree clover
Trifolium gracilentum – pinpoint clover
Trifolium hirtum - rose clover
Trifolium sp. - clover
Trifolium willdenovii - valley clover
* *Vicia villosa* - winter vetch

FAGACEAE - BEECH FAMILY

Quercus agrifolia - coast live oak
Quercus berberidifolia - scrub oak
Quercus berberidifolia x *lobata*
Quercus c.f. douglasii - blue oak
Quercus lobata - valley oak
* *Quercus ilex* – holly oak

GERANIACEAE - GERANIUM FAMILY

* *Erodium botrys* - broad-lobed filaree
* *Erodium cicutarium* - red-stemmed filaree
* *Erodium moschatum* - white-stemmed filaree

GROSSULARIACEAE – CURRANT FAMILY

Ribes aureum – golden currant

HYDROPHYLLACEAE - WATERLEAF FAMILY

Emmenanthe penduliflora - whispering bells
Eriodictyon crassifolium var. *nigrescens* - yerba santa
Eucrypta chrysanthemifolia - common eucrypta
Phacelia cicutaria - caterpillar phacelia
Phacelia distans - blue fiddleneck

APPENDIX B (Cont.)

Phacelia imbricata - imbricate phacelia
Phacelia minor - wild canterbury-bell
Phacelia ramosissima - shrubby phacelia
Phacelia tanacetifolia – tansy-leaved phacelia

JUGLANDACEAE – WALNUT FAMILY
Juglans californica – southern California black walnut

LAMIACEAE - MINT FAMILY
* *Marrubium vulgare* - horehound
Salvia apiana - white sage
Salvia columbariae - chia
Salvia leucophylla - purple sage
Salvia mellifera - black sage
Trichostema lanceolatum - vinegar weed

MALVACEAE - MALLOW FAMILY
Malacothamnus fasciculatus - mesa bushmallow
* *Malva parviflora* - cheeseweed

NYCTAGINACEAE - FOUR O'CLOCK FAMILY
Mirabilis californica - California wishbone-bush

OLEACEAE - OLIVE FAMILY
* *Ligustrum lucidum* – glossy privet

ONAGRACEAE - EVENING-PRIMROSE FAMILY
Camissonia bistorta - California sun cup
Camissonia boothii var. *decorticans* – shredding evening primrose
Camissonia californica - mustard primrose
Camissonia hirtella – field suncup
Camissonia micrantha – miniature suncup
Camissonia robusta – robust suncup
Clarkia purpurea - winecup clarkia
Clarkia speciosa – red-spotted clarkia
Clarkia unguiculata - elegant clarkia
Epilobium brachycarpum – annual fireweed
Epilobium canum - California fuchsia

APPENDIX B (Cont.)

PAEONIACEAE - PEONY FAMILY

Paeonia californica - California peony

PAPAVERACEAE - POPPY FAMILY

Eschscholzia californica - California poppy
Platystemon californicum – cream cups

PLANTAGINACEAE - PLANTAIN FAMILY

Plantago erecta - dot-seed plantain
* *Plantago lanceolata* - English plantain
* *Plantago major* - common plantain
* *Plantago ovata* – woolly plantain

POLEMONIACEAE - PHLOX FAMILY

Eriastrum densifolium ssp. *densifolium* – dense eriastrum
Eriastrum densifolium ssp. *elongatum* - dense eriastrum
Eriastrum sapphirinum - sapphire eriastrum
Gilia angelensis - angel gilia
Gilia capitata – ball gilia
Leptodactylon californicum – prickly phlox
Linanthus androsaceus - common linanthus
Linanthus liniflorus – narrowflower flaxplower
Linanthus parviflorus – false babystars
Navarretia atractyloides - holly-leaf skunkweed

POLYGONACEAE - BUCKWHEAT FAMILY

Chorizanthe parryi var. *fernandina* - San Fernando Valley spineflower
Chorizanthe staticoides - turkish rugging
Eriogonum elongatum - long-stemmed buckwheat
Eriogonum fasciculatum ssp. *foliolosum* - California buckwheat
Eriogonum foliosum – leafy buckwheat
E. gracile var. gracile - slender woolly buckwheat
Eriogonum viridescens – twotooth buckweat
Lastarriaea coriacea - lastarriaea
* *Polygonum arenastrum* - common knotweed
Pterostegia drymarioides - California threadstem
Rumex hymenosepalus – desert rhubarb
* *Rumex crispus* - curly dock

APPENDIX B (Cont.)

PORTULACACEAE - PURSLANE FAMILY

Calandrinia ciliata - redmaids
Claytonia parviflora – miner's lettuce
Claytonia perfoliata - miner's lettuce
* *Portulaca oleracea* - common purslane

RANUNUCULACEAE - BUTTERCUP FAMILY

Clematis ligusticifolia - yerba de chiva
Delphinium parryi ssp. *parryi* – Parry's larkspur

RHAMNACEAE - BUCKTHORN FAMILY

Ceanothus crassifolius - hoary-leaved ceanothus
Rhamnus crocea - redberry
Rhamnus ilicifolia - holly-leaf redberry

ROSACEAE - ROSE FAMILY

Adenostoma fasciculatum - chamise
Cercocarpus betuloides var. *betuloides* - birch-leaf mountain-mahogany
Cercocarpus betuloides var. *blancheae* - island mountain-mahogany
Fragaria sp. - strawberry
Heteromeles arbutifolia - toyon
Prunus ilicifolia - holly-leaf cherry

RUBIACEAE - MADDER FAMILY

* *Galium aparine* - goose grass
Galium angustifolium - narrow-leaved bedstraw
Galium porrigens - climbing bedstraw

SALICACEAE - WILLOW FAMILY

Populus fremontii - Fremont's cottonwood
Salix exigua - narrow-leaved willow
Salix laevigata - red willow
Salix lasiolepis - arroyo willow

SAURURACEAE - LIZARD'S-TAIL FAMILY

Anemopsis californica - yerba mansa

APPENDIX B (Cont.)

SCROPHULARIACEAE - FIGWORT FAMILY

Castilleja exserta - common owl's-clover
Keckiella cordifolia - heart-leaf penstemon
Mimulus aurantiacus - bush monkeyflower
Penstemon centranthifolius - scarlet bugler
* *Veronica anagalis-aquatica* – water speedwell

SOLANACEAE - NIGHTSHADE FAMILY

Datura wrightii - western jimsonweed
* *Nicotiana glauca* - tree tobacco
Solanum americanum - small-flowered nightshade
Solanum xanti - chaparral nightshade

STERCULIACEAE - CACAO FAMILY

* *Fremontodendron californicum* x *mexicanum* – flannelbush cultivar (ornamental planting observed adjacent to Magic Mountain theme park)

TAMARICACEAE - TAMARISK FAMILY

* *Tamarix ramosissima* - Mediterranean tamarisk

URTICACEAE - NETTLE FAMILY

Urtica dioica - giant creek nettle
* *Urtica urens* - dwarf nettle

VIOLACEAE - VIOLET FAMILY

Viola pedunculata – Johnny jump-up

VITACEAE - GRAPE FAMILY

Parthenocissus vitacea – woodbine

ZYGOPHYLLACEAE - CALTROP FAMILY

* *Tribulus terrestris* - puncture vine

ANGIOSPERMAE (MONOCOTYLEDONES)

CYPERACEAE - SEDGE FAMILY

Cyperus esculentus - nutsedge

APPENDIX B (Cont.)

LILIACEAE - LILY FAMILY

Bloomeria crocea – common goldenaster
Brodiaea terrestris ssp. *kernensis* - brodiaea
Calochortus c.f. catalinae – Catalina mariposa lily
Calochortus c.f. plummerae – Plummer's mariposa lily
Calochortus clavatus var. *gracilis* – slender mariposa lily
Calochortus venustus - mariposa lily
Chlorogalum pomeridianum – wavy-leaf soap-plant
Dichelostemma capitatum - blue dicks
Muilla maritima - common muilla
Yucca schidigera – Mohave yucca
Yucca whipplei – Our Lord's candle

POACEAE - GRASS FAMILY

* *Avena barbata* - slender oat
* *Avena fatua* - wild oat
* *Avena sativa* - cultivated oat
Bromus arizonicus – Arizona chess
Bromus catharticus - rescue grass
* *Bromus diandrus* - ripgut grass
* *Bromus hordeaceus* - soft chess
* *Bromus madritensis* ssp. *rubens* - foxtail chess
* *Bromus sterilis* - poverty brome
* *Bromus tectorum* - cheat grass
* *Cynodon dactylon* - Bermuda grass
Distichlis spicata - salt grass
Elymus glaucus - western wild rye
Hordeum brachyantherum - meadow barley
* *Hordeum murinum* - glaucous foxtail barley
* *Hordeum vulgare* – cultivated barley
* *Lamarckia aurea* - goldentop
Leptochloa uninervia - Mexican sprangletop
Leymus tritocoides - beardless wild rye
Melica imperfecta - California melic
Nassella cernua - nodding needlegrass
Nassella lepida - foothill stipa

APPENDIX B (Cont.)

Nassella pulchra - purple needlegrass
* *Piptatherum miliaceum* – smilo grass
Poa secunda - Malpais bluegrass
Polypogon interruptus – ditch beard grass
* *Polypogon monspeliensis* - rabbit's-foot grass
* *Schismus barbatus* - abumashi
* *Triticum aestivum* – cereal wheat
Vulpia microstachys – small fescue
* *Vulpia myuros* - rattail fescue

TYPHACEAE - CATTAIL FAMILY

Typha latifolia - broad-leaved cattail

* signifies introduced (non-native) species

APPENDIX C
CALIFORNIA NATURAL DIVERSITY DATA BASE FORMS

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Calochortus clavatus* var. *gracilis*

Reporter: Marc Doalson and others Phone: (760) 942.5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: April 4 & 13, & 14, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains; Magic Mountain Entertainment site; south of the Santa Clara River, east/ south of Airport Mesa and adjacent mesas, west of Interstate 5.

Quad Name: Newhall __X__ 7½' ___ 15' Elevation: 1075-1250' T 4N R 16W __W__ ¼ of___ ¼ Sec___

Landowner/Manager: The Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? __X__ Yes _____ No If not, reason:

Is this a new location record? _____ Yes X No _____ Unknown

Total # of Individuals = __~419__ Is this a subsequent visit? __X__ Yes___ No Compared to your last visit:___ more ___ same __X__ fewer

Phenology (plants): _____ % vegetative __100__ % flowering _____ % fruiting

Population Age Structure (animals): _____ # adults _____ # juveniles _____ # others

Site Function for Species (animals): _____ breeding _____ foraging _____ wintering _____ roosting _____ denning _____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

California sagebrush-purple sage with *Artemisia californica, Eriogonum fasciculatum, Salvia leucophylla, Ericameria palmeri* var. *pachypus, Bloomeria crocea, Clarkia purpurea, Lotus strigosus*; mostly N facing slope 0 - 50°; sandy clay loam soils.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Current Land Use: vacant; Visible Disturbances: cattle grazing, grading/clearing beside Magic Mtn Theme Park for fireworks, utility access roads; Possible Threats: proposed residential/commercial development, utility access roads.

Overall Site Quality: _____ Excellent _____ Good X Fair _____ Poor

Comments: Plants were sparsely distributed within numerous polygons throughout the southern portion of the site.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

_____ Keyed in a site reference:
_____ Compared with specimen housed at: UCR
_____ Compared with photo/drawing in:
_____ By another person (name): Andy Sanders
X Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
_____ Plant/Animal	____ Slide
_____ Habitat	____ Print
_____ Diagnostic Feature	
_____ Other	

May we obtain duplicates **at our cost**?
_____ Yes __X__ No

slender mariposa lily - Calochortus clavatus var. gracilis

N

TOPO SOURCE: Psomas Engineering, 2002

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Entrada

FIGURE 1

2004 Sensitive P lant Su

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Chorizanthe parryi* var. *fernandina*

Reporter: Megan Enright, David Flietner, and others Phone: (760) 942.5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: April 4 & 13, & 14, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains; Magic Mountain Entertainment site; south of the Santa Clara River, east/ south of Airport Mesa and adjacent mesas, west of Interstate 5.

Quad Name: Newhall __X__ 7½' ___ 15' Elevation: 1075-1250' T 4N R 16W W ¼ of ___ ¼ Sec___

Landowner/Manager: The Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? __X__ Yes _____ No If not, reason:

Is this a new location record? _____ Yes __X__ No _____ Unknown

Total # of Individuals = ~32,000 Is this a subsequent visit? X Yes___ No Compared to your last visit:___ more ___ same __X__ fewer

Phenology (plants): _____ % vegetative 100 % flowering _____ % fruiting

Population Age Structure (animals): _____ # adults _____ # juveniles _____ # others

Site Function for Species (animals): _____ breeding _____ foraging _____ wintering _____ roosting _____ denning _____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

Predominantly California grassland series with California sagebrush, including black sage series, also present. Most (~ 30,000) plants occur on 30%, northeast-facing slope on silt loam soils. Dominant plants at this location were not reported. Other plants were found wet to southeast aspects and slopes of 15 to 40%; dominant plants noted with smaller groups included *Chaenactis glabriuscula, Eriogonum elongatum*, and *Salsola tragus.*

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, utility access road; Visible Disturbances: cattle grazing, farming, grading/clearing, utility access road; Possible Threats: proposed residential/commercial development, utility access road maintenance.

Overall Site Quality: _____ Excellent _____ Good __X__ Fair _____ Poor

Comments:This report summarizes 10 discrete locations, each with from 6 to an estimated 30,000 individuals observed. Rainfall was below averge and the population is likely greater.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

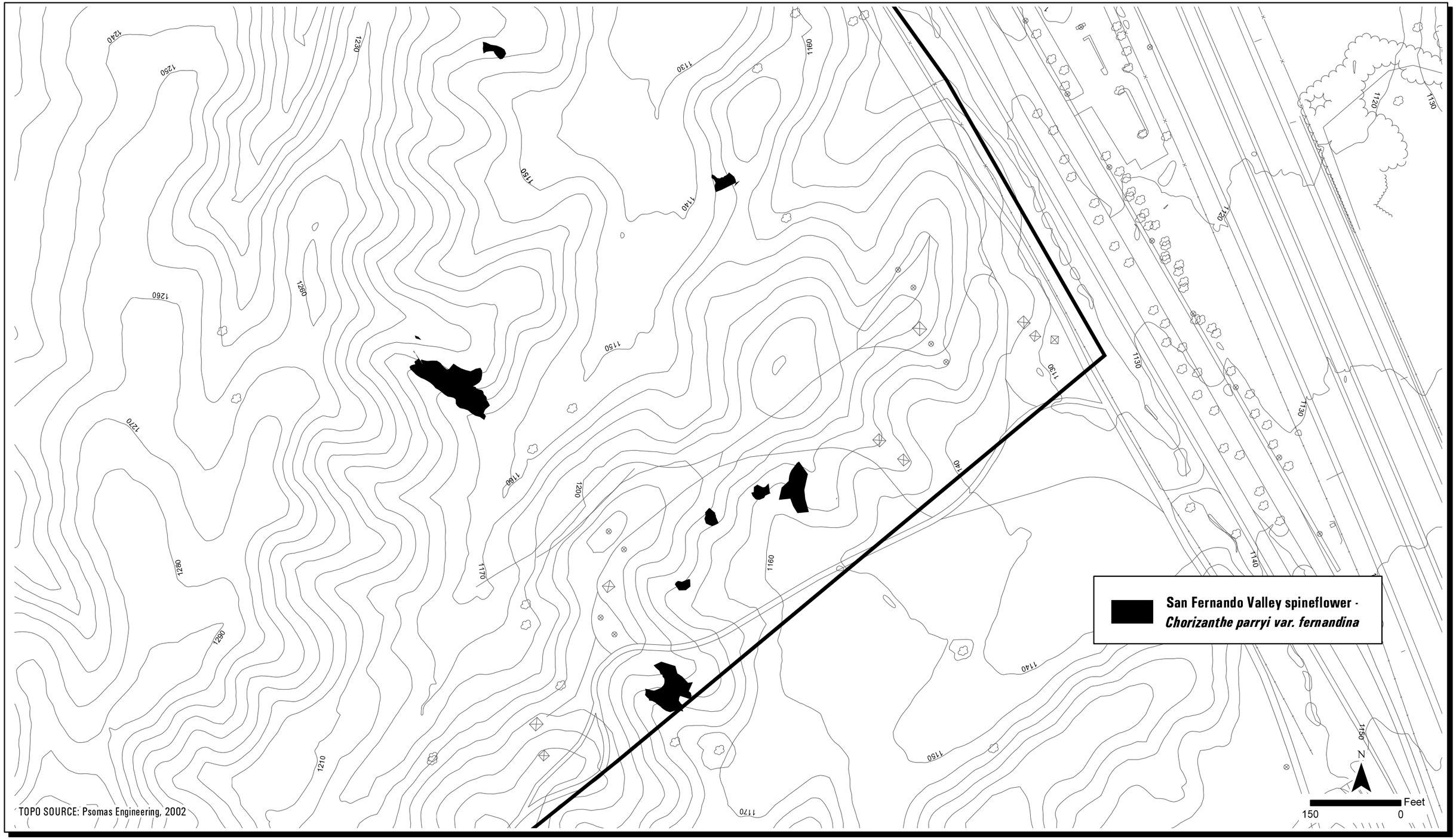
_____ Keyed in a site reference:
_____ Compared with specimen housed at: UCR
_____ Compared with photo/drawing in:
_____ By another person (name): Andy Sanders
__X__ Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
_____ Plant/Animal	___ Slide
_____ Habitat	___ Print
_____ Diagnostic Feature	
_____ Other	

May we obtain duplicates **at our cost**?
_____ Yes __X__ No



Entrada

2004 San Fernando Valley spineflower Results

FIGURE 1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Chorizanthe parryi* var. *fernandina*

Reporter: Michelle Balk, Megan Enright, and others Phone: (760) 942.5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: April 15, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains; Magic Mountain Entertainment site; south of the Santa Clara River, east/ south of Airport Mesa and adjacent mesas, west of Interstate 5,.... Magic Mountain 2

Quad Name: Newhall X 7½' __ 15' Elevation: ' T 4N R 16W W ¼ of ¼ Sec

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? X Yes ____ No If not, reason:

Is this a new location record? X Yes ___ No ____ Unknown

Total # of Individuals = ~13,000 Is this a subsequent visit? X Yes__ No Compared to your last visit: X more __ same __ fewer

Phenology (plants): ____ % vegetative 100 % flowering ____ % fruiting

Population Age Structure (animals): ____ # adults ____ # juveniles ____ # others

Site Function for Species (animals): ____ breeding ____ foraging ____ wintering ____ roosting ____ denning ____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

Predominantly California sagebrush, with some found in big sagebrush and California grasslands. Most (~10,000) plants in opening in sagebrush, on flat ground. Other plants occurred on up to 20% slopes, with a variety of aspects. Clay loam soils predominate. Associated species in most cases were non-native forbs and grasses,. such as *Lepidium* sp., *Bromus hordacous,* and *Erodium cicutarium.*

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: vacant; Visible Disturbances: cattle grazing, erosion; Possible Threats: proposed residential/commercial development, utility access road maintenance, erosion control.

Overall Site Quality: ____ Excellent ____ Good X Fair ____ Poor

Comments: This report summarizes 7 discrete locations, each with from 1 to an estimated 10,000 individuals observed. Rainfall was below average and the population is likely greater.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

____ Keyed in a site reference:
____ Compared with specimen housed at: UCR
____ Compared with photo/drawing in:
____ By another person (name): Andy Sanders
X Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
____ Plant/Animal	___ Slide
____ Habitat	____ Print
____ Diagnostic Feature	
____ Other	

May we obtain duplicates **at our cost**?
____ Yes X No

Entrada

2004 San Fernando Valley spineflower Results

FIGURE
1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Chorizanthe parryi* var. *fernandina*

Reporter: Megan Enright, David Flietner, and others Phone: (760) 942.5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: April 16 & May 1, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains, Newhall Ranch, southeast of confluence of the Santa Clara River and Castaic Creek, east, south, and west edges of Airport Mesa and adjacent mesas.

Quad Name: Newhall X 7½' __ 15' Elevation: 1075-1250' T 4N R ? W W ¼ of ? ¼ Sec?

Landowner/Manager: Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? X Yes ____ No If not, reason:

Is this a new location record? X Yes ____ No ____ Unknown

Total # of Individuals = ~360 Is this a subsequent visit? __ Yes X No Compared to your last visit: __ more X same __ fewer

Phenology (plants): ____ % vegetative 100 % flowering ____ % fruiting

Population Age Structure (animals): ____ # adults ____ # juveniles ____ # others

Site Function for Species (animals): ____ breeding ____ foraging ____ wintering ____ roosting ____ denning ____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

Predominantly California sagebrush, with *Eriogonum californicum, Chaenactis glabnscula*, and *Schismus barbatus* dominants. Soils are mostly silt loam, on south, southeast, and southwest slopes of generally 5 to 30%.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, farming, grading/clearing; Possible Threats: proposed residential/commercial development.

Overall Site Quality: ____ Excellent ____ Good X Fair ____ Poor

Comments: This report summarizes 7 discrete locations, each with from 1 to 240 individuals observed. Rainfall was below average and the population is likely greater.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

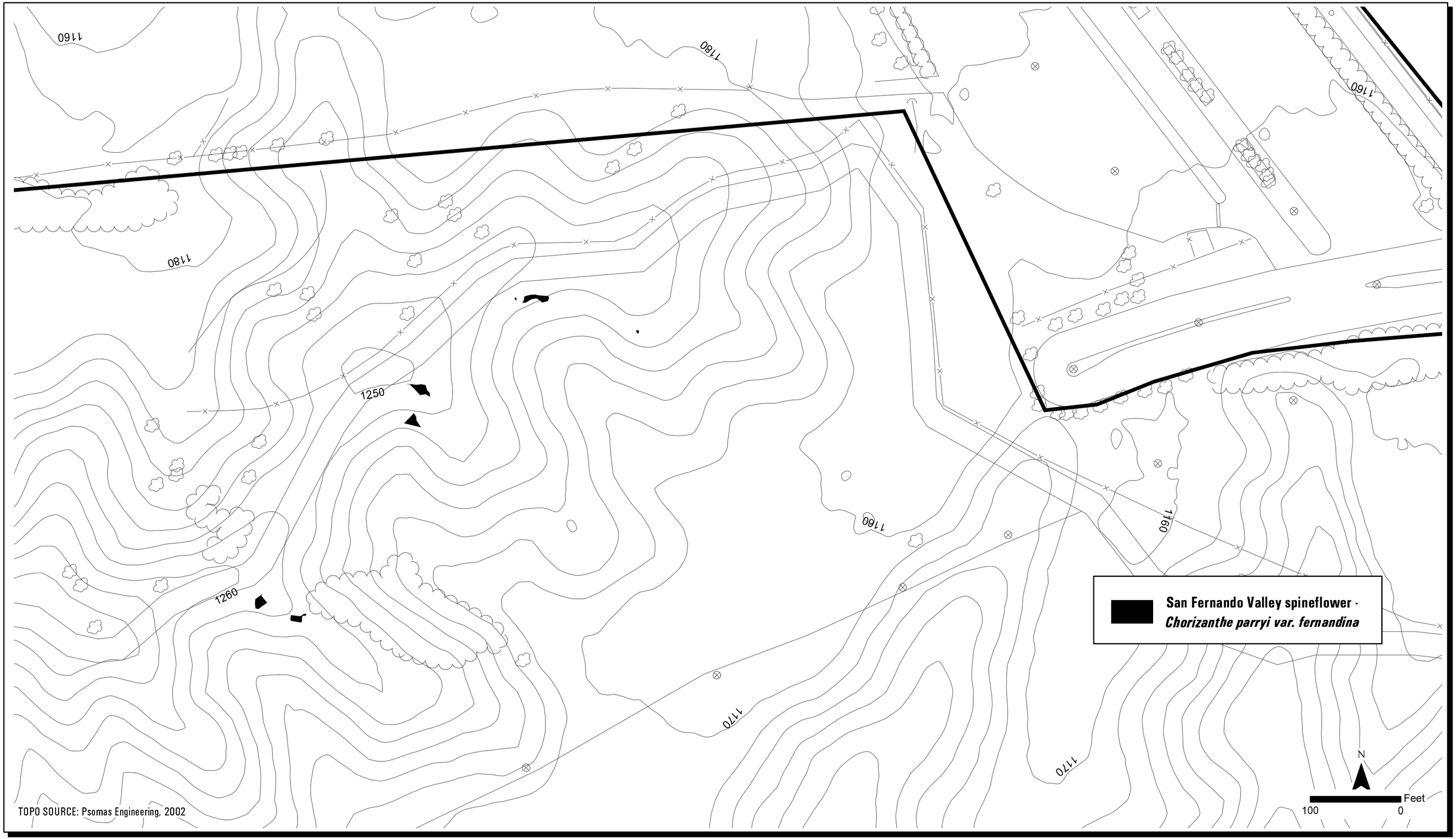
X Keyed in a site reference:
X Compared with specimen housed at: UCR
____ Compared with photo/drawing in:
X By another person (name): Andy Sanders, Rick Riefner
X Other: compared with materials identified by CDFG in May 2002 and documented occurrence on Grapevine Mesa [EO 14]

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone) Kim Marsden

PHOTOGRAPHS (Check one or more)

Subject	Type
X Plant/Animal	X Slide
X Habitat	____ Print
X Diagnostic Feature	
____ Other	

May we obtain duplicates **at our cost**?
X Yes ____ No



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2004 San Fernando Valley spineflower Results

FIGURE 1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____
Copy Sent To _____

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU. USE THE BACK FOR COMMENTS IF NECESSARY. ***PLEASE ATTACH OR DRAW A MAP ON BACK.***

Scientific name (no codes): *Chorizanthe parryi* var. *fernandina*

Reporter: Kamarual Muri and David Flietner Phone: (760) 942.5147

Address: Dudek & Associates, 605 Third Street, Encinitas, CA 92024

Date of Field Work: April 27, 2004 County: Los Angeles Collection: no If yes, # Mus./Herb:

Location: Northern Santa Susana Mountains, Newhall Ranch, southeast of confluence of the Santa Clara River and Castaic Creek, east edge of Airport Mesa directly west of Magic Mtn Theme Park. This polygon is part of the Airport Mesa metapopulation which will have the rest of the data on another form.

Quad Name: Newhall X 7½' __ 15' Elevation: ~1,150' T 4N R 16W E ¼ of __ ¼ Sec __

Landowner/Manager: The Newhall Land and Farming Company, 23823 Valencia Boulevard, Valencia, CA 91355

Species Found? X Yes ____ No If not, reason:

Is this a new location record? ____ Yes X No ____ Unknown * surveys performed here in 2001 by FLx; species believed identified during those surveys

Total # of Individuals = 270 Is this a subsequent visit? X Yes __ No Compared to your last visit: __ more __ same X fewer

Phenology (plants): ____ % vegetative 100 % flowering ____ % fruiting

Population Age Structure (animals): ____ # adults ____ # juveniles ____ # others

Site Function for Species (animals): ____ breeding ____ foraging ____ wintering ____ roosting ____ denning ____ other

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils, aspect/slope):

Calfornia sagebrush, black sage series, with dominated by *Bromus* spp, *Eriogonum fasiculatum*, and *Erodium cicutarium*. Plants occur on south-facing 155 slope iwth sandy loam soil.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, farming; Possible Threats: proposed residential/commercial development.

Overall Site Quality: ____ Excellent X Good ____ Fair ____ Poor

Comments: This is a single occurrence; the population in the area is much reduced from the previous year, likely due to the below-average rainfall.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

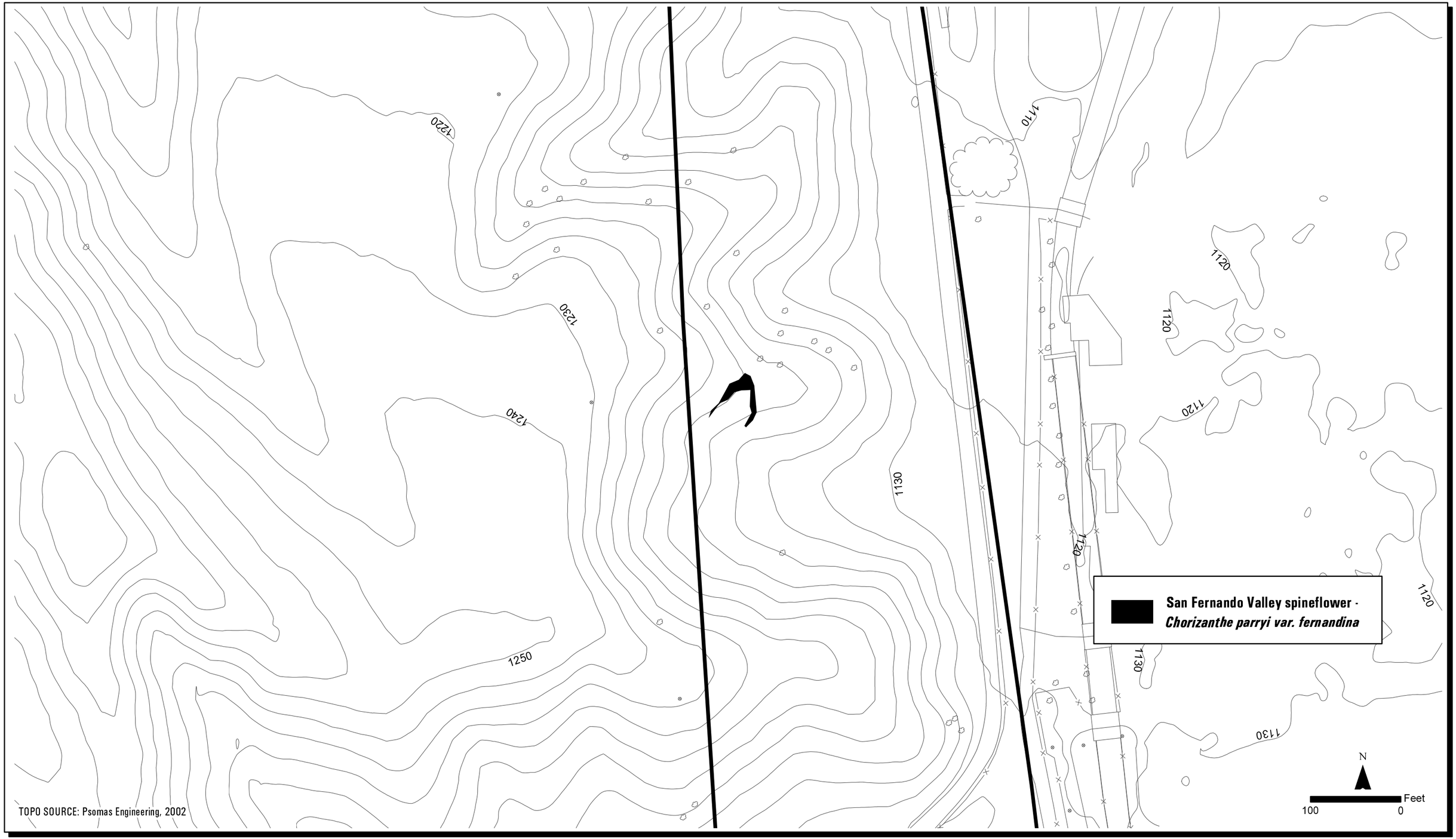
____ Keyed in a site reference:
____ Compared with specimen housed at:
____ Compared with photo/drawing in:
____ By another person (name):
X Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject	Type
____ Plant/Animal	___ Slide
____ Habitat	____ Print
____ Diagnostic Feature	
____ Other	

May we obtain duplicates **at our cost**?
____ Yes X No



Entrada

2004 San Fernando Valley spineflower Results

FIGURE 1

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