



2003 Sensitive Plant Survey Results

Entrada (Magic Mountain Entertainment)

Los Angeles County, California



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for the
Magic Mountain Entertainment Site
Los Angeles County, California

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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 Magic Mountain Entertainment Site (MME) for the 2003 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

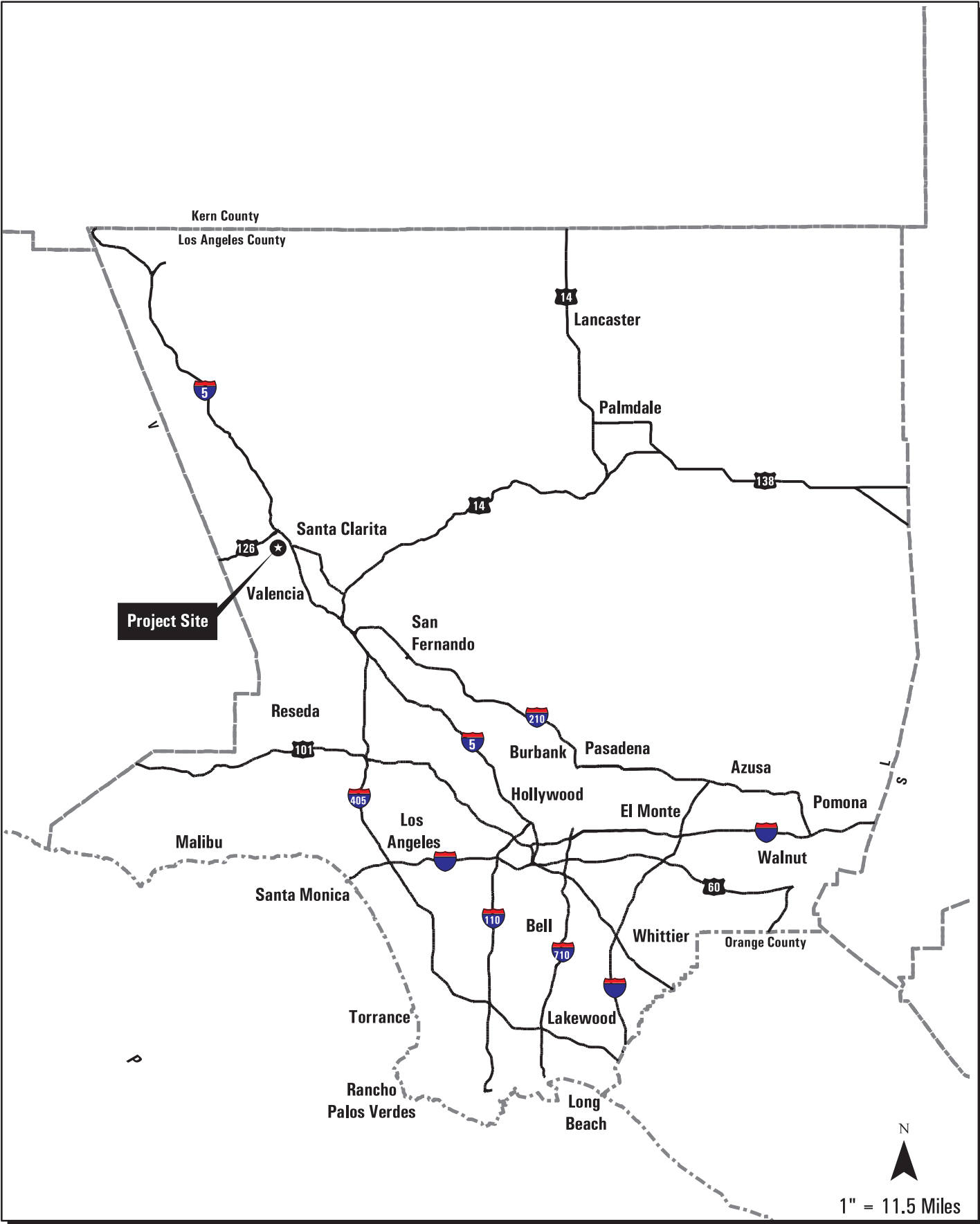
The 550-acre Magic Mountain Entertainment site is located in an unincorporated portion of the Santa Clara River Valley in northwestern Los Angeles County (*Figure 1*). The MME site lies just west of Interstate 5 (I-5) and south of the Santa Clara River. The City of Santa Clarita is immediately east of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

The southern portion of the MME 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 MME 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 and California buckwheat scrub, chamise and mixed chaparral, valley oak and scrub oak woodlands, and



Magic Mountain Entertainment Site
Regional Map

FIGURE
1

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native and non-native grasslands are the major upland plant communities on the site. Ephemeral drainages onsite provide habitat for alluvial and scalebroom scrubs. 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 southern cottonwood-willow riparian forest, southern willow scrub, mulefat scrub, arrow weed scrub, and freshwater marsh and seeps.

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. 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).

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.

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3.1 Literature Review

General floristic and sensitive botanical resources present or potentially present on the MME 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 (CNDDDB, September 2002); *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 Mark A. Elvin, Megan S. Enright, Vipul R. Joshi, Kam J. Muri, Andrew C. Thomson and Tricia L. Wotipka; FLx sub-consultants Nathan Gale and Anuja Parikh; and Andrew C. Sanders from UCR. All surveys were conducted on-foot. Resumes for survey personnel are provided in *Appendix A*.

Botanical surveys of the site were conducted in April of 2003 in accordance with the schedule provided in *Table 1*. Approximately 140 person-hours (14 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

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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
MAGIC MOUNTAIN ENTERTAINMENT SITE

Date	Biologists	Purpose
4-14-03	Mark Elvin, Megan Enright, Kam Muri, Andrew Thomson, Andrew Sanders, Tricia Wotipka	Focused survey for SFVS and other sensitive plant species
4-15-03	Mark Elvin, Megan Enright, Kam Muri, Andrew Thomson, Andrew Sanders, Tricia Wotipka	Focused survey for SFVS and other sensitive plant species
4-16-03	Mark Elvin, Megan Enright, Kam Muri, Andrew Thomson, Andrew Sanders, Tricia Wotipka	Focused survey for SFVS and other sensitive plant species
4-17-03	Megan Enright, Andrew Thomson, Andrew Sanders, Tricia Wotipka	Focused survey for SFVS and other sensitive plant species
4-22-03	Mark Elvin	Focused survey for SFVS and other sensitive plant species
4-23-03	Mark Elvin, Vipul Joshi	Focused survey for SFVS and other sensitive plant species
4-24-03	Mark Elvin, Nathan Gale, Vipul Joshi, Anuja Parikh	Focused survey for SFVS and other sensitive plant species

TABLE 2
SENSITIVE PLANT SPECIES SUBJECT OF FIELD SURVEYS

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

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TABLE 2
SENSITIVE PLANT SPECIES SUBJECT OF FIELD SURVEYS

Scientific Name	Common Name
<i>Chorizanthe parryi</i> var. <i>fernandina</i>	San Fernando Valley spineflower
<i>Deinandra</i> [= <i>Hemizonia</i>] <i>minthornii</i>	Santa Susana tarplant
<i>Dodecahema leptocerus</i>	slender-horned spineflower
<i>Dudleya blochmaniae</i> var. <i>blochmaniae</i>	Blochman's dudleya
<i>Dudleya cymosa</i> ssp. <i>marcescens</i>	marcescent dudleya
<i>Dudleya cymosa</i> ssp. <i>ovatifolia</i>	Santa Monica Mountains dudleya
<i>Dudleya multicaulis</i>	many-stemmed dudleya
<i>Dudleya parva</i>	Conejo dudleya
<i>Erodium macrophyllum</i>	round-leaved filaree
<i>Helianthus nuttallii</i> ssp. <i>parishii</i>	Los Angeles sunflower
<i>Horkelia cuneata</i> var. <i>puberula</i>	mesa horkelia
<i>Malacothamnus davidsonii</i>	Davidson's bush mallow
<i>Nama stenocarpum</i>	mud nama
<i>Nolina cismontane</i>	chaparral nolina
<i>Opuntia basilaris</i> var. <i>brachyclada</i>	short-joint beavertail
<i>Pentachaeta lyonii</i>	Lyon's pentachaeta
<i>Rorippa gambellii</i>	Gambel's water cress
<i>Senecio aphanactis</i>	rayless ragwort
<i>Sidalcea neomexicana</i>	salt spring checkerbloom
<i>Thelypteris puberula</i> var. <i>sonorensis</i>	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 repositied 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 series, California buckwheat series and California annual grassland series

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(Sawyer and Keeler-Wolf 1995) on ridgelines, slopes, and escarpments with a southern, southwestern, or southeastern exposure based on information gathered during the documentation of SFVS populations flagged by CDFG; information gathered during surveys by Dudek for SFVS populations on the Newhall Ranch project site during 2002; 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 (13.1 feet) 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 SFVS 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) (*Appendix C*). 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 cm² (10 by 20 cm) and two m² (one m by two m) depending on various factors regarding the polygon (*e.g.*, size of the polygon, plant

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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.*, $4 \times 125 = 500$, $8 \times 12 = 96$, $9 \times 100 = 900$). 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 200-scale (1"=200 feet) topographic mapping 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 spring of 2003. Surveys were conducted during a year with a "normal" amount of rainfall providing ideal conditions to determine the diversity of species (including sensitive plants) onsite and to map 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.

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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 304 plant species were identified within the MME site. Of these, 228 species (75%) are native to the region and 76 species (25%) are non-native. The list of plant species identified on the site in 2002 and 2003 is provided as *Appendix B*.

4.2 Sensitive Plant Species

Sensitive plant species observed within the study area during the course of our 2003 surveys include: San Fernando Valley spineflower, slender mariposa lily, Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), Peirson's morning glory (*Calystegia peirsonii*), and island mountain-mahogany (*Cercocarpus betuloides* var. *blancheae*). These and other sensitive species that have the potential to occur on the MME 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 and Endangered Plants of California* (CNPS 2001). Those species that were observed during the 2003 field surveys are discussed in greater detail. A number of species found on CNPS Lists 3 or 4 also have the potential to

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TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING
AT THE MAGIC MOUNTAIN ENTERTAINMENT SITE

<i>Scientific Name</i>	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
<i>Arenaria paludicola</i>	marsh sandwort	FE/SE	1B	dense freshwater marsh/perennial herb/May-August	Not observed during 2003 field season, however, entire site not surveyed. No CNDDDB 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.
<i>Astragalus brauntonii</i>	Braunton's milk-vetch	FE/None	1B	chaparral, coastal sage scrub, grasslands; often on carbonate substrates/perennial herb/March-July	Not observed during 2003 field season. No CNDDDB 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.
<i>Atriplex coulteri</i>	Coulter's saltbush	None/None	1B	coastal sage scrub and grasslands on alkaline or clay substrate/perennial herb/March-October	Not observed during 2003 field season, however, entire site not surveyed. No CNDDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists onsite. Moderate likelihood of occurrence within study area.
<i>Atriplex serenana</i> var. <i>davidsonii</i>	Davidson's saltscale	None/None	1B	coastal bluff scrub and coastal sage scrub on alkaline substrate/annual herb/May-October	Not observed during 2003 field season, however, entire site not surveyed. No CNDDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists onsite. Low likelihood of occurrence within the study area.
<i>Baccharis malibuensis</i>	Malibu baccharis	None/None	1B	chaparral, coastal sage scrub, cismontane woodland/deciduous shrub/August	Not observed during 2003 field season. No CNDDDB 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.
<i>Berberis nevinii</i>	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 2003 field season. CNDDDB records exist for San Francisquito Canyon at confluence with Santa Clara River; suitable habitat present onsite. Moderate likelihood of occurrence within study area.
<i>Brodiaea filifolia</i>	thread-leaved Brodiaea	FT/SE	1B	clay substrate openings in chaparral, sage scrub, and grasslands/perennial herb (geophyte)/March-June	Not observed during 2003 field season. No CNDDDB 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.

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TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING
AT THE MAGIC MOUNTAIN ENTERTAINMENT SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
<i>Calochortus catalinae</i>	Catalina mariposa lily	None/None	4	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/ perennial herb (geophyte)/ February-May	Not observed during 2003 field season. A <i>Calochortus</i> species with a wide seed capsule and a membranaceous bulb coat was observed onsite that was likely <i>C. catalinae</i> . A search of this area in 2003 only revealed <i>C. venustus</i> and <i>C. clavatus</i> var. <i>gracilis</i> . Low to moderate to high likelihood of occurrence in study area.
<i>Calochortus clavatus</i> var. <i>gracilis</i>	slender mariposa lily	None/None	1B	chaparral and coastal sage scrub/perennial herb (geophyte)/March-May	Observed 60 polygons predominantly on steep, north-facing slopes in California sagebrush throughout the study area. Overall onsite population estimate is 7,870 individuals within occurrence polygons covering 32.0 acres of the site. CNDDDB records for mouth of Pico Canyon.
<i>Calochortus plummerae</i>	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 2003 field season. A <i>Calochortus</i> species with narrow seed capsules and a fibrous bulb coat was observed onsite in 2002, but could not be confirmed as <i>C. plummerae</i> . A search of this area in 2003 only revealed <i>C. venustus</i> . Moderate likelihood of occurrence within study area.
<i>Calochortus weedii</i> var. <i>vestus</i>	late-flowered mariposa lily	None/None	1B	chaparral, cismontane & riparian woodland/perennial herb (geophyte)/ June-August	Not observed during 2003 field season. No CNDDDB records exist for the Newhall or Val Verde quads; however, habitat similar to where species occurs in eastern Ventura County is present onsite. Moderate likelihood of occurrence within study area.
<i>Calystegia peirsonii</i>	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.
<i>Calystegia sepium</i> ssp. <i>binghamiae</i>	Santa Barbara morning-glory	None/None	1A	marshes and swamps/perennial herb/ April-May	Not observed during 2003 field season, however, entire site not surveyed. No CNDDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present onsite. Low likelihood of occurrence within study area.

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TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING
AT THE MAGIC MOUNTAIN ENTERTAINMENT SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
<i>Centromadia</i> [= <i>Hemizonia</i>] <i>parryi</i> ssp. <i>australis</i>	southern tarplant	None/None	1B	mesic edges of marshes in grasslands/annual herb/May-November	Not observed during 2003 field season, however, entire site not surveyed. No CNDDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists onsite. Low likelihood of occurrence within study area.
<i>Cercocarpus betuloides</i> var. <i>blanchetiae</i>	island mountain-mahogany	None/None	4	Chaparral, closed-cone coniferous forest/ evergreen shrub/ February-May	Observed in mixed chaparral in the study area.
<i>Chorizanthe parryi</i> var. <i>fernandina</i>	San Fernando Valley spineflower	FC/SE	1B	coastal sage scrub, sandy soils/annual herb/April-June	Observed 29 polygons in the southeastern, central, and western portions of the site. Total onsite population estimate is 1,183,504 individuals within occurrence polygons covering 1.5 acres of the site.
<i>Deinandra</i> [= <i>Hemizonia</i>] <i>minthornii</i>	Santa Susana tarplant	None/SR	1B	chaparral and coastal sage scrub on rocky substrate/deciduous shrub/July-November	Not observed during 2003 field season. No CNDDDB 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.
<i>Delphinium parryi</i> ssp. <i>blochmaniae</i>	dune larkspur	None/None	1B	maritime chaparral, coastal dunes/ perennial herb/ April-may	Not observed during the 2003 field season. Not expected to occur.
<i>Dodecahema leptoceras</i>	slender-horned spineflower	FE/SE	1B	alluvial scrub on sandy substrate/ annual herb/April-June	Not observed during 2003 field season. Historic CNDDDB records exist for the Newhall or Val Verde quads in alluvial habitat similar to those present onsite. Moderate to high likelihood of occurrence onsite.
<i>Dudleya blochmaniae</i> var. <i>blochmaniae</i>	Blochman's Dudleya	None/None	1B	clay openings in chaparral and coastal sage scrub, grasslands/perennial herb/April-June	Not observed during 2003 field season. No CNDDDB records exist for the Newhall or Val Verde quads. Suitable habitat present onsite. Low to moderate likelihood of occurrence within study area.
<i>Dudleya cymosa</i> ssp. <i>marcescens</i>	marcescent Dudleya	FT/CR	1B	chaparral, often on volcanic substrate/perennial herb (geophyte)/ April-June	Not observed during 2003 field season. No CNDDDB records exist for Newhall and Val Verde quads. Low likelihood of occurrence within study area.

2003 Sensitive Plant Survey Results Magic Mountain Entertainment Site

TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING
AT THE MAGIC MOUNTAIN ENTERTAINMENT SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
<i>Dudleya cymosa</i> ssp. <i>ovatifolia</i>	Santa Monica Mountains Dudleya	FT/None	1B	chaparral and coastal sage scrub, often on volcanic substrate/perennial herb (geophyte)/April-June	Not observed during 2003 field season. No CNDDDB records exist for Newhall and Val Verde quads. Suitable habitat present onsite. Low likelihood of occurrence within study area.
<i>Dudleya multicaulis</i>	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 2003 field season. No CNDDDB 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.
<i>Dudleya parva</i>	Conejo Dudleya	FT/None	1B	coastal sage scrub and grassland on rocky, gravelly clays/perennial herb/May-June	Not observed during 2003 field season. No CNDDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists onsite. Low to moderate likelihood of occurrence within study area.
<i>Erodium macrophyllum</i>	round-leaved filaree	None/None	2	cismontane woodland and grasslands on clay substrate/annual herb/March-May	Not observed during 2003 field season. No CNDDDB records exist for the Newhall or Val Verde quads; however, records exist for Simi Valley. Suitable habitat present onsite; moderate likelihood of occurrence in study area.
<i>Helianthus nuttallii</i> ssp. <i>parishii</i>	Los Angeles sunflower	None/None	1A	marshes and swamps/perennial herb/ August-October	Not observed within study area during 2003 field season A <i>Helianthus</i> population, discovered in 2002 by Elvin and Sanders 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. The final determination of the identity of this species is still being worked on. No suitable habitat observed in study area.
<i>Horkelia cuneata</i> var. <i>puberula</i>	Mesa horkelia	None/None	1B	chaparral, cismontane woodland, coastal sage scrub on sandy or gravelly substrate/perennial herb/February- December	Not observed during 2003 field season. No CNDDDB records exist for the Newhall or Val Verde quads. Suitable habitat present onsite. Low likelihood of occurrence within study area.

2003 Sensitive Plant Survey Results Magic Mountain Entertainment Site

TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING
AT THE MAGIC MOUNTAIN ENTERTAINMENT SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	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.
<i>Malacothamnus davidsonii</i>	Davidson's bush mallow	None/None	1B	chaparral, coastal sage scrub, riparian woodland/ deciduous scrub/June-January	Not observed during 2003 field season. Nearest occurrences are in Van Nuys and Sunland quads. Suitable habitat present onsite. Moderate likelihood of occurrence within study area.
<i>Nama stenocarpum</i>	mud nama	None/None	2	edges of lakes, rivers, ponds, vernal pools/annual/January-July	Not observed during 2003 field season, however, entire site not surveyed. Moderate likelihood of occurrence on banks of Santa Clara River and other mesic areas onsite. No CNDDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present onsite. Low likelihood of occurrence within study area.
<i>Nolina cismontane</i>	chaparral nolina	None/None	1B	chaparral, coastal sage scrub on sandstone or gabbro substrate/ perennial shrub/May-July	Not observed during 2003 field season. No CNDDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present onsite. Low likelihood of occurrence within study area.
<i>Opuntia basilaris</i> var. <i>brachyclada</i>	short-joint beavertail	None/None	1B	chaparral, Joshua tree woodland, Mojavean desert scrub/succulent shrub/ April-June	This variety was identified as onsite by Dudek in 2002; however, recent investigations indicate that these plants are not consistent with <i>Opuntia basilaris</i> var. <i>brachyclada</i> . Therefore, <i>O. basilaris</i> plants were not mapped during surveys of the study area in 2003.
<i>Pentachaeta lyonii</i>	Lyon's pentachaeta	FE/SE	1B	openings in chaparral and coastal sage scrub, grasslands/annual herb/March-August	Not observed during 2003 field season. No CNDDDB 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.

2003 Sensitive Plant Survey Results Magic Mountain Entertainment Site

TABLE 3
SENSITIVE PLANT SPECIES OBSERVED OR POTENTIALLY OCCURRING
AT THE MAGIC MOUNTAIN ENTERTAINMENT SITE

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence Onsite
<i>Rorippa gambellii</i>	Gambel's watercress	FE/ST	1B	Marsh and swamps (freshwater and brackish)/ perennial herb/April-June	Not observed during 2003 field season, however, entire site not surveyed. No CNDDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present onsite. Very low likelihood of occurrence within study area.
<i>Senecio aphanactis</i>	rayless ragwort	None/None	2	chaparral, coastal sage scrub, cismontane woodland on alkaline substrate/annual herb/January-April	Not observed during 2003 field season. Historic CNDDDB record for Saugus, south of Santa Clara River. Suitable habitat exists onsite. Low to moderate likelihood of occurrence within study area.
<i>Sidalcea neomexicana</i>	Salt spring checkerbloom	None/None	2	chaparral, coastal sage scrub, and playas on alkaline substrate/perennial herb/March-June	Not observed during 2003 field season, however, entire site not surveyed. No CNDDDB records exist for the Newhall or Val Verde quads; suitable habitat exists onsite. Moderate likelihood of occurrence within study area.
<i>Thelypteris puberula</i> var. <i>sonorensis</i>	Sonoran maiden fern	None/None	2	meadows and seeps/perennial herb/ fertile January-September	Not observed during 2003 field season, however, entire site not surveyed. No CNDDDB 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	SE:	State-listed as endangered
FT:	Federally-listed as threatened	ST:	State-listed as threatened
FC:	Federal candidate for listing	SR:	State-listed as rare
SC:	State candidate for listing		
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		

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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 through 8* show the distribution of other sensitive species identified onsite.

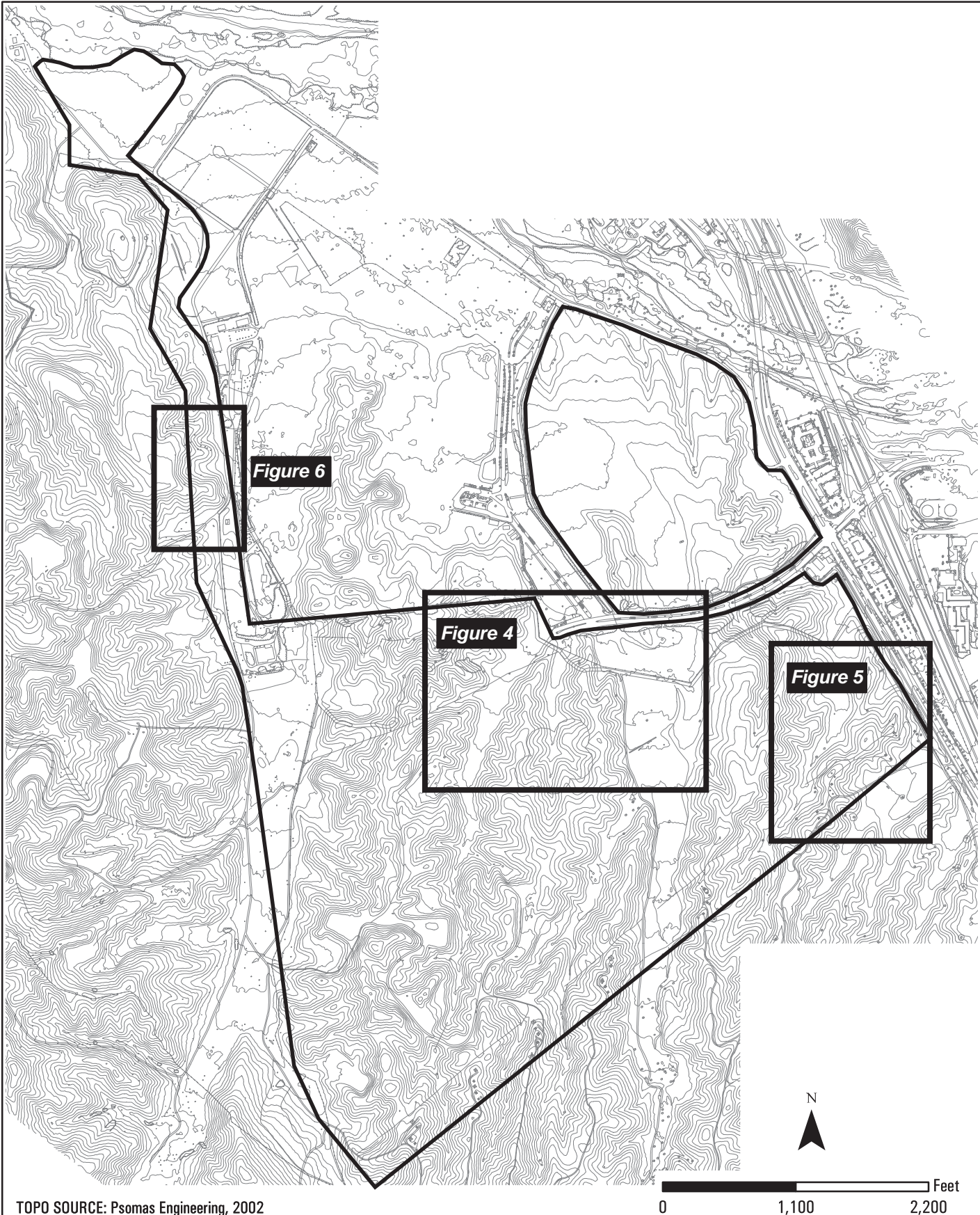
4.2.1 San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*)

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 CNDDDB 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 6*. 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.

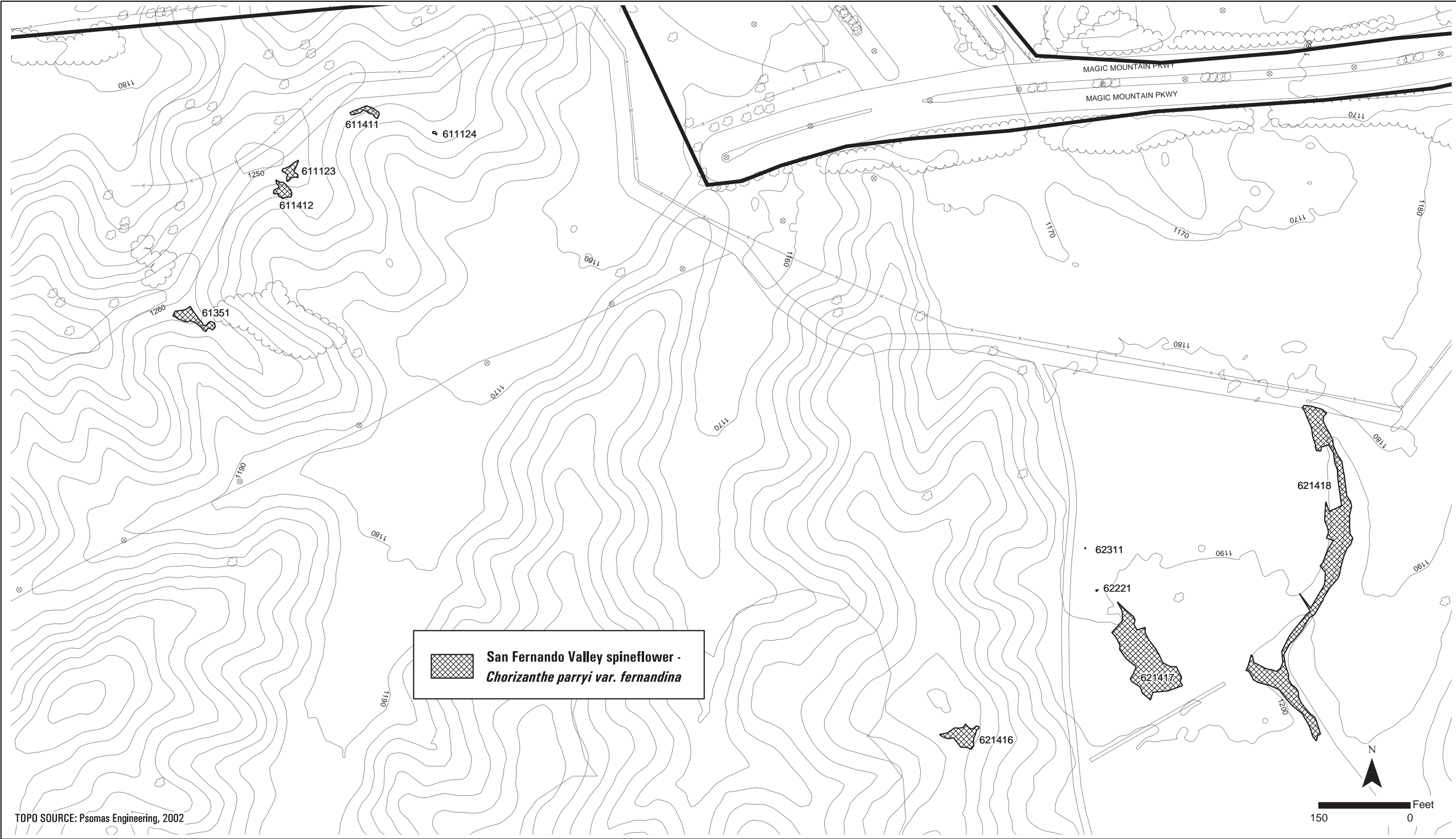
Vegetative cover in the area of SFVS occurrences ranged from five to 100 percent, but was more commonly between 60 and 80 percent. The soil type for all mapped SFVS occurrences on the project site consisted of sandy loams. A total of 29 SFVS polygons were mapped ranging in size from one to 11,958 square feet. The number of individuals within each polygon ranges from one to over 200,000. CNDDDB forms are included in *Appendix C* for each occurrence onsite.



TOPO SOURCE: Psomas Engineering, 2002

Magic Mountain Entertainment Site
San Fernando Valley spineflower Index Map

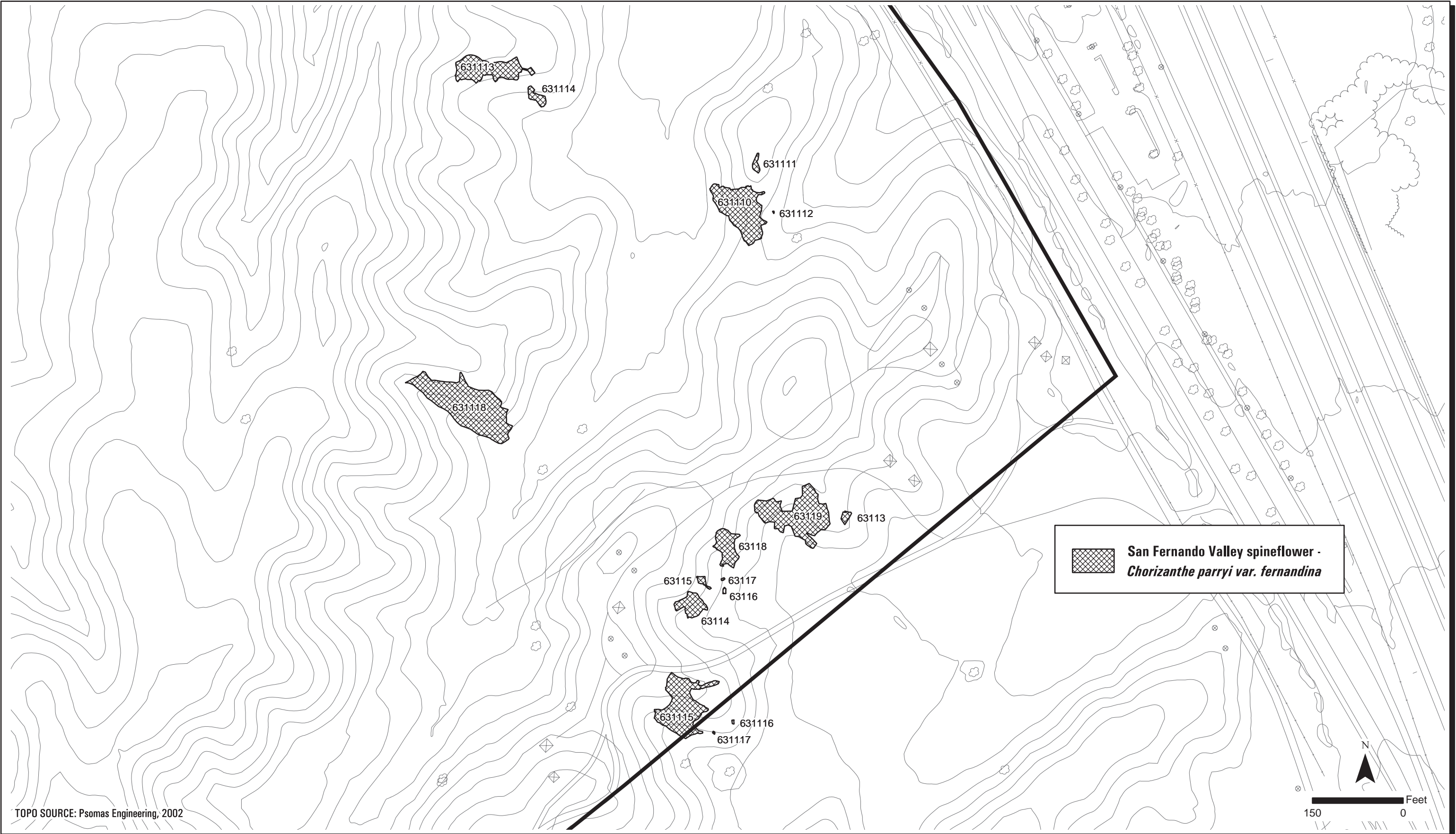
FIGURE
3



Magic Mountain Entertainment Site

2003 San Fernando Valley spineflower Results

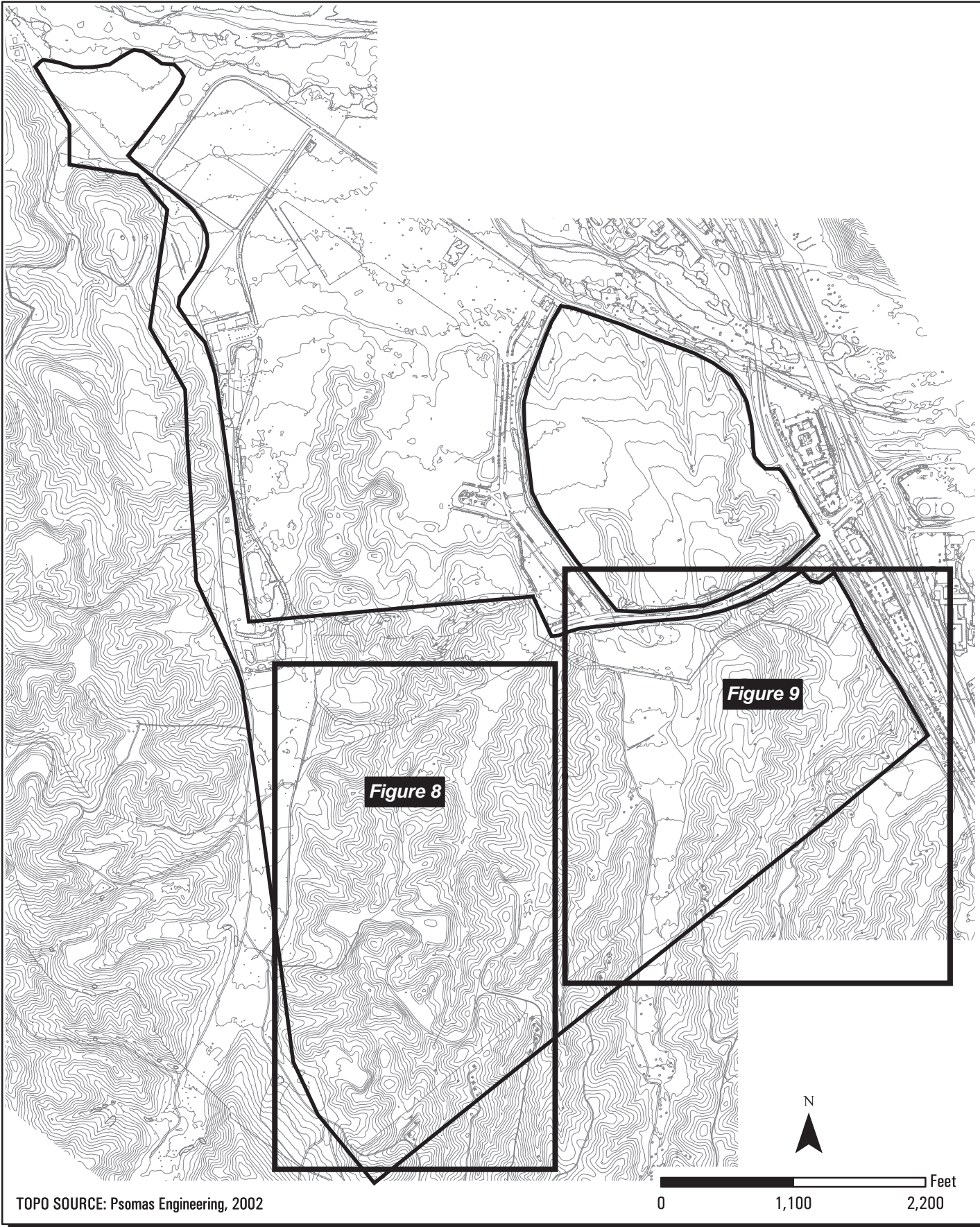
FIGURE
4



Magic Mountain Entertainment Site
2003 San Fernando Valley spineflower Results



Magic Mountain Entertainment Site
2003 San Fernando Valley spineflower Results



TOPO SOURCE: Psomas Engineering, 2002

Magic Mountain Entertainment Site Rare Plant Index Map



2003 Sensitive Plant Survey Results Magic Mountain Entertainment Site

TABLE 4
SAN FERNANDO VALLEY SPINEFLOWER
SUMMARY OF OCCURRENCE DATA FOR
MAGIC MOUNTAIN ENTERTAINMENT SITE

Polygon Number	Area (square feet)	Population Estimate
473168	2,136	3,500
611411	521	10,000
611412	76	300
61149	6,488	75,000
61351	933	600
611123	379	7,000
611124	20	15
61311	1	1
621416	1,270	8,500
621417	7,168	255,000
621418	11,958	88,000
62221	5	10
62311	1	1
63113	220	45
63114	1,314	29,500
63115	185	30
63116	43	8
63117	19	25
63118	1,682	350
63119 (includes 63112)	6,233	200,000
631110	5,173	25,500
631111	218	200
631112	6	1
631113	3,430	67,500
631114	480	1,000
631115	5,260	211,400
631116	20	15
631117	11	3
631118	9,059	200,000
TOTALS	64,309	1,183,504

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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; CNDDDB 2002). 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 Magic Mountain Entertainment 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 7 through 9). 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). A total of 60 polygons were mapped with a polygon size ranging from 183 to 275,231 square feet. The estimated number of individuals within each polygon ranges from 1 to over 1,000, with a total of approximately 8,000 individuals within the project site (see Table 5). CNDDDB forms for each occurrence on this site and are included in Appendix C.



Magic Mountain Entertainment Site
2003 Rare Plant Survey Results

FIGURE
9

2003 Sensitive Plant Survey Results Magic Mountain Entertainment Site

TABLE 5
SLENDER MARIPOSA LILY
SUMMARY OF OCCURRENCE DATA FOR THE MAGIC
MOUNTAIN ENTERTAINMENT SITE

Polygon Name	Polygon Size (Square Feet)	Estimated Number of Individuals
61171	62,659	1,100
61172	11,335	1,000
61173	4,469	15
61175	16,391	10
61176	2,628	20
61177	8,285	30
61178	12,025	20
61179	6,636	15
611710	3,051	15
611711	11,940	100
611712	2,151	35
611713	1,769	25
611714	12,712	150
611715	8,830	20
611717	24,862	500
611718	6,228	60
611719	7,384	50
611720	1,919	50
611721	6,901	100
611722	10,095	75
611723	25,599	200
611724	3,688	10
611725	1,998	10
611726	49,100	600
611727	22,496	200
611730	1,477	5
611731	1,390	5
611732	1,404	5
611734	12,248	100
611736	1,270	10
631122	14,644	150
621428	51,101	100
621427	26,358	150
621426	12,030	30
621425	85,373	1,000
621423	51,216	100
621422	28,005	30

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TABLE 5
SLENDER MARIPOSA LILY
SUMMARY OF OCCURRENCE DATA FOR THE MAGIC
MOUNTAIN ENTERTAINMENT SITE

Polygon Name	Polygon Size (Square Feet)	Estimated Number of Individuals
621420	275,231	100
621419	7,615	3
63214	8,491	1
63215	9,985	30
63216	253	1
63217	183	150
63218	16,838	50
63219	167	1
61357	9,860	100
61356	52,669	400
61355	13,322	30
61354	6,863	20
61353	19,032	140
61352	12,415	1
622213	140,957	200
622212	3,790	10
622211	173,887	500
62227	2,706	5
62226	3,076	10
62225	1,590	1
62224	15,958	15
62223	3,278	2
62222	2,989	5
TOTALS	1,392,822	7,870

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

2003 Sensitive Plant Survey Results Magic Mountain Entertainment Site

occasional component of chaparral at the base of north-facing slopes in MME. This species was not mapped due to its relatively low sensitivity level. CNDDDB 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 CNDDDB 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 MME and relatively low sensitivity level, it was not mapped. CNDDDB 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 MME appear to be the result of the application of an erosion control hydroseed mix along the gas and power transmission line easements (*Figures 7 and 9*). 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 CNDDDB data forms are not included. Eight polygons were observed with a population estimate of 14,300 individuals.

5.0 ACKNOWLEDGMENTS

Megan S. Enright and Kam J. Muri prepared this report, with review by Mark A. Elvin and 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

MARK ELVIN
SENIOR BIOLOGIST/BOTANIST

EDUCATION

- University of California, Irvine
M.S. Ecology and Evolutionary Biology, 1992
- University of North Carolina, Chapel Hill
B.A. Biology and Philosophy, 1986

PROFESSIONAL CERTIFICATIONS

- California Department of Fish and Game State listed plants collecting permit

PROFESSIONAL AFFILIATIONS

- California Native Plant Society
- Southern California Botanists

EXPERIENCE SUMMARY

Mr. Elvin has 16 years experience as a biological resource specialist in southern California. As a Fish and Wildlife Biologist at the U.S. Fish and Wildlife Service (USFWS) he was responsible for conducting scientific reviews and analyses of species statuses for proposing and designating critical habitat within court ordered deadlines for listed fauna and flora; conducting scientific reviews and analyses of species statuses and developing recovery plans for listed species; and was the lead staff biologist for the USFWS for the implementation of the City of San Diego Multiple Species Conservation Plan (MSCP). In addition, he was the lead staff biologist at the USFWS for Quino checkerspot butterfly survey work conducted within San Diego County. Through his years of experience he has conducted sensitive species surveys in various habitat types throughout central and southern California including coastal strand, dune, coastal marsh, estuarine, coastal bluff scrub, coastal sage scrub, maritime succulent scrub, southern maritime chaparral, chaparral, valley grass lands, vernal pools, riparian scrub, riparian woodland, southern oak woodlands, alluvial fan sage scrub, montane coniferous forest, pebble plains, montane meadows, pinyon-juniper woodland, Joshua tree woodland, sagebrush scrub, creosote bush scrub, alkali flats, desert mountains, creosote bush scrub, Mojavean desert scrub, and Sonoran desert scrub.

Mr. Elvin has also worked as a seed and conservation program coordinator, seed technologist, museum scientist, and conservation collection manager.

PROFESSIONAL ASSIGNMENTS

- Serves on the Dudek project team preparing the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) that covers approximately 1.2 million acres. Mr. Elvin provided input on the sensitive plants component of the plan that addresses 59 plants, including 13 that are state and/or federally listed, and species monitoring studies.
- Conducted onsite ecological and biological investigations and surveys of complex development proposals to determine their effects on flora and fauna throughout southern California.
- Conducted field surveys for state and federally listed and MSCP-covered plant species for the City of San Diego's, Multiple Species Conservation Program (MSCP).
- Conducted surveys for and collections of plants throughout Orange, San Diego, Riverside, San Bernardino, and Los Angeles counties and Baja California, Mexico.
- Conduct onsite ecological and biological investigations and surveys for threatened and endangered plant species throughout Los Angeles, Orange, San Diego, San Bernardino, Riverside, Imperial, Baja California (Mexico), Ventura, Monterey, San Benito, and San Luis Obispo counties.
- Participated in surveys for sensitive plants (including *Delphinium variegatum* ssp. *kinkiense* (San Clemente Island larkspur), *Lithophragma maximum* (San Clemente Island woodland star), *Lotus dendroideus* var. *traskiae* (San Clemente Island lotus), *Malacothamnus clementinus* (San Clemente Island bush mallow), *Sibara filifolia* (Santa Cruz Island rock cress) on San Clemente and Santa Catalina islands, Los Angeles County.

Monitoring Programs

- Conducted demographic and ecological data collection surveys for the federally listed as threatened *Deinandra conjugens* (Otay tarplant) and the federally proposed as endangered *Ambrosia pumila* (San Diego ambrosia) and focused surveys for the federally listed as endangered Quino checkerspot butterfly (*Euphydryas editha quino*) in San Diego County for the MSCP.

Threatened and Endangered Species

- Conducted many surveys for State and/or federally listed plants in San Diego, Orange, Los Angeles, Riverside, and San Bernardino counties.

SELECTED PUBLICATIONS

Elvin, M. 2002. Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for Five Carbonate Plants From the San Bernardino Mountains in Southern California. 67 FR 6577.

Elvin, M. 2001. Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for *Deinandra conjugens* (Otay tarplant). 66 FR 32052.

Koopowitz, H., M. Elvin, and L. Keenan. (1996). In vivo visualization of living flatworm neurons using Lucifer Yellow intracellular injections. *J. Neurosci. Meth.* 69: 83-89.

Koopowitz, H., M. Elvin, and T. Bae. (1995). Comparison of the nervous system of the rhabdocoel, *Mesostoma ehrenbergii*, with that of the polyclad, *Notoplana acticola*. *Hydrobiologia*. 305: 127-133.

Elvin, M., H. Koopowitz (1994). Neuroanatomy of the rhabdocoel flatworm *Mesostoma ehrenbergii* (Focke, 1836) I: Neuronal diversity in the brain. *J. Comp. Neurol.* 343: 319-331.

MEGAN S. ENRIGHT
Environmental Analyst / Biologist

EDUCATION

- University of California, San Diego
Bachelor's of Science in Biology-Ecology, Behavior and Evolution, 1997

PROFESSIONAL AFFILIATIONS

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

EXPERIENCE SUMMARY

Ms. Enright is a biologist with five 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 and rare plant surveys.

PROFESSIONAL ASSIGNMENTS

Wetlands Delineation, Wetlands Permitting and Biological Resources Reports

- **Transportation Corridor.** North County Transportation District - Oceanside to Escondido Rail Project, City of Oceanside, 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 the biological resources report and CEQA documentation.
- **Roadway Corridor.** Camino Ruiz Road Alignment, 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.

- **Roadway Improvements and Flood Protection Project.** 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.
- **Residential Subdivision.** The Irvine Company Planning Area 1, County of Orange, California. Prepared vegetation map and conducted rare plant surveys within the 4,000-acre project site. Prepared biological resources report for CEQA purposes.
- **Residential Subdivision and Commercial Development.** The Irvine Company Planning Areas 18 and 39, City of Irvine, California. Delineated wetlands and prepared vegetation map within the 1,200-acre project site. Developed wetlands permitting strategies with client.
- **Constraints Analyses.** Vista Unified School District, City of Vista and County of San Diego, California. Delineated wetlands and prepared vegetation map for three potential school sites. Other field investigations included surveys for state- and federally-listed threatened or endangered plant and wildlife species. Field investigations were incorporated into reports discussing biological constraints on the three potential school sites.
- **Landfill Closure and Embankment and Scour Protection.** Kern Valley Sanitary Landfill Closure Project, Kern County, California. Delineated wetlands and prepared Section 401 and Section 404 Letter of Permission permit applications and 1601 Streambed Alteration Agreement for impacts to non-tidal, adjacent wetlands; impacts were associated with the embankment and scour protection. Prepared functional values assessment.
- **Dredging Impact Analysis.** Old Mission Dam, San Diego, California. Prepared wetland delineation and vegetation map upstream of the historic Old Mission Dam. Prepared biological resources report for CEQA purposes. Coordinated with regulatory agencies regarding proposed dredging.
- **Focused Rare Plant Surveys.** Newhall Ranch, Los Angeles County, California. Conducted focused surveys for the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) on approximately 6,000 acres.

Habitat Restoration and Enhancement

- Monitored salt marsh and riparian creation and enhancement efforts at Rancho Santa Fe Road Bridge, Sorrento Valley Utilities Improvement (City of San Diego, Tijuana River Emergency Channel Mitigation, Green Valley Mobile Home Park Slope Stabilization and North Metro Interceptor Sewer Projects in San Diego, California. Conducted data analysis to determine success of restoration and enhancement efforts

in terms of predetermined performance standards. Prepared subsequent monitoring reports which included the assessment of revegetation efforts and recommendations for further remedial actions.

- Monitored upland vegetative communities including coastal sage scrub revegetation efforts at Top of the World Reservoir and Pump Station, Laguna Beach, California. Prepared subsequent monitoring reports.
- Prepared Conceptual Wetland Mitigation Plan for the Emergency Sewer Repairs at various sites along Escondido Creek and for the Hale Avenue Resource Recovery Facility (HARRF) for the City of Escondido, California. Prepared Conceptual Wetland Mitigation and Revegetation Plan for the Torrey Del Mar Project within the City of San Diego Future Urbanizing Area Subarea I, California.
- Prepared Conceptual Vernal Pool Mitigation Plan including restoration and enhancement for the Manzanita Partners Property in Carlsbad, California. Project included delineating existing vernal pools for enhancement and mapping historical vernal pools for restoration.
- Assisted in the research and documentation for mitigation alternatives for SR-125-Caltrans. Focused on mitigation through the restoration of habitat for the federally-endangered Quino Checkerspot Butterfly (*Euphydryas editha quino*).

Construction and Erosion Control Monitoring

- Performed construction monitoring for the Sorrento Valley Utilities Improvement Project which included precise grading for the restoration of salt marsh and other riparian habitats.
- Inspected the North Reservoir Project which includes erosion/sediment methods to verify the project was in accordance with the Storm Water Pollution Prevention Program for the Laguna Beach County Water District in the City of Laguna Beach, California. Project included weekly monitoring visits to assess the function of the installed Best Management Practices for erosion control and subsequent observation reports, water quality sampling, and storm event monitoring.

Conservation Planning

- Assisted in the development of the Multiple Species Habitat Conservation Plan (MSHCP) for western Riverside County. Project involvement included research on potentially covered plant species followed by syntheses of ecological information.

VIPUL JOSHI

BIOLOGIST

EDUCATION

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

EXPERIENCE SUMMARY

Mr. Joshi has 4 years professional experience in project management, permit acquisition, vegetation resource mapping, wetlands delineation, and focused surveys for federally-listed Quino checkerspot butterfly and vernal pool branchiopods.

PROFESSIONAL ASSIGNMENTS

Representative environmental projects include:

- **SR-125 South - Caltrans/CTV.** Provided support in preparation of environmental permit documents and permit 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.
- **Valley-Rainbow - CPUC.** Accumulated and analyzed data regarding potential biological impacts related to various project components throughout Riverside and San Diego Counties. Drafted Biological Resources Technical Report to document existing conditions, potential direct, indirect, and cumulative effects, and determine significance pursuant to CEQA.
- **Otay Ranch Company - Chula Vista, California.** Provided biological surveys of various properties include vegetation mapping, rare plants surveys, wetlands delineations, fairy shrimp surveys, and Quino checkerspot surveys. Provided CEQA documentation, wetlands and endangered species permitting for various entitlement projects.
- **Salt Creek Gravity Sewer - City of Chula Vista, California.** Developed project alternatives permitting strategy with City and project engineers for 11-mile gravity sewer. Provided baseline vegetation mapping, wetlands delineation, and rare plant surveys. Prepared biological technical report and EIR-level biological evaluation for CEQA compliance. Submitted and coordinated acquisition of all wetlands and

endangered species permits, including identification of mitigation alternatives. Coordinated construction monitoring and permit compliance.

- **San Timeteo Creek - Yucaipa, California.** Provided baseline vegetation mapping, wetlands delineation, and rare plant surveys for study area.
- **LaBorde Canyon.** Provided baseline vegetation mapping and plant species inventory.
- **North Agua Hedionda Sewer Rehabilitation - City of Carlsbad, California.** Provide project management for sewer rehabilitation project adjacent to coastal lagoon. Assignments include ongoing coordination with engineering alternatives, permitting strategies, analysis of alternative impacts, CEQA documentation, mitigation identification, resource mapping, and project planning in terms of timing and budget.
- **Poway Creek Silt Removal - City of Poway, California.** Provide baseline surveys, project management, and permit acquisition for major creek silt removal. Assignments include identification of resource mapping, least impactful, feasible alternative with project engineer, CEQA compliance, wetlands permitting, and ongoing project planning.
- **Cielo del Norte - San Diego County, California.** Provided baseline vegetation and rare plant surveys. Drafted biological technical report and endangered species permitting strategy for 500-acre development in a critical preserve planning area. Provide project management for ongoing entitlement process.
- **Rilington Communities - San Diego County, California.** Provide project management capabilities for various entitlement processes for medium-scale residential developments throughout the County. Assignments include project planning, resource mapping, impact assessments, permit acquisition/negotiations, and mitigation identification.
- **Revegetation Monitoring - City of San Diego, California.** Assisted in the collection of data within revegetated wetlands in accordance with monitoring criteria of the City of San Diego.

KAMARUL MURI
Biologist

EDUCATION

University of California, San Diego
B.S., Ecology, Behavior and Evolution, 2001.

PROFESSIONAL CERTIFICATIONS

U.S. Fish and Wildlife Service
Quino Checkerspot Butterfly Section 10(a)(1)(A) Permit # TE051250-0

California Department of Fish and Game
Rare, Threatened and Endangered Plant Voucher Collecting Permit #05077

EXPERIENCE SUMMARY

Before working at Dudek & Associates, Inc. (Dudek), Mr. Muri earned a Bachelor of Science in Ecology, Behavior and Evolution from the University of California, San Diego. In his senior year at university, Mr. Muri learned the basics of computer programming and applied them towards constructing a computer model for analyzing the use of wildlife corridors within fragmented habitats. Other computer modeling projects included single species population viability analyses.

Mr. Muri is a recent addition to Dudek's team and has been involved mainly in the analysis and preparation of biological documents in compliance with the California Environmental Quality Act (CEQA). Since arriving at Dudek, Mr. Muri has provided field support in conducting general biological surveys, focused protocol-level surveys for listed species, rare plant surveys and jurisdictional wetlands delineations.

PROFESSIONAL ASSIGNMENTS

Biological Resources Reports, Wetlands Delineation and Wetlands Permitting

- **Municipal Non-Potable Water Distribution System.** Yucaipa Valley Water District, Riverside County, California. Conducted vegetation mapping for a six-mile riparian corridor, biological reconnaissance of habitat along San Timoteo Creek to assess potential habitat enhancement opportunities, prepared quality assurance plan

for approval by the U.S. Environmental Protection Agency, assisted in the preparation of biological reports for a joint Environmental Impact Report/Environmental Impact Statement.

- **Cathedral High School.** Catholic Diocese of San Diego, City of San Diego, California. Provided wetlands permitting and environmental compliance services for an ongoing educational development project.
- **Flood Channel Improvement Project.** Riverside County Flood Control and Water District, Riverside County, California. Provided assistance in delineating wetlands and conducting vegetation mapping. Prepared Section 401 and Section 404 permit applications and 1601 Streambed Alteration Agreement for impacts to waters of the U.S./State associated with improvements to an existing flood channel feeding the Perris Valley Channel.
- **Private Residence.** Orange County, California. Conducted vegetation mapping for a 5.8-acre property located along Live Oak Canyon in southern Orange County and assisted in surveys for the federally-listed threatened coastal California gnatcatcher (*Poliophtila californica californica*).
- **Focused Herpetological Trapping Program** - Conducted herpetological pitfall trapping to determine species composition and distribution of reptile species in La Borda Canyon, Riverside County, California.
- **Brown-headed Cowbird Trapping Program** - Conducted a trapping program to reduce nest parasitism of native bird species by controlling populations of non-native brown-headed cowbirds along San Marcos Creek in the City of Oceanside, California.

Biological Monitoring of Construction

- Provided biological monitoring services for the construction of the Salt Creek Sewer Interceptor project in the City of Chula Vista, California. Monitoring responsibilities included ensuring compliance with the California Environmental Quality Act, federal Endangered Species Act, Section 401 of the federal Clean Water Act and Section 1600 of the California Fish and Game Code. Sensitive species associated with the project included the federally-listed threatened coastal California gnatcatcher and the federally-listed endangered Quino checkerspot butterfly (*Euphydryas editha quino*).
- Providing biological monitoring services for the ongoing construction of the Rancho Santa Fe Road Realignment and Bridge Replacement project in the City of Carlsbad,

California. Monitoring responsibilities included ensuring compliance with the California Environmental Quality Act, federal Endangered Species Act and Section 401 of the federal Clean Water Act and Section 1600 of the California Fish and Game Code. Sensitive species associated with the project included the federally-listed threatened coastal California gnatcatcher.

- Provided biological monitoring services for various residential development projects in Subarea III of the City of San Diego Multiple Species Conservation Plan in the City of San Diego, California. Monitoring responsibilities included ensuring the proper implementation of standard construction best management practices (BMPs) to avoid and minimize construction-related impacts to sensitive habitat within the Multiple Habitat Planning Area. Tasks included weekly inspections of construction sites and coordination with staff from the City of San Diego's Environmental Analysis Section, Field Engineering Division and Mitigation and Monitoring Coordination.

Conservation Planning

- Assisted in the development of the Multiple Species Habitat Conservation Plan (MSHCP) for western Riverside County. Project involvement included researching potentially covered plant species.

ANDREW C. SANDERS**Herbarium Curator**

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Education

B.Sc. in Biology, specializing in Botany;
University of California, Riverside. June 1975.

Employment

1. **U.S. Department of the Interior, Bureau of Land Management (Riverside and Bakersfield Districts and California Desert Plan Staff).** Aug. 1975 to Apr. 1978 During this period I held positions as a Wildlife Biologist, Natural Resource Technician, and Range Conservationist and worked on the following projects:

California Desert Plan
Geothermal Energy Leasing Environmental Impact Statements
 East Mesa
 N. Salton Sea
 Red Mountain
 Yuha Basin
McCain Valley Habitat Management Plan
Owens Valley Range Program
Sun Desert Transmission Line E.I.S.

In the course of these projects I conducted extensive field surveys of vegetation and wildlife in the desert of southern California and in the Owens Valley.

2. **University of California, Riverside. Dept. of Biology.** Staff Research Associate and resident biologist at the James Reserve in the San Jacinto Mountains of Riverside County California. April 1978 to Sept. 1979. While at the James Reserve I surveyed the flora and fauna of the San Jacinto Mtns. and began the compilation of a list of the plants of the reserve, which was later completed in cooperation with Ken Berg, my successor.

3. **University of California, Riverside. Dept. of Botany & Plant Sciences.** Since September 1979 I have been Museum Scientist and curator of the Herbarium. This has involved extensive work with the flora of the southwestern U.S. and adjacent areas. I have identified literally tens of thousands of plant specimens and have enlarged the UCR collection to ten times its former size. I have personally collected over 24,000 plant specimens in western North America. As a result of my work at the herbarium, I have come to be extremely familiar with the flora of southern California and can identify the overwhelming majority of plant species from this area on sight.

Additional Experience

I have contributed botanical/biological inventories for the following projects in California. This list is not comprehensive, but is representative.

Imperial Co.

Botanical Survey for U.S. Navy, Chocolate Mtns. Aerial Gunnery Range. 1988-1991.

Kern Co.

Biological Survey for a parcel near Rosamond, prepared for Land Concepts, Inc. 1988.

Botanical Survey for Silver Peak Mine Expansion, prepared for Weber & Weber Mining Consultants. 1989.

Botanical Survey of the Wind Wolves Preserve (San Emigdio Ranch), prepared for the Wildlands Conservancy. In progress.

Los Angeles Co.

Botanical Survey for Portuguese Bend Land Use Plan, prepared for England and Nelson Environmental Consultants. 1976.

Botanical survey of El Segundo Dunes, for L.A. International Airport, through Agresearch, Inc. 1987-1988.

Botanical surveys for several projects in the Lancaster vegetation management zone, prepared for the Dept. of Community Development, City of Lancaster. 1988-1989.

Orange Co.

Botanical survey for Land Use Plan for the Silverado-Santiago area of the Santa Ana Mtns., prepared for England & Nelson Environmental Consultants. 1976.

Riverside Co.

Botanical survey for the Riverside Co. Southwest Territory General Plan, for Riverside Co. Planning Dept. 1977.

Botanical survey for the Army Corps of Engineers Whitewater Flood Control Project. 1980.

Botanical Survey for Kacor Realty Wolf Valley Development, prepared through L. LaPré, consultant. 1981.

Botanical survey of the U. C. Motte Reserve near Perris. 1982.

Botanical survey of 500 ac. property near Murrieta, prepared for P. Principe, consultant. 1988.

Botanical survey of the Nature Conservancy Oasis de Los Osos Preserve. 1985-1988.

Biological Survey for Proposed Sanderson Ave. Bridge and Realignment, near San Jacinto, prepared for Myra L. Frank and Associates. 1990.

Rare plant Survey for the Coachella Valley Multi-Species Habitat Conservation Plan, prepared through Thomas Olson & Associates. 1995.

Botanical Survey of a pipeline route along the San Jacinto River, prepared through KDJ and Associates. 1996.

Botanical Survey of the Shipley Multi-species Reserve at Lake Skinner. In progress.

San Bernardino Co.

Biological survey for Big River Development, Colorado River near Parker. 1980.

Botanical Survey for Cactus Hill Mine, Ivanpah Mtns, prepared for J. McMains, consultant. 1985.

Biological survey of 640 ac. parcel near Pioneertown prepared for The Nature Conservancy. 1986.

Botanical Survey for Don Brown Racing Facility, Cajon Pass area. 1986.

Botanical Survey for Hart Mine expansion, Mojave Desert, prepared for J. McMains, consultant. 1986.

Scoping Report for Santa Ana River Resource Management Plan, prepared for the County of San Bernardino Dept. of Environmental Public Works. 1987.

Biological survey for Devil Canyon Powerplant expansion, prepared for the California Dept. of Water Resources. 1987.

Botanical survey for Glen Helen Sheriff's Academy expansion, prepared for the San Bernardino County Sheriff's Dept. 1987.

Biological Survey for the Daley Transit Mix Property near Ft. Irwin, Mojave Desert. 1988

Botanical Survey for proposed Davis Ranch Mine, Cajon Pass, prepared for Weber & Weber Mining Consultants. 1989.

Botanical Survey for Silver Peak Mine Expansion, prepared for Weber & Weber Mining Consultants. 1990.

Botanical Survey for Cajon East (Cleghorn) Mine Expansion, prepared for Weber & Weber Mining Consultants. 1990.

Botanical Survey for National Can Parcel, Verdemont, prepared for McClelland Associates. 1990.

Biological Survey of Birmingham Ranch, prepared for the City of Yucaipa. 1992.

Biological Survey of Porter Ranch, prepared for the City of Yucaipa. 1993.

Biological Survey of the Yount/Mitchell property near Yucaipa, prepared for Robin Isakson & Associates. 1993.

Biological Survey of 100 acre property in Yucaipa, prepared for George Polycrates and Associates. 1996.

Botanical Survey of the central Avawatz Mtns., Mojave Desert, prepared for Gordon F. Pratt, consulting entomologist. 1997.

Outside of California I have done extensive field work and made numerous plant collections throughout the southwestern U.S., but particularly in Nevada and Arizona. I have also worked extensively in Mexico and am presently involved in three floristic

projects in that country. I spent 12 weeks doing botanical survey work in Costa Rica during 1995 and 1996.

In addition to the above, I regularly make plant identifications (including fossils) for professional biological consultants, for scientific researchers, and for the general public. I commonly make plant identifications for biological consultants, and over the years have literally made thousands of such determinations. I have identified plants on one or more occasions for the following Riverside County Qualified Environmental Consulting Firms and have done so regularly for several of them (*):

AMEC Earth & Envir., Inc.*
Beaman Biological Consulting
Biological Resource Specialists
Campbell Biological Consulting
CH2M Hill*
David E. Bramlet
Glen Lukos Assoc.
Harmsworth Assoc.
James Cornett Ecol. Cons
Joan R. Callahan
Kelly Volansky*
Ken Osborne
LSA Assoc.*
Natural Resource Assessment, Inc.*
P. & D. Environmental*
PCR Inc.
Principe and Assoc.
San Bernardino Co., Museum
Statistical Research Inc.
Ted Rado
TeraCor Resource Mgmt.*
TetraTech
Thomas Olsen & Assoc.*
Tierra Madre Consultants*
Tom Dodson & Assoc.*
VHBC Consulting
W.D. Wagner
White & Leatherman*

I am generally recognized as one of the foremost authorities on the flora of Southern California and am regularly contacted by the US Fish & Wildlife Service and California Dept. of Fish and Game for information on the status and distribution of threatened and endangered plant species. In particular, I was queried regularly about species covered by the Riverside County MSHCP. I am regularly called upon to identify plant fragments which represent evidence in criminal cases.

Publications

- Boyd, S. and A.C. Sanders. 1999. "Noteworthy Collections, California – *Dicentra chrysantha*, *Euphorbia anramsiana*, *Holocarpha heermannii*", Madroño 46 (2): 112.
- Costea, M., A.C. Sanders & J. G. Waines. 2001. Preliminary results toward a revision of the *Amaranthus hybridus* species complex (Amaranthaceae) Sida 19 (4): 931-974
- Costea, M., A.C. Sanders & J. G. Waines. 2001 Notes on some little known *Amaranthus* taxa (Amaranthaceae) in the United States Sida 19 (4): 975-992.
- Costea, M., A.C. Sanders & J. G. Waines. 2002? *Amaranthus* Aliso In press
- Cudney, D., C. Bell & A. C. Sanders. 1997. Weedy spurges in California, U. C. Extension Circular. Revised 2002.
- Friedman, S. L., T. R. Van Devender, V. W. Steinmann, A. C. Sanders, P. D. Jenkins, S. A. Meyer, A. L. Reina Guerrero, D. A. Yetman, R. S. Felger & R. A. Lopez Estudillo. 1996. "Noteworthy Collections, Sonora, Mexico -- *Brickellia brandegei*, *Cordia globosa*, *Bromelia alsodes*, *Selenicereus vagans*, *Capparis flexuosa*, *Ipomoea imperati*, *Operculina pennatifida*, *Doyera emetocathartica*, *Momordica charantia*, *Bergia texana*, *Caesalpinia sclerocarpa*, *Mimosa asperata*, *Pholisma culiacanum*, *Nesaea longipes*, *Malpighia glabra*, *Bastardia viscosa*, *Okenia hypogea*, *Oenothera drummondii* var. *thalassaphila*, *Ophioglossum nudicaule*, *Luziola gracillima*, *Panicum antidotale*, *Tridens eragrostoides*, *Amyris balsamifera*, *Capraria biflora*, *Solanum azureum*, *Citharexylum scabrum*, *Lippia graveolens*", Madroño 43(4):532-538.
- Hrusa, F., B. Ertter, A. Sanders, G. Leppig, E. Dean. 2002? Catalogue of non-native vascular plants occurring spontaneously in California beyond those addressed in The Jepson Manual, Part 1. Madrono, in press.
- Jones, C. E., A. C. Sanders, et al. 1979. "Noteworthy Collections, California -- *Physalis lobata*", Madroño 29 (2): 101.

- Krantz, T. P., R. F. Thorne & A. C. Sanders. 2003?, A Flora of the San Bernardino Mountains, California, nearing completion.
- Minnich, R. A. and A. C. Sanders, 2000, Sahara Mustard (*Brassica tournefortii*), in California's Wildland Weeds: Identification and Control, C. Bossard, J. Randall, & M. Hoshovsky, eds, University of California Press
- Sanders, A. C., 1996. "Noteworthy Collections, California -- *Acrachne racemosa*, *Aegilops cylindrica*, *Atriplex mulleri*, *Baileya multiradiata*, *Bromus secalinus*, *Cenchrus ciliaris*, *Centaurea diffusa*, *Centaurea maculosa*, *Ceratonia siliqua*, *Chloris truncata*, *Cynanchum louiseae*, *Ephedra funerea*, *Eragrostis curvula* var. *conferta*, *Fatoua villosa*, *Linanthus orcuttii*, *Matricaria globifera*, *Melica californica*, *Melissa officinalis*, *Panicum antidotale*, *Panicum maximum*, *Pistacia atlantica*, *Schinus polygamus*, *Schoenus nigricans*, *Scribneria bolanderi*, *Senna obtusifolia*, *Solanum mauritianum*, *Triteleia hyacinthina*", Madroño 43(4):524-532.
- Sanders, A. C., 1997. "Noteworthy Collections, California -- *Gaura parviflora*, *Crepis tectorum*", Madroño 44 (3) 306-307.
- Sanders, A.C. 1998. Polygonaceae in Martin, P., et al (revised & ed.). 1998. Gentry's Río Mayo Plants: the tropical deciduous forest & environs of northwest Mexico, University of Arizona Press.
- Sanders, A.C. 1999. Invasive Exotics in California: a Perspective from Inland Southern California. In: M. Kelly, E. Wagner, and P. Warner (eds.). Proceedings of the California Exotic Pest Plant Council Symposium. Vol 4: 1998. Pp. 7-10.
- Sanders, A. C. 2003?, "A Flora of the Box Springs Mountains and Vicinity, Riverside and San Bernardino Counties, California", Crossosoma, in preparation.
- Sanders, A. C., 2003?. "Noteworthy Collections, California --*Allium vineale*, *Celtis sinensis*, *Cestrum nocturnum*, *Colutea arborescens*, *Crepis nana*, *Cynosurus echinatus*, *Desmodium tortuosum*, *Eruca vesicaria* var. *sativa*, *Gilia maculata*, *Gnaphalium purpureum*, *Gypsophila elegans*, *Horkelia cuneata* ssp. *puberula*, *Leonotus nepetifolia*, *Nerium oleander*, *Phaseolus filiformis*, *Pinus attenuata*, *Pinus jeffreyi*, *Rhamnus alaternus*, *Salvia reflexa*, *Ziziphus obtusifolia*", Madroño, submitted.
- Sanders, A. C., D. L. Banks & S. Boyd , 1997 "Rediscovery of *Hemizonia mohavensis* Keck (Asteraceae) and addition of two new localities", Madroño 44 (2): 203-210.
- Sanders, A. C. and S. Boyd, 1996. "Noteworthy Collections, California, -- *Brassica fruticulosa*", Madroño 43(4):523-524.

- Sanders, A.C. and S. Boyd. 1999. "Noteworthy Collections, California, -- *Chloris truncata*, *Galium parisiense*, *Ranunculus testiculatus*", Madroño 46(2):113.
- Sanders, A. C. and D. Cudney, 1991. "Key to the Families of Weeds of the West", in Weeds of the West, T. D. Whitson, ed., Western Society of Weed Science.
- Sanders, A. C. and D. Koutnik, 1997. "Noteworthy Collections, California, -- *Euphorbia dendroides*, *E. esula*, *E. hirta*, *E. nutans*, *E. oblongata*, *E. revoluta*, *E. terracina*", Madroño 44(2): 203-210.
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- Van Devender, T. R., A. C. Sanders, R. K. Wilson, & S. A. Meyer. "Vegetation, Flora, and Seasons of the Rio Cuchujaqui, A Tropical Deciduous Forest near Alamos, Sonora, Mexico", in The Tropical Deciduous Forest of the Alamos, Sonora, Region: Ecology and Conservation of a Threatened Ecosystem, ed. by R. H. Robichaux.
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ANDREW THOMSON
ENVIRONMENTAL SPECIALIST

EDUCATION

Washington State University
M.S., Environmental Science, 2000

Utah State University
B.S., Biology, 1997

EXPERIENCE SUMMARY

Mr. Thomson has a Master of Science degree in Environmental Science and a Bachelor's degree in Biology. He has worked on a variety of habitat restoration projects with the U.S. Forest Service and has been involved with threatened and endangered plant species surveys and sensitive habitat protection in the Big Bear area. He is currently working on a variety of habitat restoration projects with various responsibilities at Dudek.

PROFESSIONAL ASSIGNMENTS

Sensitive Plant Habitat Projects

Mr. Thomson is currently involved with three separate sensitive plant habitat projects. He has been responsible for monitoring the progress of the following projects as well as documenting that progress in annual project reports:

- **4S Ranch Thread-Leaved Brodiaea and San Diego Goldenstars Mitigation/Transplantation Program, Rancho Bernardo, CA.** Mr. Thomson assisted with the plant monitoring and was responsible for preparing the annual progress report for this project.
- **Kumeyaay Campground San Diego Ambrosia Transplantation Project, San Diego County, CA.** Mr. Thomson was responsible for the biological monitoring and the preparation of a status report for this project.
- **State Route 125 Otay Tarplant Salvage and Habitat Replacement Project, San Diego County, CA.** Mr. Thomson is involved with ensuring successful plant salvage and relocation of Otay tarplant for the construction of SR125. He is also assisting

with the determination of suitable receptor sites for salvaged Otay tarplant seed and accompanying soil.

Habitat Restoration and Habitat Monitoring Plan Writing

- **Arroyo Trabuco Golf Course Coastal Sage Scrub and Valley Needlegrass Grassland Revegetation Plan, Orange County, CA.** Mr. Thomson was responsible for drafting the habitat restoration plan for the 230-acre Arroyo Trabuco Golf Course project in Orange County. For this project he prepared a revegetation plan that included both coastal sage scrub and Valley needlegrass grassland restoration.
- **Sorrento Creek Flood Control Channel Monitoring Plan, City of San Diego, CA.** Mr. Thomson assisted with the preparation of the Sorrento Creek Flood Control Channel Monitoring Plan for the City of San Diego, California. The Plan included methodology and rationale for monitoring adverse effects resulting from the creation and maintenance of the Sorrento Creek flood control channel.

Vegetation Mapping and Rare Plant Surveys

Mr. Thomson has been involved with both vegetation mapping and rare plant surveying in the following projects:

- **Finger Canyon Vegetation Mapping, San Diego County, CA.** Mr. Thomson was involved with mapping habitat types including coastal sage scrub, southern maritime chaparral, willow woodland, and fresh water marsh within the preserved habitat in Finger Canyon.
- **Irvine Ranch Housing Development Project, Orange County, CA.** Mr. Thomson assisted in the rare plant surveys for the sensitive plant, intermediate mariposa lily.

Vegetation Monitoring and Reporting

Mr. Thomson has been involved in a number of projects requiring vegetation monitoring and reporting. He has been responsible for setting up monitoring transects and gathering qualitative and quantitative biological data for use in reporting in the following projects:

- **North City Raw Sludge and Water Pipelines Revegetation Project, San Diego County, CA.** Responsible for biological monitoring and report preparation.

- **Sorrento Valley Utilities Improvement Revegetation Project, San Diego County, CA.** Assisted with biological monitoring, data management, and report preparation.
- **North Metro Revegetation Project, San Diego County, CA.** Assisted with biological monitoring.
- **Rolling Hills Ranch Wetland Mitigation Project, Chula Vista, CA.** Assisted with biological monitoring and report preparation.
- **Encinitas Ranch Golf Course Revegetation, Permitting & Chaparral Revegetation, Encinitas, CA.** Assisted with biological monitoring.

Construction and plant installation monitoring

Mr. Thomson has been involved with monitoring construction activities in sensitive habitats and installation of plants for the following restoration projects:

- **Brookview Senior Housing Project, Poway, CA.** Assisted with construction monitoring during the plant installation and seed application processes.
- **Ocean Trails Golf Course Revegetation Project, Los Angeles County, CA.** Assisted with plant installation monitoring and quantitative analysis for coastal sage scrub habitat.
- **City of San Diego Metropolitan Wastewater Department (MWWD) as Needed Biologist, City of San Diego, CA.** Assisted with construction monitoring, impact analyses, biological report preparation and mitigation recommendations for MWWD projects involving necessary sewer line maintenance and emergency sewer break repair.

PRIOR WORK EXPERIENCE

Biological Technician

Mr. Thomson provided ecological restoration work for the U.S. Forest Service involving native seed collection and germination, plant propagation and pest management, outplanting to damaged sites; designing experimental plots, maintaining records and monitoring restoration success, adapting methods as necessary; organizing and supervising volunteer groups that contribute time to wildlife and plant habitat

improvement projects; participating as a crew member to complete biological surveys including threatened, endangered, and sensitive plant species; mapping locations using Global Positioning System (GPS) units, entering points and creating maps with Geographic Information System (GIS); and writing ecological restoration program grants.

Field Research Assistant

As a field research assistant in the Biology Department at Utah State University, Mr. Thomson was responsible for surveying plant populations for research site selection; setting up research plots; sampling and mapping a noxious weed species, using GPS technology; processing GPS field data using Pathfinder software; preparing statistical summaries and maps using Excel and ArcView software for review by other team members on the biological control project; and working with team members to monitor and record study results.

Field Technician Assistant

As a field technician assistant with the U.S. Department of Agriculture and Utah State University, Mr. Thomson was responsible for germinating several varieties of grasses and legumes utilizing various scarification techniques; propagating plants in greenhouses; caring for plants including pest control and fertilization; collecting and analyzing field data; operating machinery; maintaining plots through cultivation of grasses and control of weeds; and preparing samples for nutrient analysis.

TRICIA L. WOTIPKA
Environmental Specialist

EDUCATION

Pennsylvania State University
B.S. Wildlife and Fisheries Science (2000)
(Dean's Honor List, Fall 1998 - Spring 2000)

PROFESSIONAL AFFILIATIONS

- Audobon Society, 2000
- Women=s Environmental Council, past Secretary, 2001 and Newsletter Chair, 2002

EXPERIENCE SUMMARY

Ms. Wotipka has over two years experience in environmental document preparation and resource conservation planning. Project experience includes rare plant surveys, biological resource surveys, data collection and analysis, environmental assessments, wetlands delineations, permitting, mitigation design and monitoring, and endangered species surveys. Projects include issues relative to the California Fish and Game Code, the federal Clean Water Act (Sections 401 and 404), the National Environmental Policy Act (NEPA), the Migratory Bird Treaty Act, and the Endangered Species Act (ESA). Ms. Wotipka has also trained with the Wetlands Training Institute, Inc. and has successfully completed a course in basic wetlands delineation.

PROFESSIONAL ASSIGNMENTS

- **Sewer Line Relocation and Park Improvements.** Aliso Creek Emergency Sewer and Park Improvements Project, Orange County, California. Assisted in focused rare plant surveys for the federally-listed threatened and state-listed endangered thread-leaved brodiaea (*Brodiaea filifolia*). Prepared a Section 404 and 401 permit application in accordance with the federal Clean Water Act and a 1603 Streambed Alteration Agreement in accordance with California Fish and Game Code. Prepared and processed a Section 404 and 401 permit application in accordance with the federal Clean Water Act and a 1603 Streambed Alteration Agreement in accordance with California Fish and Game Code. Negotiated with resource agencies to identify appropriate mitigation measures, including the creation and enhancement of southern willow scrub and mule fat scrub wetlands within the reserve.

- **Railway Expansion Project.** Sorrento-Miramar Curve Realignment and Second Main Track Project. City of San Diego, California. Conducted field surveys for sensitive, state- and federally-listed plant species on approximately 190 acres.
- **Church Development Project.** St. Jerome=s Catholic Church Project. City of San Diego, California. Conducted field surveys for state- and federally-listed species on approximately 18 acres.
- **Residential Subdivision and Roadway Improvements Project.** University Commons Development Project, City of San Marcos, California. Performed a delineation of Awaters of the United States@ and wetlands under the jurisdiction of the U.S. Army Corps of Engineers and California Department of Fish and Game. Prepared and processed a Section 404 and 401 permit application in accordance with the federal Clean Water Act and a 1603 Streambed Alteration Agreement in accordance with California Fish and Game Code.
- ! **Residential Subdivision.** Goodwin Drive Residential Development, City of Vista, California. Conducted a delineation of Awaters of the United States@ and wetlands under the jurisdiction of the U. S. Army Corps of Engineers (ACOE) and California Department of Fish and Game (CDFG). Obtained a Section 401 permit application in accordance with the federal Clean Water Act and a 1603 Streambed Alteration Agreement in accordance with California Fish and Game Code. Negotiated with resource agencies to identify appropriate mitigation measures, including the creation of southern willow scrub wetlands.
- ! **Conservation Planning.** Assisted in the development of the Multiple Species Habitat Conservation Plan (MSHCP) for western Riverside County. Project involvement included research on potentially covered plant species followed by syntheses of ecological information and the preparation of sensitive species conservation analysis.

RELEVANT EXPERIENCE

- Restoration/Maintenance volunteer - Habitat West, Vista, California. Assisted in the restoration and management of native habitats for the coastal California gnatcatcher.
- Restoration/Maintenance volunteer - Habitat West, Vista, California. Evaluated the health of newly planted vegetation; identified and removed pestilent species when necessary; identified shrubs and native scrub communities.

- Pennsylvania Cooperative Fish & Wildlife Service Unit. Flushed and recorded the location of ruffed grouse to note the effects of timber harvest on grouse management.
- Pennsylvania Wildlife Habitat Evaluation Project. Judged over 60 kids aged 8-18 years old in a multi-county wildlife evaluation competition in Pennsylvania.
- Pennsylvania Wildlife Habitat Evaluation Project. Evaluated students based on their knowledge of PA wildlife habitats, correct identification of wildlife foods, oral presentations, and on-site written management plans.

PUBLICATIONS

- Researched and prepared the introduction of the "Spring Creek Watershed Water Sampling Protocol" for the Clearwater Conservancy - Fall 1999.
- Designed and produced a web page in Spring 2000 (now out of service) entitled "Beaks and Buds". It was located at <http://www.personal.psu.edu/tlw188>.

APPENDIX B
VASCULAR PLANT SPECIES OBSERVED
MAGIC MOUNTAIN ENTERTAINMENT SITE
(2003)

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APPENDIX B

VASCULAR PLANT SPECIES – MAGIC MOUNTAIN ENTERTAINMENT SITE

FILACEAE

DENNSTAEDTIACEAE - BRAKEN FAMILY

Pentagramma triangularis - goldenback fern

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
Lomatium utriculatum - common lomatium

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
- * *Arctotheca calendula* - capeweed
- Artemisia californica* - coastal sagebrush
- Artemisia dracunculus* - tarragon
- Artemisia tridentata* - Great Basin sagebrush

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- Baccharis pilularis* - coyote brush
- Baccharis salicifolia* - mule fat
- Baccharis sarothroides* - chaparral broom
- Brickellia californica* - California brickellbush
- * *Carduus pycnocephalus* - Italian thistle
- * *Centaurea melitensis* - star thistle
- Chaenactis glabriuscula* - yellow pincushion
- * *Chamomilla suaveolens* - pineapple weed
- Chrysothamnus* sp. - rabbitbrush
- Cirsium occidentale* var. *californicum* - California thistle
- Cirsium occidentale* var. *occidentale* - cobwebby thistle
- * *Cnicus benedictus* - blessed thistle
- * *Cirsium vulgare* - bull thistle
- Conyza canadensis* - common horseweed
- Conyza coulteri* - Coulter's horseweed
- Corethrogyne filaginifolia* - California aster
- Corthrogyne filaginifolia* var. *filaginifolia* - California aster
- * *Dimorphotheca sinuata* - African daisy
- Encelia actoni* - Acton's encelia
- Encelia californica* - California bush sunflower
- Encelia farinosa* - brittlebush, incensio
- Ericameria palmeri* var. *pachylepis* - goldenbush
- 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
- Hemizonia fasciculata* - fascicled tarweed
- Heterotheca grandiflora* - telegraph weed
- Heterotheca sessiliflora* - golden aster
- Isocoma menziesii* - goldenbush
- * *Lactuca serriola* - prickly lettuce
- Lasthenia californica* - coast goldfields
- Layia platyglossa* - common tidy-tips
- Lepidospartum squamatum* - scale-broom
- Lessingia glandulifera* - valley vinegar-weed
- Malacothrix saxatilis* - cliff malacothrix
- Osmadenia tenella* - southern rosinweed

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- 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
- Stephanomeria virgata* - twiggy wreathplant
- * *Sonchus oleraceus* - common sow-thistle
- Stebbinsoseris heterocarpa* – grassland stebbinsoseris
- 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* - yellow fiddleneck
- Amsinckia menziesii* var. *intermedia* - yellow fiddleneck
- Amsinckia menziesii* var. *menziesii* - yellow fiddleneck
- Cryptantha* sp. - forget-me-not
- Cryptantha intermedia* - common forget-me-not
- Cryptantha micrantha* – purple root cryptantha
- Cryptantha microstachys* – Tejon cryptantha
- Cryptantha muricata* - prickly cryptantha
- Heliotropium curassavicum* - wild heliotrope
- Pectocarya linearis* - slender pectocarya
- Pectocarya penicillata* – winged pectocarya
- Pectocarya setosa* - pectocarya
- Plagiobothrys* sp. - popcorn flower
- Plagiobothrys arizonicus* – Arizona popcorn flower
- Plagiobothrys canescens* – valley popcorn flower
- Plagiobothrys collinus* - California popcorn flower
- Plagiobothrys fulvus* – fulvous popcorn flower

BRASSICACEAE - MUSTARD FAMILY

- * *Brassica nigra* - black mustard
- * *Capsella bursa-pastoris* - shepard's purse
- * *Cardaria draba* - heart-podded hoary cress
- Erysimum capitatum* - western wallflower
- * *Hirschfeldia incana* - short-podded mustard
- Lepidium virginicum* - wild peppergrass
- * *Raphanus sativus* - wild radish

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- * *Sisymbrium irio* - London rocket
- * *Sisymbrium orientale* - Oriental mustard
- Thysanocarpus curvipes* - hairy fringedpod
- 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

CAPRIFOLIACEAE - HONEYSUCKLE FAMILY

- Lonicera subspicata* - southern honeysuckle
- Sambucus mexicana* - Mexican elderberry

CARYOPHYLLACEAE - PINK FAMILY

- * *Silene gallica* - common catchfly
- Spergularia* sp. - sand-spurrey
- * *Stellaria media* - common chickweed

CHENOPODIACEAE - GOOSEFOOT FAMILY

- Atriplex canescens* - four-winged saltbush
- 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

CONVOLVULACEAE - MORNING-GLORY FAMILY

- Calystegia peirsonii* - Peirson's morning-glory
- * *Convolvulus arvensis* - bindweed
- Cuscuta californica* - California dodder

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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

CUPRESSACEAE - CYPRESS FAMILY

Cupressus sp. - cypress
Juniperus californica - California juniper

CYPERACEAE - SEDGE FAMILY

Cyperus esculentus - nutsedge

EUPHORBIACEAE - SPURGE FAMILY

Chamaesyce albomarginata - rattlesnake spurge
Chamaesyce polycarpa - small-seed sand mat
Eremocarpus setigerus - doveweed

FABACEAE - PEA FAMILY

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

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Trifolium albopurpureum - Indian clover

Trifolium ciliolatum - tree clover

Trifolium gracilentum - pinpoint clover

Trifolium hirtum - rose 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

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

Phacelia imbricata - imbricate phacelia

Phacelia minor - wild canterbury-bell

Phacelia ramosissima - shrubby phacelia

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

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NYCTAGINACEAE - FOUR O'CLOCK FAMILY

Mirabilis californica - California wishbone-bush

Mirabilis laevis – wishbone-bush

OLEACEAE - OLIVE FAMILY

* *Ligustrum lucidum* – glossy privet

ONAGRACEAE - EVENING-PRIMROSE FAMILY

Camissonia bistorta - California sun cup

Camissonia californica - mustard primrose

Camissonia hirtella – field 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

PAEONIACEAE - PEONY FAMILY

Paeonia californica - California peony

PAPAVERACEAE - POPPY FAMILY

Eschscholzia californica - California poppy

PINUS - PINE FAMILY

* *Pinus halepensis* – Aleppo pine

PLANTAGINACEAE - PLANTAIN FAMILY

Plantago erecta - dot-seed plantain

* *Plantago lanceolata* - English plantain

* *Plantago major* - common plantain

* *Plantago ovata* – woolly plantain

POLEMONIACEAE - PHLOX FAMILY

Eriastrum sapphirinum - sapphire eriastrum

Gilia angelensis - angel gilia

Linanthus androsaceus - common linanthus

Navarretia atractyloides - holly-leaf skunkweed

POLYGONACEAE - BUCKWHEAT FAMILY

Chorizanthe parryi var. *fernandina* - San Fernando Valley spineflower

Chorizanthe staticoides - turkish rugging

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- Eriogonum elongatum* - long-stemmed buckwheat
- Eriogonum fasciculatum* ssp. *foliolosum* - California buckwheat
- Eriogonum foliosum* - leafy buckwheat
- Eriogonum gracile* - slender woolly buckwheat
- Eriogonum viridescens* - twotooth buckwheat
- Lastarriaea coriacea* - lastarriaea
- * *Polygonum arenastrum* - common knotweed
- Pterostegia drymarioides* - California threadstem
- Rumex hymenosepalus* - desert rhubarb
- * *Rumex crispus* - curly dock

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* sp. (undetermined) - 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

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Salix laevigata - red willow
Salix lasiolepis - arroyo willow

SAURURACEAE - LIZARD'S-TAIL FAMILY

Anemopsis californica - yerba mansa

SCROPHULARIACEAE - FIGWORT FAMILY

Castilleja exserta - common owl's-clover
Keckiella cordifolia - heart-leaf penstemon
Mimulus aurantiacus - bush monkeyflower
Penstemon centranthifolius - scarlet bugler

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 Entertainment 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)

LILIACEAE - LILY FAMILY

Bloomeria crocea – common goldenaster

2003 Sensitive Plant Survey Results

Magic Mountain Entertainment Site

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

2003 Sensitive Plant Survey Results Magic Mountain Entertainment Site

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

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

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____

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

Reporter: Mark A. Elvin

Phone: (760) 942-5147

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

Date of Field Work: 16-24 April 2003

County: Los Angeles

Collection: yes

If yes, #

Mus./Herb:

Location: Santa Clarita Valley, S of the Santa Clara River, E of Hwy 5. On most N facing slopes S of Magic Mtn Theme Park

Quad Name: Newhall

X 7 1/2' 15' Elevation: 1,100-1,400' T 4N R 16W W 1/4 of 1/4 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? X Yes No Unknown

Total # of Individuals = ~9,500 flowering ind. Is this a subsequent visit? Yes X No Compared to your last visit: more same fewer

Phenology (plants): % vegetative ?? % flowering* % fruiting (unable to determine, vegetative inds. cryptic)

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: 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 X Good 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)

 X Keyed in a site reference: Hickman 1993, Munz 1974

 X Compared with specimen housed at: RSA, UCR

 Compared with photo/drawing in:

 X By another person (name): Daryl Koutnik

 X Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone) Andy Sanders

PHOTOGRAPHS (Check one or more)

Subject _____ Type _____

 X Plant/Animal X Slide

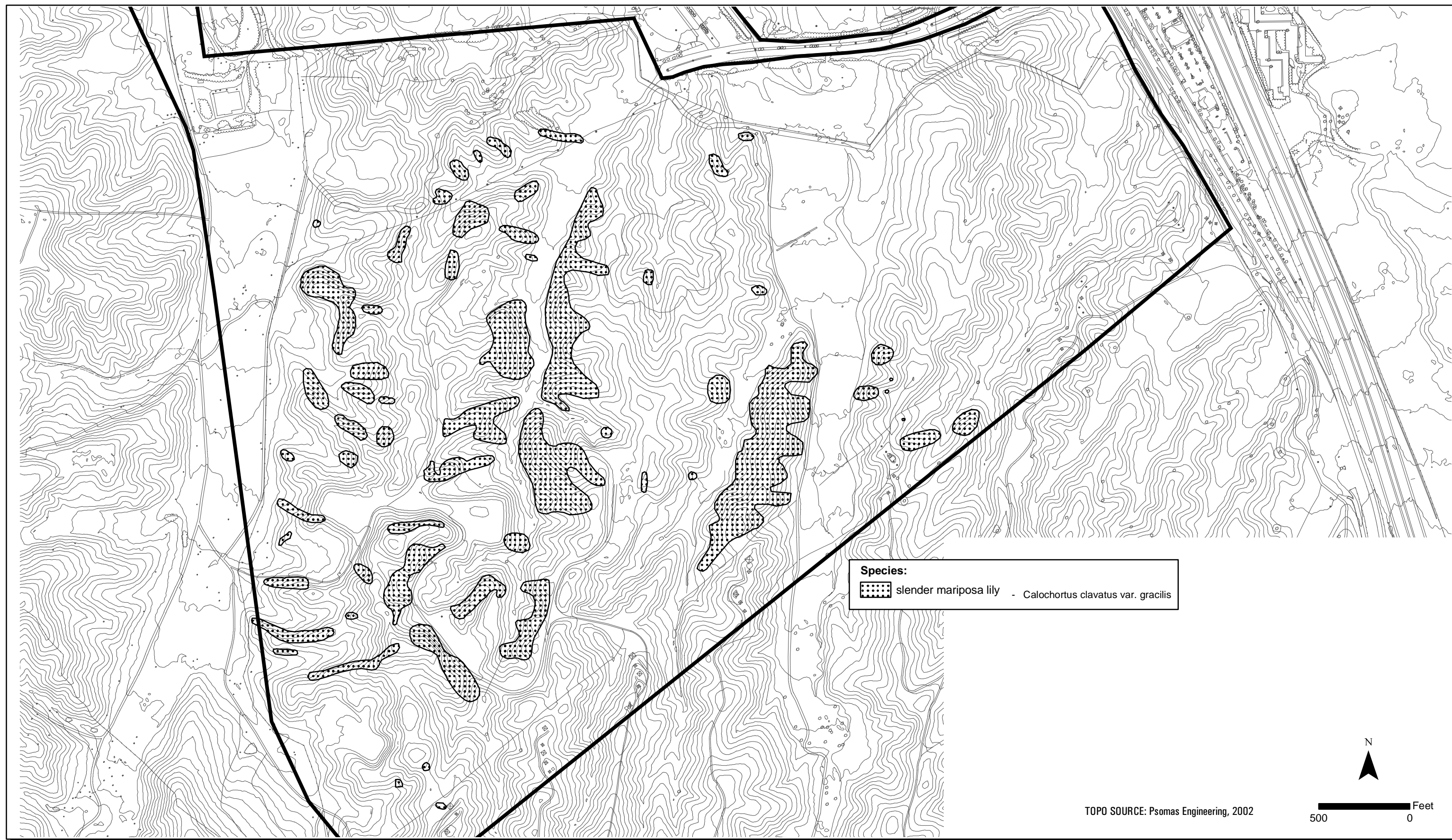
 X Habitat Print

 X Diagnostic Feature

 Other

May we obtain duplicates at our cost?

 X Yes No



Magic Mountain Entertainment Site
2003 Rare Plant Survey Results

FIGURE
1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

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

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____

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

Reporter: Mark A. Elvin

Phone: (760) 942.5147

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

Date of Field Work: xx May 2003

County: Los Angeles

Collection: 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

T 4N

R 16W

W

¼ of ¼ Sec

X 7½' 15' Elevation: 1075-1250'

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 = ~700,000 plants 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):

Zamora clay loam and terrace escarpment soils; ridges and slopes down from mesa tops and from agricultural areas. Primarily on southeast- to south- to southwest-facing slopes with macro-slope gradients typically ranging between 5 degrees and 35 degrees; micro-slope gradients are typically slightly shallower (2 degrees to 20 degrees), but are locally steeper. Soils color is generally brown (10YR 5/3). California sagebrush-purple sage with *Artemisia californica*, *Eriogonum fasciculatum*, *E. elongatum*, *E. gracile*, *Salvia leucophylla*, *Ericameria palmeri* var. *pachypus*, *Mirabilis californica*.

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 X Good Fair Poor

Comments: Plants were densely to sparsely distributed within about fifteen polygons.

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

X Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject

Type

X Plant/Animal

X Slide

X Habitat

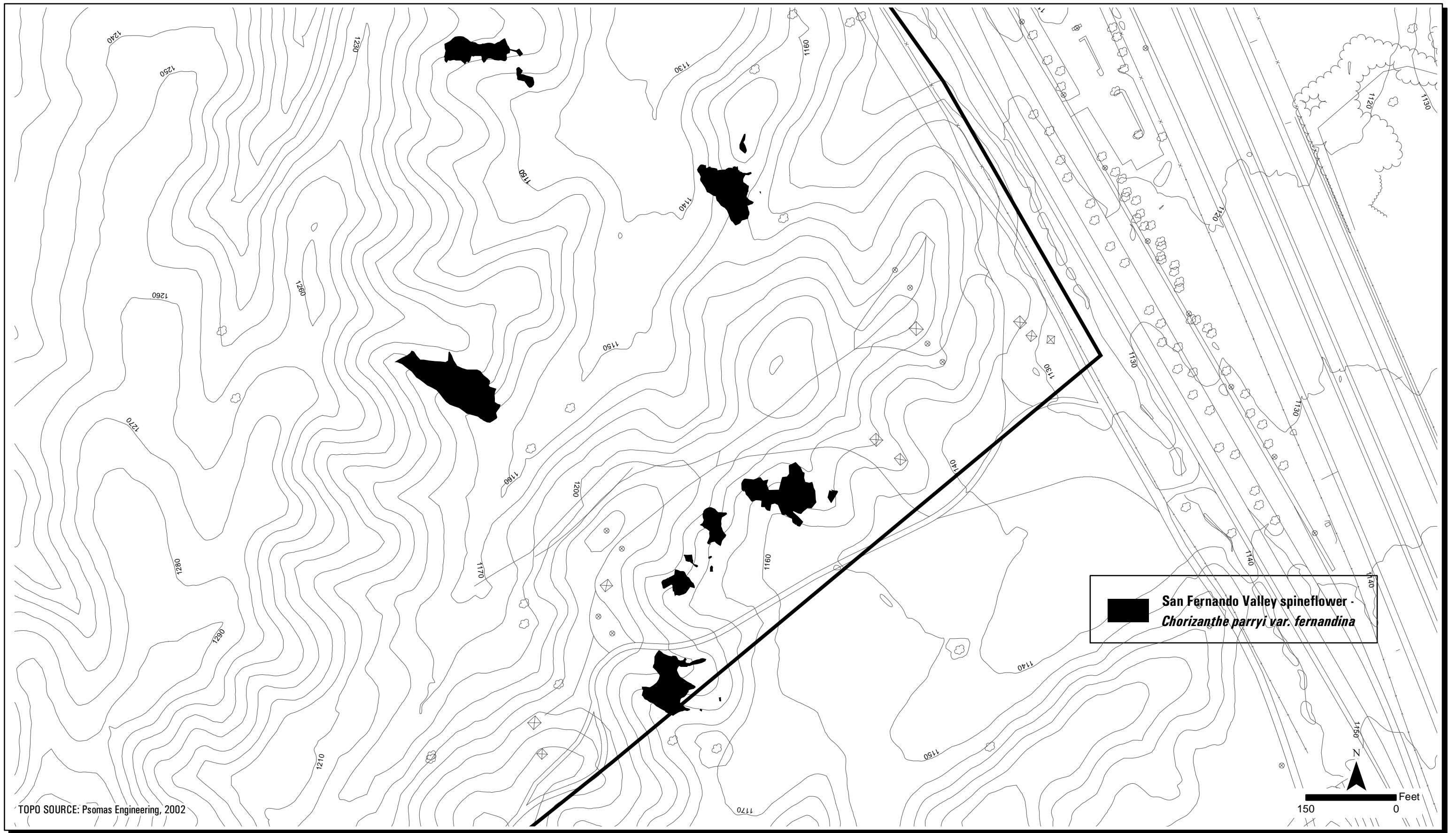
 Print

X Diagnostic Feature

 Other

May we obtain duplicates **at our cost**?

X Yes No



TOPO SOURCE: Psomas Engineering, 2002

Magic Mountain Entertainment Site
2003 San Fernando Valley spineflower Results

FIGUR
1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

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

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____

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

Reporter: Mark A. Elvin

Phone: (760) 942.5147

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

Date of Field Work: 15-16 Apr 2003
IRVC, UCR, RSA, +

County: Los Angeles

Collection: If yes, Elvin #2527

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, on secondary benches and adjacent ridge of unnamed wash draining to the north.

Quad Name: Newhall T 4N R 16W W ¼ of ¼ Sec
X 7 ½' 15' Elevation: 1,200'

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? X Yes No Unknown

Total # of Individuals = ~350,000 plants Is this a subsequent visit? Yes X No Compared to your last visit: 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):

Openings in California sagebrush with *Lasthenia californica*, *Chorizanthe correaea*, *Erodium cicutarium*, *Filago californica*, *Artemisia californica*, *Eriogonum fasciculatum*, *E. elongatum*. Slopes - flat to slight S facing (0-2°); soils, alluvial with small clayish components. Some plants growing in complete sand and others on stabilized secondary bench behind an old dam.

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 X Good Fair Poor

Comments: Plants were densely to sparsely distributed within several polygons.

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

X Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject _____ Type _____

X Plant/Animal X Slide

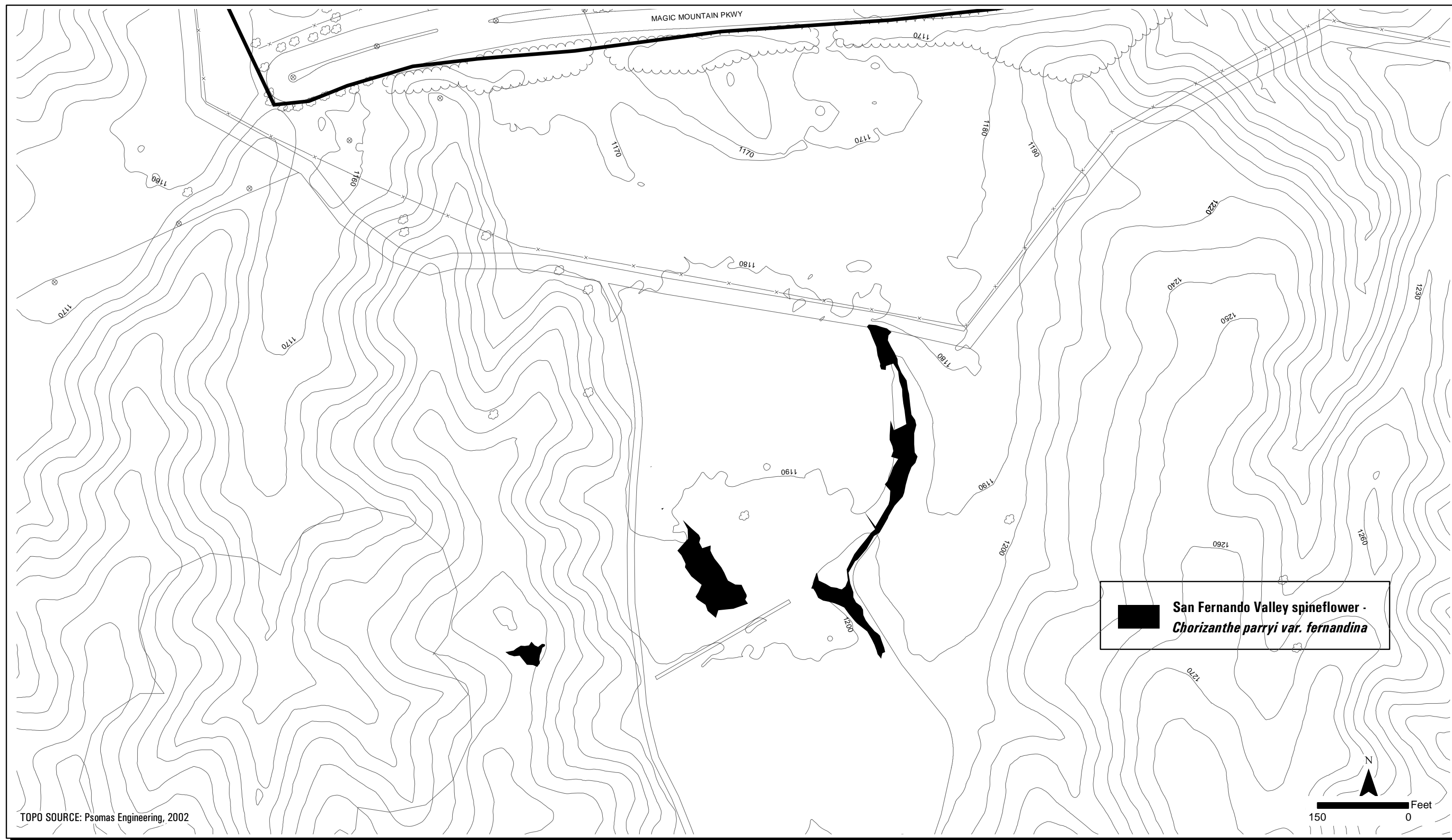
X Habitat Print

X Diagnostic Feature

 Other

May we obtain duplicates **at our cost?**

X Yes No



Magic Mountain Entertainment Site
2003 San Fernando Valley spineflower Results

FIGUR

1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

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

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____

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

Reporter: Mark A. Elvin

Phone: (760) 942.5147

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

Date of Field Work: 16-17Apr 2003

County: Los Angeles

Collection: 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, on southern portion of ridge about 100' S of Magic Mtn Theme Park.

Quad Name: Newhall T 4N R 16W W ¼ of ¼ Sec
X 7 ½' 15' Elevation: ~1,300'

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? X Yes No Unknown

Total # of Individuals = ~18,000 plants Is this a subsequent visit? Yes X No Compared to your last visit: more same fewer

Phenology (plants): % vegetative 2 % flowering 98 % 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):

Openings in California sagebrush-purple sage with *Lasthenia californica*, *Chorizanthe correacea*, *Erodium cicutarium*, *Filago californica*, *Quercus berberidifolia*, *Artemisia californica*, *Eriogonum fasciculatum*, *E. elongatum*, *E. gracile*, *Salvia leucophylla*, *Ericameria palmeri* var. *pachypus*; Slopes - flat to slight S facing (0-2°); soils-lay with alluvial component.

Current Land Use/Visible Disturbances/Possible Threats: Current Land Use: vacant, adjacent to Magic Mtn Theme Park and their fireworks display area; Visible Disturbances: fire control grading/clearing; Possible Threats: proposed residential/commercial development, fire control practices.

Overall Site Quality: Excellent X Good Fair Poor

Comments: Plants were densely to sparsely distributed within several polygons.

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

X Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject _____ Type _____

X Plant/Animal X Slide

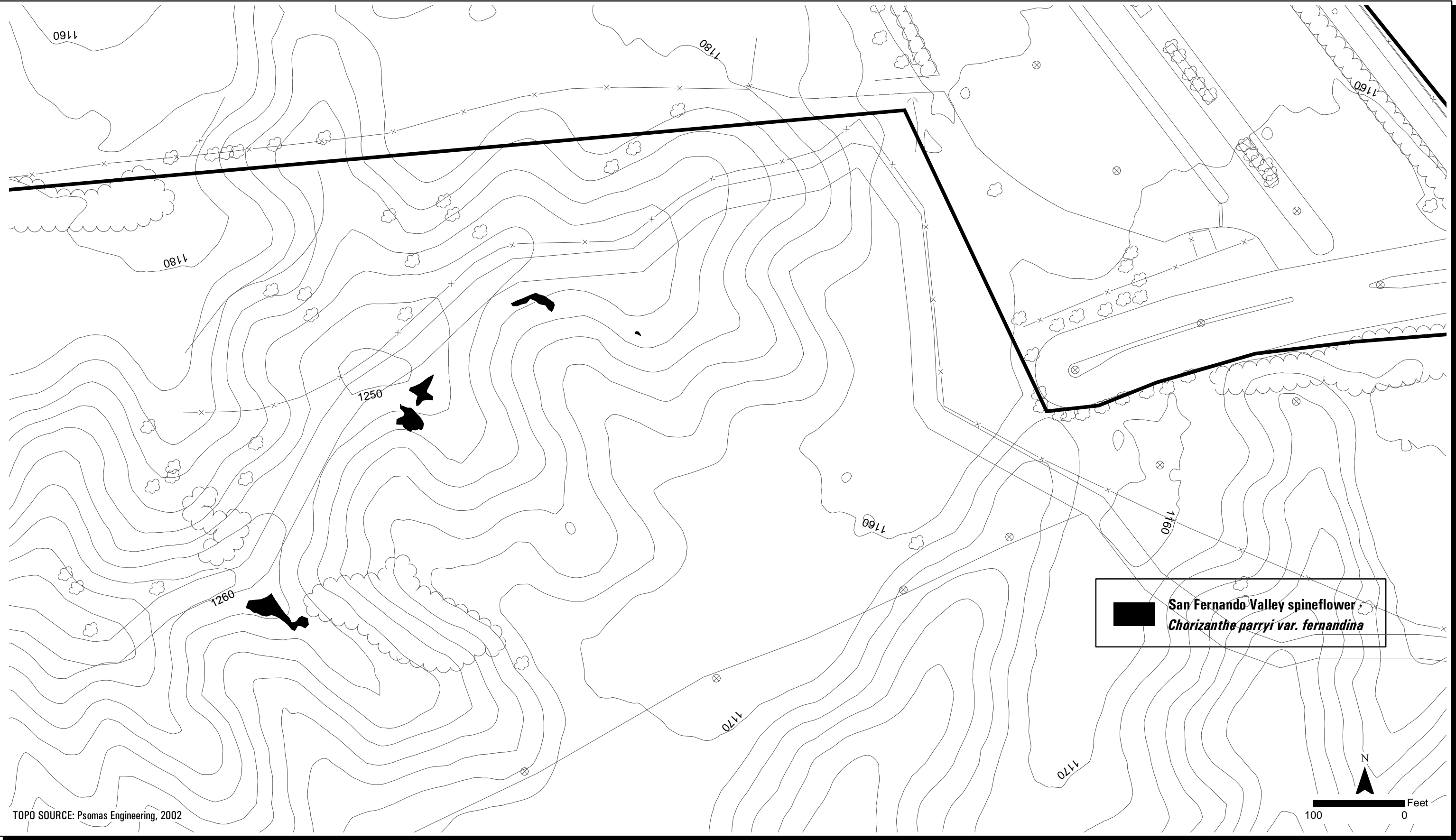
X Habitat Print

X Diagnostic Feature

 Other

May we obtain duplicates **at our cost?**

X Yes No



Magic Mountain Entertainment Site
2003 San Fernando Valley spineflower Results

FIGUR
1

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

PLEASE ENTER ALL INFORMATION AVAILABLE TO YOU.
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ATTACH OR DRAW A MAP ON BACK.**

Document Code _____ Quad Code _____
Index Code _____ Occurrence # _____

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

Reporter: Mark A. Elvin

Phone: (760) 942.5147

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

Date of Field Work: 14 Apr 2003

County: Los Angeles

Collection: 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 7 1/2' 15' Elevation: ~1,150' T 4N R 16W E 1/4 of 1/4 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 = ~75,000 plants Is this a subsequent visit? ___ Yes X No Compared to your last visit: ___ 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):

Zamora clay loam and terrace escarpment soils; ridges and slopes down from mesa tops and from agricultural areas. Primarily on southeast- to south- to southwest-facing slopes with macro-slope gradients typically ranging between 5 degrees and 35 degrees; micro-slope gradients are typically slightly shallower (2 degrees to 20 degrees), but are locally steeper. Soils color is generally brown (10YR 5/3). Openings in California sagebrush-purple sage with *Lasthenia californica*, *Erodium cicutarium*, *Lotus strigosus*, *Bromus* spp., *Artemisia californica*, *Eriogonum fasciculatum*, *E. elongatum*, *E. gracile*, *Salvia leucophylla*, *Ericameria palmeri* var. *pachypus*.

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: Plants were densely to sparsely distributed within this polygon.

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

X Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

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



Magic Mountain Entertainment Site
2003 San Fernando Valley spineflower Results

FIGURE
1