Dudek and Associates, Inc., "2006 Sensitive Plant Survey Results for the Entrada [Magic Mountain Entertainment] Site, Los Angeles, California" (October 2006; 2006J)

2006 Sensitive Plant Survey Results

Entrada

Los Angeles County, California

OCTOBER 2006

PREPARED FOR:

The Newhall Land and Farming Company
23823 Valencia Blvd.
Valencia, CA 91355

PREPARED BY:

Dudek & Associates, Inc.
605 Third Street
Encinitas, CA 92024

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for the

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Prepared for:

Newhall Land
23823 Valencia Boulevard
Valencia, CA 91355
Contact: Matt Carpenter

Prepared by:

DUDEK

605 Third Street
Encinitas, CA 92024
Contact: Sherri L. Miller
(760) 479-4244

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1.0 INTRODUCTION

The purpose of this report is to document the results of surveys for sensitive plant species within the 550-acre Entrada Site for the 2006 field season. Surveys placed an emphasis on the identification of populations of the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*; SFVS). Focused surveys were conducted within those areas that were previously known to support spineflower occurrences. Any additional sensitive plant species observed were noted.

2.0 SITE DESCRIPTION

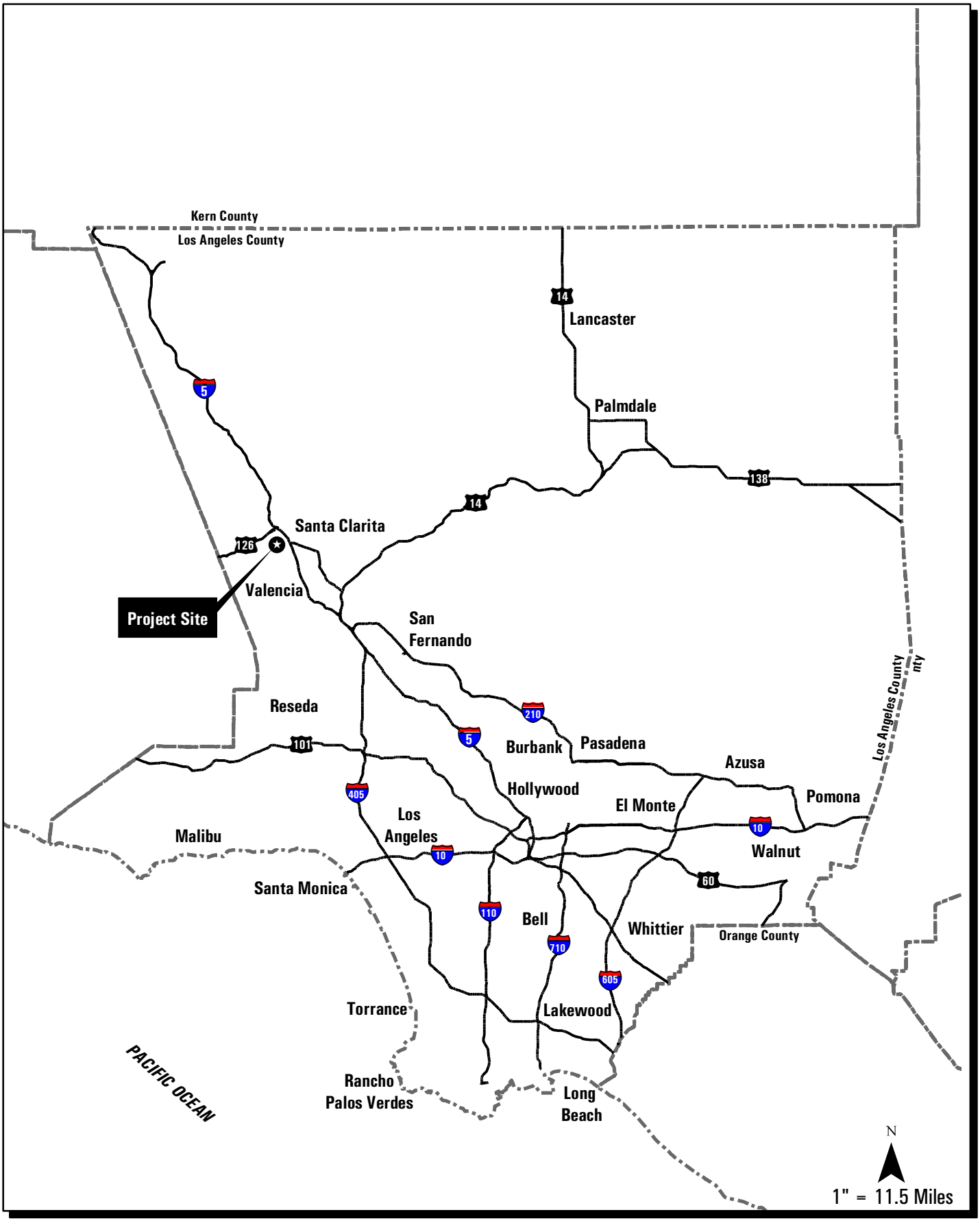
The 550-acre Entrada site is located in an unincorporated portion of the Santa Clara River Valley in northwestern Los Angeles County (*Figure 1*). The Entrada site lies just west of Interstate 5 (I-5) and south of the Santa Clara River. The City of Santa Clarita is immediately east of the project site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

The southern portion of the Entrada site is dominated by several north/south trending ridges. A narrow panhandle (roughly 100 meters wide) extends along the western portion of the site to an agricultural field adjacent to the Santa Clara River. The northeastern portion of the site contains a large agricultural field with fragments of relictual oak woodlands and California sage scrub and California chaparral. 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 Vegetation Communities and Land Covers

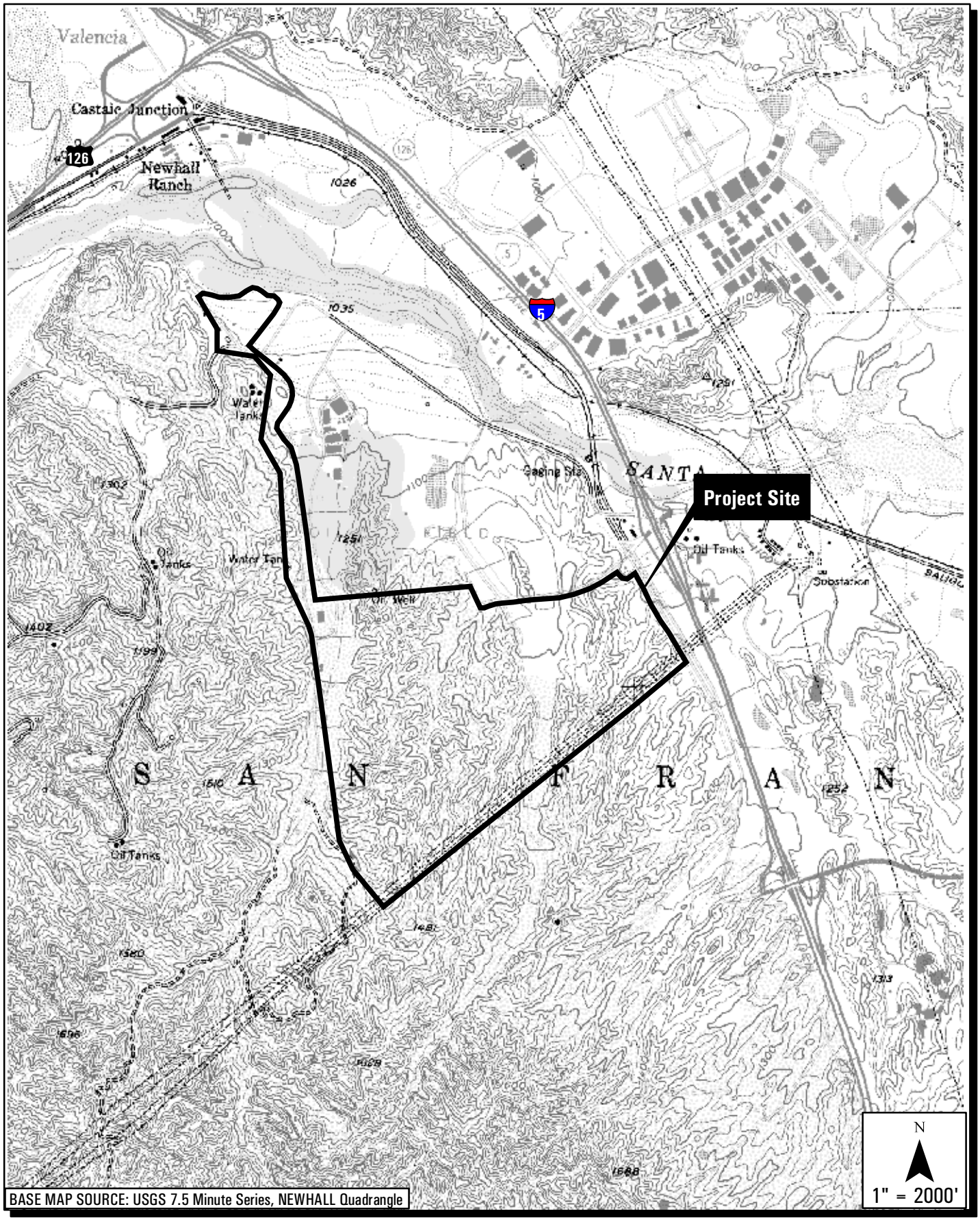
Dudek conducted a sensitive plant survey in the study area. Native and naturalized vegetation communities within the Entrada site are representative of those found in this region and provide examples of those vegetation communities found in the Santa Susana Mountains and the Santa Clara River ecosystems. California sagebrush scrub, chaparral, big sagebrush scrub, and California grassland are the major upland plant communities on the site. Ephemeral drainages on site are associated with big sagebrush scrub and alluvial scrub. The northeast portion of



Entrada

Regional Map

FIGURE 1



BASE MAP SOURCE: USGS 7.5 Minute Series, NEWHALL Quadrangle

Entrada

Vicinity Map

FIGURE 2

the site includes an agricultural field with some intact upland vegetation communities. While upland vegetation communities dominate the landscape within the site, the Santa Clara River is immediately adjacent to it and supports a variety of riparian vegetation communities. These include southern cottonwood–willow riparian scrub, southern willow scrub, and mulefat scrub.

Newhall Land (Newhall) 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 vegetation on site. Scrub communities have been displaced by California annual grasslands, apparently as a result of grazing. Southern California Edison and Southern California Gas Company have transmission lines within easements along the southern portion of the site as well. The easements/transmission lines are actively maintained.

2.2 Geology and Soils

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

3.0 METHODS AND SURVEY LIMITATIONS

Data regarding botanical resources present on the project site were obtained through a review of the pertinent literature and field reconnaissance, which is described below.

3.1 Literature Review

General floristic and sensitive botanical resources present or potentially present on the Entrada site were identified through a literature search using the following sources: the *California Natural Diversity Database* for the Newhall, Santa Susana, Oat Mountain, Mint Canyon, San Fernando, Green Valley, Warm Springs Mountain, Whitaker Peak, Cobblestone Mountain, Piru, Simi, Thousand Oaks, and Val Verde quadrangle maps (CDFG 2004); *2002* and *2003 Sensitive Plant Survey Results for Newhall Ranch Specific Plan Area* (Dudek 2002, 2004a); *2003 Sensitive*

Plant Survey Results for Valencia Commerce Center, Castaic Mesa, Isola, and Ventura Homestead Sites, Magic Mountain Entertainment Center/Entrada Site, Castaic Junction Site, and Salt Creek (Dudek 2004b–g); *2004 Sensitive Plant Survey Results* for Valencia Commerce Center, Entrada Site, Legacy, and Newhall Ranch Specific Plan Area (Dudek 2004h–k); 2005 Sensitive Plant Survey Results for Valencia Commerce Center, Entrada Site, Legacy, and Newhall Ranch Specific Plan Area (Dudek 2006a–c); *Biological Resource Assessment of the Proposed Santa Susana Mountains/Simi Hills Significant Ecological Area* (PCR, November 2002); CalFlora (University of California, Berkeley, May 2002); US 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). Vegetation community and land cover classifications used in this report primarily follow the *Vegetation Classification and Mapping Program, List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database* (CDFG 2003), with a few exceptions. In certain instances, the vegetation communities observed in the field did not match the vegetation communities described in CDFG (2003). 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 Colin Khoury, Saudamini Sindhar, Chris Oesch, Patricia Schuyler, and Makela Mangrich. All surveys were conducted on foot. Resumes for survey personnel are provided in *Appendix A*.

Botanical surveys of the site were conducted in May 2006 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 SFVS and other sensitive plant

species in order to develop a search-image prior to conducting surveys of the project site. Surveys focused on the identification and location of SFVS within those areas that were known to support the SFVS occurrences previously. Additional sensitive plant species observed during SFVS surveys including California Native Plant Society (CNPS) List 1B and 4 species were recorded.

TABLE 1
Survey Schedule and Personnel Entrada Site

Date	Biologists	Purpose
5-22-06	Colin Khoury, Chris Oesch, , Patricia Schuyler, and Makela Mangrich	Focused surveys for SFVS; other sensitive plant species noted as observed.
5-23-06	Colin Khoury, Saudamini Sindhar, Chris Oesch, Patricia Schuyler, and Makela Mangrich	Focused surveys for SFVS; other sensitive plant species noted as observed.
5-24-06	Colin Khoury, Saudamini Sindhar, Chris Oesch, Patricia Schuyler, and Makela Mangrich	Focused surveys for SFVS; other sensitive plant species noted as observed.

All plant species encountered during the field surveys were identified and recorded for inclusion in *Appendix B*. 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).

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

The outer perimeter of each spineflower polygon was searched in one continuous direction until returning to the starting point, with plants being located within at least every one to four meters 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 (i.e., all polygons within four m of each other are 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 centimeters squared (10 by 20 cm) and two m^2 (one m by two m) depending on various factors regarding the polygon (e.g., size of the polygon, plant densities, variations in plant densities within the polygon). The number of subsets within the total polygon was determined and added/multiplied, resulting in a total estimate of the number of individuals of the polygon (e.g., 4x125=500, 8x12=96, and 9x100=900). This number was then rounded to the nearest magnitude or multiple of a magnitude (e.g., 500; 100; 1,000). This should provide accurate estimates of the number of plants within each polygon while eliminating a false sense of accuracy.

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 designation 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*) or CNPS online inventory (http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi), 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, which have a lower level of sensitivity, were included in discussions only when incidentally encountered during the field surveys. Focused surveys were conducted only in areas that were previously known to support SFVS. Focused surveys for any other sensitive plant species were not conducted. Any additional sensitive plant species observed were noted.

3.2.2 Survey Limitations

Surveys were conducted in May 2006. The timing of the surveys was coincident with the blooming period for SFVS and some other species that were expected to bloom at this time. This maximized the potential for detection of SFVS and other sensitive plants during the survey effort.

Surveys for SFVS were concentrated within those areas known to support spineflower occurrences previously. 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 356 plant species were identified within the Entrada site. Of these, 269 species (75%) are native to the region and 87 species (25%) are non-native. The cumulative list of plant species identified on the site in 2002, 2003, 2004, 2005, and 2006 is provided as *Appendix B.*

4.2 Sensitive Plant Species

Sensitive plant species observed within the study area during the course of 2006 surveys include: SFVS and Coulter's goldfields *(Lasthenia glabrata* ssp. c*oulteri*). These and other sensitive species that have the potential to occur on the Entrada site, based on the presence of suitable habitat and soils, are listed in *Table 2.* This list is confined primarily to those species listed by the state and federal government as threatened or endangered, those species proposed for state and/or federal listing or candidates, those plant species found on Lists 1A, 1B, or 2 of the CNPS *Inventory of Rare Endangered Plants of California* (CNPS 2001) or CNPS online inventory (http://cnps.web.aplus.net/cgi-in/inv/inventory.cgi).

TABLE 2
Sensitive Plant Species Observed or Potentially Occurring at the Entrada Site

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
Arenaria paludicola	marsh sandwort	FE/SE	1B	dense freshwater marsh/perennial herb/May–August	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrences are in the Santa Ana River and in Santa Barbara. Limited suitable habitat on site; very low likelihood of occurrence within the study area.
Astragalus brauntonii	Braunton's milk-vetch	FE/None	1B	chaparral, coastal sage scrub, grasslands; often on carbonate substrates/perennial herb/March–July	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrence is in the Simi Hills. Suitable habitat exists on site. Moderate likelihood of occurrence within study area.
Atriplex coulteri	Coulter's saltbush	None/None	1B	coastal sage scrub and grasslands on alkaline or clay substrate/perennial herb/March–October	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists on site. Moderate likelihood of occurrence within study area.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None	1B	coastal bluff scrub and coastal sage scrub on alkaline substrate/annual herb/May–October	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists on site. Low likelihood of occurrence within the study area.
Baccharis malibuensis	Malibu baccharis	None/None	1B	chaparral, coastal sage scrub, cismontane woodland/deciduous shrub/August	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads; closest known populations are in the western Santa Monica Mountains near Malibu. Not expected to occur within the study area.
Berberis nevinii	Nevin's barberry	FE/SE	1B	chaparral, coastal sage scrub, riparian scrub, cismontane woodland on sandy or gravelly substrate/evergreen shrub/March–April	Not observed during 2006 field season. CNDDB records exist for San Francisquito Canyon at confluence with Santa Clara River; suitable habitat present on site. Moderate likelihood of occurrence within study area.
Brodiaea filifolia	thread-leaved Brodiaea	FT/SE	1B	clay substrate openings in chaparral, sage scrub, and grasslands/perennial herb (geophyte)/March–June	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrence is in San Dimas. Suitable habitat present on site. Low likelihood of occurrence within study area.
Calachortus catalinae	Catalina mariposa lily	None/None	4	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/ perennial herb (geophyte)/ February–May	Not observed during 2006 field season. In 2002, a *Calochortus* species with a wide seed capsule and a membranous bulb coat was observed on site that was *likely C. catalinae*. A search of this area in 2006 only revealed *C. venustus* and *C. clavatus* var. *gracilis*. Low to moderate to high likelihood of occurrence in study area.

TABLE 2
Sensitive Plant Species Observed or Potentially Occurring at the Entrada Site

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
Calochortus clavatus var. *gracilis*	slender mariposa lily	None/None	1B	chaparral and coastal sage scrub/perennial herb (geophyte)/March–May	Not observed during 2006 field season. CNDDB records for mouth of Pico Canyon.
Calochortus plummerae	Plummer's mariposa lily	None/None	1B	chaparral, coastal sage scrub, cismontane woodland, grasslands on rocky granitic substrate/perennial herb (geophyte)/May–July	Not observed during 2006 field season. A *Calochortus* species with narrow seed capsules and a fibrous bulb coat was observed on site in 2002, but could not be confirmed as *C. plummerae*. A search of this area in 2006 only revealed *C. venustus*. Moderate likelihood of occurrence within study area.
Calochortus weedii var. *vestus*	late-flowered mariposa lily	None/None	1B	chaparral, cismontane & riparian woodland/perennial herb (geophyte)/ June–August	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, habitat similar to where species occurs in eastern Ventura County is present on site.
Calystegia peirsonii	Pierson's morning-glory	None/None	4	Chaparral, coastal sage scrub, cismontane woodland, grassland/ perennial herb/ May–June	Not observed during 2006 field season.
Calystegia sepium ssp. *Binghamiae*	Santa Barbara morning-glory	None/None	1A	marshes and swamps/perennial herb/ April–May	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present on site. Low likelihood of occurrence within study area.
Centromadia [=Hemizonia] parryi ssp. *Australis*	southern tarplant	None/None	1B	mesic edges of marshes in grasslands/annual herb/May–November	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists on site. Low likelihood of occurrence within study area.
Cercocarpus betuloides var. *blancheae*	island mountain-mahogany	None/None	4	Chaparral, closed-cone coniferous forest/ evergreen shrub/ February–May	Not observed during 2006 field season.
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	FC/SE	1B	coastal sage scrub, sandy soils/annual herb/April–June	Observed 37 polygons in the southeastern, central, and western portions of the site. Total on-site population estimate is 229,160 individuals within occurrence polygons covering 0.94 acres of the site.
Deinandra [=Hemizonia] minthornii	Santa Susana tarplant	None/SR	1B	chaparral and coastal sage scrub on rocky substrate/deciduous shrub/July–November	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, records exist for the Simi Hills and Oat Mountain. Suitable habitat exists on site. Low likelihood of occurrence within study area.
Delphinium parryi ssp. *Blochmaniae*	dune larkspur	None/None	1B	maritime chaparral, coastal dunes/ perennial herb/ April–May	Not observed during the 2006 field season. Not expected to occur.

TABLE 2
Sensitive Plant Species Observed or Potentially Occurring at the Entrada Site

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
Dodecahema leptoceras	slender-horned spineflower	FE/SE	1B	alluvial scrub on sandy substrate/ annual herb/April–June	Not observed during 2006 field season. Historic CNDDB records exist for the Newhall or Val Verde quads in alluvial habitat similar to that present on site. Moderate to high likelihood of occurrence on site.
Dudleya blochmaniae var. *blochmaniae*	Blochman's Dudleya	None/None	1B	clay openings in chaparral and coastal sage scrub, grasslands/perennial herb/April–June	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat present on site. Low to moderate likelihood of occurrence within study area.
Dudleya cymosa ssp. *Marcescens*	marcescent Dudleya	FT/CR	1B	chaparral, often on volcanic substrate/perennial herb (geophyte)/ April–June	Not observed during 2006 field season. No CNDDB records exist for Newhall and Val Verde quads. Low likelihood of occurrence within study area.
Dudleya cymosa ssp. *Ovatifolia*	Santa Monica Mountains Dudleya	FT/None	1B	chaparral and coastal sage scrub, often on volcanic substrate/perennial herb (geophyte)/April–June	Not observed during 2006 field season. No CNDDB records exist for Newhall and Val Verde quads. Suitable habitat present on site. Low likelihood of occurrence within study area.
Dudleya multicaulis	many-stemmed Dudleya	None/None	1B	coastal bluff scrub, coastal sage scrub, valley and foothill grassland, rocky, often clay substrate/perennial herb/ April–June	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads; closest known occurrences are in Calabasas and San Dimas. Suitable habitat exists on site. Low to moderate likelihood of occurrence within study area.
Dudleya parva	Conejo Dudleya	FT/None	1B	coastal sage scrub and grassland on rocky, gravelly clays/perennial herb/May–June	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists on site. Low to moderate likelihood of occurrence within study area.
Erodium macrophyllum	round-leaved filaree	None/None	2	cismontane woodland and grasslands on clay substrate/annual herb/March–May	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads; however, records exist for Simi Valley, and this plant was observed in the hills east of Castaic Lake in 2003. Suitable habitat present on site; moderate likelihood of occurrence in study area.

TABLE 2
Sensitive Plant Species Observed or Potentially Occurring at the Entrada Site

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
Helianthus nuttallii ssp. *Parishii*	Los Angeles sunflower	None/None	1A	marshes and swamps/perennial herb/ August–October	Not observed within study area during 2006 field season. A *Helianthus* population, discovered in 2002 at Castaic Spring, on the south side of the Santa Clara River between Middle Canyon and San Jose Flats, was determined by some experts to be this species, but determined by other experts not to be this species. Based on pollen electron microscopy and chromosome counts, it is likely that the Newhall *Helianthus* species is a hybrid between *H. nuttallii* and *H. californicus* or an intermediate evolutionary step between the two species (Porter and Fraga 2004). No suitable habitat observed in study area.
Horkelia cuneata var. *puberula*	Mesa horkelia	None/None	1B	chaparral, cismontane woodland, coastal sage scrub on sandy or gravelly substrate/perennial herb/February–December	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads. Suitable habitat present on site. Low likelihood of occurrence within study area.
Lasthenia glabrata ssp. *Coulteri*	Coulter's goldfields	None/None	1B	Marshes, swamps, plays, vernal pools/ annual herb/ February–June	Observed as a component of an erosion control seed mix applied along dirt roads associated with the gas and power transmission line easement running the southeastern edge of the study area. These plants are growing in conditions outside the natural habitat for this species.
Malacothamnus davidsonii	Davidson's bush mallow	None/None	1B	chaparral, coastal sage scrub, riparian woodland/ deciduous scrub/June–January	Not observed during 2006 field season. Nearest occurrences are in Van Nuys and Sunland quads. Suitable habitat present on site. Moderate likelihood of occurrence within study area.
Nama stenocarpum	mud nama	None/None	2	edges of lakes, rivers, ponds, vernal pools/annual/January–July	Not observed during 2006 field season. Moderate likelihood of occurrence on banks of Santa Clara River and other mesic areas on site. No CNDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present on site. Low likelihood of occurrence within study area.
Nolina cismontane	chaparral nolina	None/None	1B	chaparral, coastal sage scrub on sandstone or gabbro substrate/ perennial shrub/May–July	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present on site. Low likelihood of occurrence within study area.
Opuntia basilaris var. brachyclada	short-joint beavertail	None/None	1B	chaparral, Joshua tree woodland, Mojavean desert scrub/succulent shrub/ April–June	This variety was identified on site by Dudek in 2002; however, further investigations indicate that these plants are not consistent with *Opuntia basilaris var. brachyclada*. Therefore, *O. basilaris* plants were not mapped during surveys of the study area in 2006.

TABLE 2
Sensitive Plant Species Observed or Potentially Occurring at the Entrada Site

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
Pentachaeta lyonii	Lyon's pentachaeta	FE/SE	1B	openings in chaparral and coastal sage scrub, grasslands/annual herb/March–August	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrences are in the Simi Valley. Suitable habitat present on site. Moderate likelihood of occurrence within study area.
Rorippa gambelii	Gambel's watercress	FE/ST	1B	Marsh and swamps (freshwater and brackish)/ perennial herb/April–June	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present on site. Very low likelihood of occurrence within study area.
Seneca aphanites	ray less ragwort	None/None	2	chaparral, coastal sage scrub, cismontane woodland on alkaline substrate/annual herb/January–April	Not observed during 2006 field season. Historic CNDDB record for Saugus, south of Santa Clara River. Suitable habitat exists on site. Low to moderate likelihood of occurrence within study area.
Sidle neomexicana	Salt spring checkerbloom	None/None	2	chaparral, coastal sage scrub, and playas on alkaline substrate/perennial herb/March–June	Not observed during 2006 field season. No CNDDB records exist for the Newhall or Val Verde quads; suitable habitat exists on site. Moderate likelihood of occurrence within study area.
Thelypteris puberula var. *sonorensis*	Sonoran maiden fern	None/None	2	meadows and seeps/perennial herb/ fertile January–September	Not observed during 2006 field season, however, entire site not surveyed. No CNDDB records exist for the Newhall or Val Verde quads; nearest occurrence at Point Dume. Limited suitable habitat present on site. Low likelihood of occurrence within study area.

Legend

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

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

Those species that were observed during the 2006 SFVS field surveys are discussed in greater detail below. A number of species found on CNPS Lists 3 or 4 also have the potential to occur on site (e.g., *Acanthomintha obovata* ssp. *cordata*, *Calochortus catalinae*, *C. clavatus* var. *clavatus*, *Mucronea californica*); however, due to their relatively low sensitivity level, they are only discussed in the following sections if observed on site. *Figure 3* shows the distributions of SFVS on site.

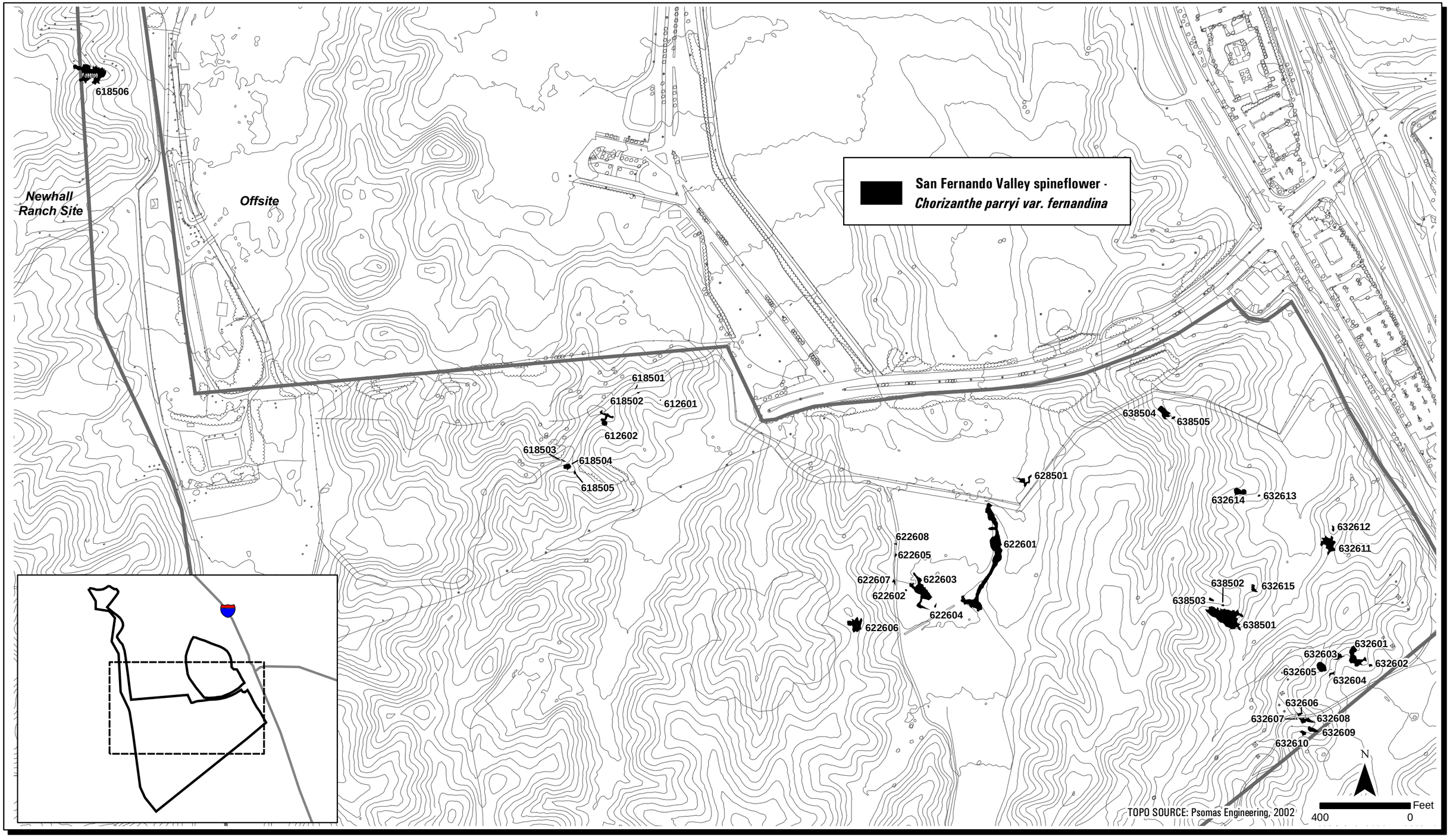
4.2.1 San Fernando Valley Spineflower (*Chorizanthe parryi* var. *fernandina*)

SFVS is state-listed as endangered, a candidate for federal listing, and a CNPS List 1B.1 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 California Natural Diversity Database (CNDDB) indicate that it was previously thought to occur in sandy to gravelly soils of washes, riverbeds, and upland areas primarily on the margins of the San Fernando Valley at the base of the Santa Susana Mountains, San Gabriel Mountains, and the Simi Hills. Munz (1974) provides distribution information to include Orange and San Diego counties.

SFVS polygons were identified in several areas on site 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 Six Flags Amusement Park on the south side and west side. These polygons are depicted on *Figure 3*. Labels for each of the polygons in this figure correlate with those in *Table 3*, which contains estimates for the numbers of individuals within each polygon.

Almost 50 percent of the SFVS individuals were found on south, southwest, and southeast facing slopes in California annual grasslands, great basin sagebrush and coastal sage scrub. 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 ranges from 60 to 100 percent, but individuals are most common in areas with between 75 and 95 percent vegetative cover. About 21 percent of individuals were found on silty loam, 51 percent were found on sandy clay loam, and about 28 percent were found on sandy loam soils. A total of 37 SFVS polygons were mapped ranging in size from less than one square foot to 11,033 square feet. The number of individuals within each polygon ranges from one to 100,000. CNDDB forms are included in *Appendix C* for each occurrence on site.



Entrada

2006 San Fernando Valley spineflower Results

FIGURE 3

TABLE 3
San Fernando Valley Spineflower Summary of Occurrence Data for Entrada Site, 2006

Polygon Number	Population Estimate	Area (square feet)
632605	14,000	80
632608	1,600	2,163
632609	6,100	42
632610	510	349
632614	6,300	59
638501	39,000	1,076
632615	2,200	527
628501	950	452
632611	1	180
632612	54	934
632613	2	7220
638502	6	268
638503	55	501
632607	1	1,107
638505	14	11,033
632606	45	3,660
632601	12,000	1,937
632602	17	751
632603	1,600	408
632604	70	5,644
638504	3,900	4
622606	9	2,107
612602	3,900	70
618504	680	14
618506	20,000	14
612601	2	95
618501	2	39
618502	5	13
618503	1	7
618505	47	23
622601	100,000	50
622602	16,000	3
622604	11	0
622603	8	3
622605	34	4
622607	34	0
622608	2	33
TOTALS	229,160	40,869

4.2.2 Coulter's Goldfields (*Lasthenia glabrata* ssp. *coulteri*)

Coulter's goldfields is a CNPS List 1B.1 plant that previously had not been documented to occur in the immediate vicinity of the project site (Hickman 1993; CNPS 2006). This variety is generally restricted to alkali playas, vernal pools, and some freshwater habitats in Riverside, San Diego, and Los Angeles counties (CNPS 2006). The Coulter's goldfields plants on the Entrada site appear to be the result of the application of a hydroseed mix along a dirt road. The plants are growing in areas that are not typical habitat for this species. They are growing on a graded road as opposed to alkali playas or other areas with standing water. These plants appear to be a non-native introduction; therefore CNDDB data forms are not included.

4.2.3 Bryophytes (Non-Vascular Plants) and Lichens

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

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

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

5.0 ACKNOWLEDGMENTS

Saudamini Sindhar prepared this report, with review by Sherri Miller. Mark McGinnis provided graphics and GIS mapping analyses. Tonette Foster provided word processing.

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APPENDIX A

Resumes of Survey Personnel

Colin Khoury – Environmental Planner/Biologist I

EXPERIENCE

Colin Khoury is an experienced biologist, having worked in educational, research, and agricultural ecology related positions for the past 10 years. Mr. Khoury's general duties as an Environmental Planner/Biologist I with Dudek include sensitive plant surveys, vegetation mapping, wetlands delineations, and preparation of biological technical reports. Mr. Khoury has a strong foundation in plant taxonomy, ecology, biology, and genetics. He possesses strong organizational, communication, and teaching skills, and is experienced in managing employees in a variety of agricultural environments. Among Mr. Khoury's specialties are plant breeding, seed conservation techniques, and descriptor systems for the characterization of field crops. Mr. Khoury is also fluent in Spanish and proficient in Portuguese.

Master Planned Communities

Newhall Ranch Project, Newhall Land and Farming, Counties of Los Angeles and Ventura, California. Conducted focused surveys for the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) and other sensitive plants on over 10,000 acres. Surveyed high country of Newhall property for vegetation mapping leading toward a designated preserve and slender mariposa lily replanting mitigation site.

Chula Vista Seniors Housing Project, City of Chula Vista, California. Conducted biological assessments including vegetation mapping and rare plant surveys. Produced the biological resources section of the 2005 EIR for the project.

Residential Housing

Portola Hills, County of Orange, California. Conducted vegetation mapping and wetlands delineations for 250-acre site. Assisted in the production of biological technical reports and projected rare plant surveys analysis.

Ferber Ranch, County of Orange, California. Conducted rare plants surveys and wetland delineations.

Arbor Creek, City of Vista, California. Conducted rare plant surveys.

Warner Ranch, County of San Diego, California. Conducted rare plants surveys.

EDUCATION

Prescott College
BA Agricultural Ecology, Thesis in Seed Conservation
2000

University of Arizona
Course work in Plant Genetics
2003

PROFESSIONAL AFFILIATIONS

California Native Plant Society (CNPS), San Diego Chapter.

Stallion Ridge, County of San Diego, California. Performed rare plant surveys.

Centre Point, City of Santa Clarita, California. Conducted rare plant surveys and geographical positioning systems (GPS) data collection.

Winchester Ranch, County of San Diego, California. Conducted rare plant surveys.

San Marcos Creek, City of San Marcos, California. Conducted rare plant surveys within riparian habitat.

Military

Marine Corps Base Camp Pendleton, County of San Diego, California. Conducted rare plant surveys for Pendleton button celery (*Eryngium pendletonensis*) on 246 acres. Produced a biological technical report covering findings related to rare plant distribution and abundance.

Transportation

Mid-County Parkway, County of Riverside, California. Conducted rare plant surveys and assisted in the production of a biological technical report concerning rare plant findings.

Oceanside to Escondido Rail Project, North County Transit District (NCTD), Cities of Oceanside, Vista, San Marcos, and Escondido and County of San Diego, California. Produced proposals for production of an oak tree mitigation plan, oak tree impact surveys, and upland mitigation plans.

Construction, Biological, and Revegetation Monitoring

Carlsbad Municipal Golf Course, City of Carlsbad, California. Performed construction monitoring and oversight for project grading and vegetation removal.

Torrey Pines State Reserve, County of San Diego, California. Monitored removal of irrigation equipment by Urban Corps following successful revegetation project for Metropolitan Wastewater District.

Southern California Edison Bark Beetle Project, San Bernardino National Forest, California. Provided biological monitoring for power line construction and tree removal.

Biology and Agroecology Field Work

Laboratory of J. Tewksbury, Santa Cruz, Bolivia. Field research for the University of Washington. Study of *Capsicum annum*, involving field mapping, test plot installation, and fungal resistance experiments.

Native Seeds/Search, Tucson, Arizona. Crop Curator for *Phaseolus*, including seed bank conservation and documentation, and three years of field grow-outs (data collection and regeneration).

Conservation Farm Coordinator for 60-acre grow-out site, including management of three employees and many volunteers. General seed bank conservation, distribution, and documentation duties for entire collection. Publications of *Phaseolus*-related articles in the organization newsletter.

Prescott College, Prescott, Arizona. Adjunct faculty in the Environmental Studies Program. Twice taught an undergraduate-level course in agricultural Seed Conservation.

Native Plant Restoration

Prescott Creek Preservation Association, Prescott, Arizona. Riparian restoration and well monitoring.

Green Oak Ranch Native Plant Nursery, Vista, California. Assistant in California native plant nursery.

Agriculture and Seed Production (experience in farming and nursery operations and in vegetable seed companies)

- **Turtle Tree Seed, Copake, New York.**
- **Peters Seed and Research, Myrtle Creek, Oregon.**
- **Organic Botanicals, Fallbrook, California.**
- **Exotica Rare Fruit Nursery, Vista, California.**
- **Birdsfoot Farm, Canton, New York.**
- **Rancho Rasayana, La Ribera, Baja California Sur, Mexico.**
- **Camp Joy Gardens, Boulder Creek, California.**
- **Live Power Community Farm, Covelo, California.**
- **CIESA, El Bolson, Argentina.**

Makela N. Mangrich – Environmental Analyst

EXPERIENCE

Makela Mangrich has over eight years' experience in resource conservation planning and environmental and policy document preparation. Project experience includes NEPA and CEQA report preparation, vegetation mapping, rare plant surveys, general wildlife surveys, biological resource surveys, data collection and analysis, wetlands delineations, mitigation 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. Mangrich has also successfully completed a background course in the California Environmental Quality Act (CEQA).

Resource Conservation Planning and Management

Western Riverside Multiple Species Habitat Conservation Plan (MSHCP), County of Riverside, California. Reviewed development proposals for compliance with Plan, tracked implementation progress and compliance of projects in Plan area.

Land Steward/Projects Director, Hill Country Conservancy (HCC), Austin, Texas. Managed stewardship and long-term monitoring of preserve land to protect the Barton Spring Edwards Aquifer. Managed Geographic Information System (GIS) for preserve land.

Regional and Comprehensive Planning

Macon County Conservation District, City of Decatur, Illinois. Project manager and primary author of strategic plan for large, growing conservation district, focused on resource management plans for 13,600 acres of preserve land.

Comprehensive Plan, City of Darlington, Wisconsin. Project manager and primary author of comprehensive plan for economically challenged community in southwest Wisconsin focusing on agricultural preservation and economic development.

Comprehensive Plan, Village of Paddock Lake, Wisconsin. Project manager and primary author of comprehensive plan for rapidly growing community in southeast Wisconsin focusing on rebuilding a dilapidated commercial strip and ensuring that the Village maintains high-quality built and natural environments as it grows.

EDUCATION

University of Texas at Austin
MS Community and Regional Planning
2000

Iowa State University
BS Botany
1996

RELATED TRAINING

CEQA Basics Workshop, Association of Environmental Professionals, Fall 2005

National Wildfire Coordinating Group (TWCG) courses on prescribed burn techniques and protocols, The Nature Conservancy, Fall 2004

Ecological restoration seminars, Lady Bird Johnson Wildflower Center, 2002–2003

PROFESSIONAL AFFILIATIONS

American Institute of Certified Planners (AICP)

Air Quality Program, City of Austin, Texas. Developed policy documents and served as Secretary for task force charged with creating and implementing emission reduction measures to move the Austin region back into attainment of the National Ambient Air Quality Standard for ground level ozone.

Envision Central Texas, Austin, Texas. Facilitated numerous groups meetings and served on technical advisory team for the Envision Central Texas Project, a regional planning process for the five-county Austin/San Marcos MSA.

Comprehensive Plan, City of Dubuque, Iowa. Managed development of 2000 Comprehensive Plan. Identified staged expansion areas of City based on utility and transportation infrastructure to curb sprawl and promote more compact, orderly growth and development.

Transportation

USH 14/STH 11 Expansion, Wisconsin Department of Transportation, Madison, Wisconsin. Assisted with needs assessment and impact analysis for highway improvement study focused on rapidly growing portion of southeast Wisconsin. Provided guidance on land use, cumulative, and secondary impacts of proposed project.

USH 51 Expansion, Wisconsin Department of Transportation, Madison, Wiconsin. Assisted with needs assessment and impact analysis for highway improvement study between Madison and Stoughton, WI. Provided guidance on land use, cumulative, and secondary impacts of proposed project.

Kelly Parkway Project, Texas Department of Transportation, San Antonio, Texas. Managed GIS impact analysis for large highway project in low-income minority neighborhood near Kelly Air Force Base per NEPA requirements.

Heritage Trail Extension, City of Dubuque, Iowa. Compiled successful grant applications garnering almost $1 million in funds for City bike/hike trail system and riverfront development efforts. Facilitated design and development of Heron Pond Wetland Nature Trail.

Residential

Vineyards Specific Plan, City of Vista, California. Provided biological resource mapping, general wildlife survey, coast live oak mapping using GPS, and impact analysis pursuant to CEQA.

Target Commercial Center, City of Vista, California. Assisted with a delineation of "waters of the United States" and wetlands under the jurisdiction of the US Army Corps of Engineers and California Department of Fish and Game on approximately 20 acres.

Utility Districts

Valley Sanitary District Expansion Plans, Indio, California. Documented and reported on biological impacts associated with the Valley Sanitary District's expansion plans, which affect riparian habitat and sensitive bird species, including a burrowing owl observed onsite. The biological report dealt with ways to minimize and avoid impacts to this burrowing owl, a probable resident of the project property.

Biological Monitoring

Bark Beetle Infestation Project, Southern California Edison, California. Monitored removal of pine trees killed by bark beetle infestation in San Bernardino Forest to ensure that logging practices minimized and avoided impacts to resources.

Sorrento Valley Utilities Improvement Project, San Diego, California. Monitored removal of irrigation equipment in revegetated salt marsh and riparian area.

Hale Avenue Resource Recovery Facility (HARRF) Project, City of Escondido, California. Assisted with long-term monitoring of revegetation plans for the HARRF project, which included plant identification along established transects.

Christopher E. Oesch – Habitat Restoration Specialist

EXPERIENCE

Upon completing his bachelor's degree in International Agriculture, Chris Oesch worked on sustainable agriculture restoration and development projects in Guatemala and Honduras. He recently completed graduate research in hardscape urban wetland restoration modeled for Rose Creek in San Diego, California. Mr. Oesch is currently working on a variety of habitat restoration projects at Dudek involving freshwater marsh, salt marsh, riparian, urbanized/disturbed, chaparral, stream channel, and coastal sage scrub habitats.

Wetland Mitigation/Restoration

Lake Val Sereno/La Jolla Crossroads Off-Site Mitigation, Encinitas, California. Project monitor for the La Jolla Crossroads off-site mitigation located at Lake Val Sereno. This project involves the enhancement of 5.37 acres of freshwater wetlands to fulfill the requirements of agency permits ACOE NWP-12, CDFG 1601 agreement, and RWQCB 401 certification. Duties include advising on the removal of exotic and invasive plant species, documenting progress of planted native plants, collecting quantitative transect data, and recommending courses of action to improve site success in meeting performance standards.

Famosa Slough Saltmarsh/Sorrento Creek Dredging Mitigation, San Diego, California. Conceptual plan author for a 0.5-acre enhancement area of saltmarsh. This enhancement is to fulfill mitigation requirements from the Sorrento Creek Maintenance Dredging performed by City of San Diego, Engineering and Capital Projects Department. This project is designed to fulfill the criteria of permits CDFG 1601 and ACOE 404. The enhancement area will include middle and lower saltmarsh plant species, bordered by a coastal sage scrub habitat buffer strip.

Poggi Creek Streambed Modification, Chula Vista, California. Conceptual plan designer for a streambed erosion control project. This grade control structure design uses a low-profile, biodegradable approach to avoid being classified as "channel fill". The intended purpose is to prevent streambed scour, encourage sediment deposition, and promote native freshwater plant species establishment.

Torrey Hills Basin Wetland Mitigation, San Diego, California. Project monitor for site involving the creation of approximately three acres of wetland habitat to mitigate for impacts of the adjacent Torrey Hills housing development. Duties include advising on the removal of

EDUCATION

Humboldt State University Arcata, California
MS Environmental Systems/International Development Technology
2003

Eastern Mennonite University
BA International Agriculture
1998

THESIS WORK

Mr. Oesch's thesis work focused on Hardscape Stream Channel Naturalization. The thesis examines modification of cement channelized stream sections, commonly found in urban settings, for mitigating their negative impacts to native plant and animal populations. This is achieved by incorporating aspects of natural stream hydrology and morphology into an existing hardscape channel. This approach is intended for improving habitat in existing hardscape channels when total removal of the hardscape structure is not an option. The thesis was modeled for the hardscape channel west of I-5 on Rose Creek, San Diego, California.

exotic and invasive plant species, documenting progress of planted native plants, collecting quantitative transect data, and recommending courses of action to troubleshoot hydrologic adversities in the performance of the basin's morphology.

Meadowbrook Villages Development Wetland Mitigation Project, Escondido, California. Assisted in design of the stormwater detention/wetland creation basin for a retirement development. The basin created opportunity for onsite wetland mitigation as well as providing increased stormflow storage capacity along Reidy Creek to prevent flooding. Also assisted in preliminary soil sampling and biotic surveying.

Las Virgenes Creek Hardscape Naturalization Proposal, Los Angeles, California. Assisted in a proposal for the naturalization of a section of concrete hardscape channel along Las Virgenes Creek (see thesis work). Goals of the naturalization would be to create sediment deposition sufficient to grow wetland plant species, add topography to the channel bottom and sides which would encourage a more natural hydrologic regime, and to achieve these goals while passing floodwater efficiently in order to not promote flooding.

Vista Sorrento Parkway Alkali Marsh Mitigation Project, San Diego, California. Biological monitor for the project. This includes collecting transect data and making recommendations on weed removal and native plant mortality. The project entails creation/enhancement of one acre of coastal sage scrub, mulefat scrub, and salt marsh habitats as mitigation for impacts from the Caltrans ROW project.

Los Peñasquitos Lagoon Saltmarsh Mitigation Project, San Diego, California. Assisted in the monitoring of native saltmarsh and coastal sage scrub habitat including transect data collection, advisement on remedial plantings, and non-native plant removal.

Rolling Hills Ranch Wetland Mitigation Project, Chula Vista, California. Assisted in annual monitoring efforts and transect data collection for two acres of created wetland habitat. This creation area was in mitigation for the surrounding Rolling Hills Ranch housing development.

Green Valley Mobile Home Park Slope Stabilization Project, Vista, California. Project monitor for stream-side mitigation project which includes freshwater marsh, riparian, and disturbed habitats. This project is designed to fulfill requirements of CDFG 1603 and ACOE 404 permits. Mitigation was triggered when the mobile home park owners placed riprap along the stream banks, covering freshwater marsh habitat and disturbing hydrology. Monitoring duties include recommendations on weed removal, native plantings, and general maintenance.

Upland Restoration/Mitigation

Summit Ridge Business Park Mitigation Project, San Diego, California. Biological monitor for 10 acres of coastal sage scrub, with a one-acre freshwater marsh component. This project is mitigation for the development of the Summit Ridge Business Park. Monitoring duties include biotic surveys, transect data collection, weed removal recommendations, and native planted species survival.

Plant Survey/Seed Collection

Newhall Ranch Chorizanthe Seed Collection, Santa Clarita, California. Participated with a team of biologists collecting seed of the rare and endangered *Chorizanthe parryi fernandina* (spineflower). Polygons of spineflower locations were GPSed and mapped. Teams then returned to collect seed.

Rose Creek/Nature School Habitat Enhancement Plan, San Diego, California. Mapped 13 acres of the Rose Creek riparian corridor directly east I-5. Plants and habitat locations were GPSed and a biotic survey was taken.

Agricultural Development

Agricultural Support/Development Project, El Peten, Guatemala. Coordinated an agricultural support and development project for several Mayan indigenous communities in the Peten region of Guatemala. This involved working with government officials for importation of agricultural supplies from Belize, traveling between site locations and exploring possibilities for reestablishing crops. The project was necessitated by crops lost to fire and drought.

Impact Monitoring

Carroll Canyon Emergency Maintenance Sewer Project, San Diego, California. Assisted in designating access routes around sensitive habitat for Metropolitan Wastewater vehicles to gain access to sewer clean-out locations.

Sorrento Valley Utilities Revegetation, San Diego County, California. Monitored work crews in the removal of non-native plant species in biologically sensitive saltmarsh, freshwater marsh, and coastal sage scrub habitats.

Sorrento Creek Maintenance Dredging Project, San Diego, California. Monitored City of San Diego work crews in removal of sediment from the channel bottoms of Carroll Canyon, Los Peñasquitos, and Sorrento creeks. Monitoring was to insure the least possible impacts to surrounding vegetation and aquatic and terrestrial animal habitats. The project site contained potential clapper rail (*Rallus longirostris*) habitat, which required flushing prior to beginning work in the channel areas. Duties also included taking water samples daily and testing for total suspended solids (TSS) to ensure that discharge downstream of the project met TSS level requirements.

Tecolote Canyon Tree-of-Heaven Removal Project, San Diego, California. Monitored work crews in removal of tree-of-heaven (*Ailanthus altissima*) and other exotics from a section of Tecolote Canyon. Monitoring duties included advisement of routes of least impact to surrounding native habitats, felling trees, and cut biomass dispersal.

Patricia Schuyler – Biologist

EXPERIENCE

Schools

San Marcos Unified School District. Permit preparation including Section 404 Nationwide Permit, Section 401 Water Quality Certification, and Section 1601 Streambed Alteration Agreement; assisted in permit processing, mitigation identification, and development of a conceptual wetlands mitigation plan.

Vista Unified School District. Permit preparation including Section 404 Nationwide Permit, Section 401 Water Quality Certification, and Section 1601 Streambed Alteration Agreement.

Electric/Utilities

Southern California Edison Utility Pole Maintenance Project, San Bernardino Mountains, California. Monitored tree removal and pole maintenance activities in biologically sensitive areas to ensure avoidance of impacts to potentially-occurring sensitive and US Forest Service Threatened, Endangered, and Sensitive species. Preparation of Biological Assessments and Biological Evaluations associated with pole replacement activities.

Transportation

City of San Marcos, Barham Drive Widening Project, City of San Marcos, California. Permit preparation including Section 404 Nationwide Permit, Section 401 Water Quality Certification, and Section 1601 Streambed Alteration Agreement.

Oceanside to Escondido Rail Project, North County Transit District (NCTD), Cities of Oceanside, Vista, San Marcos and Escondido and County of San Diego, California. Surveyed for potential oak tree habitat in conformance with the mitigation plan.

Brown-Headed Cowbird Trapping Program, Oceanside to Escondido Rail Project, NCTD, City of Oceanside, California. Assisted in the daily operation and maintenance of a cowbird trapping program along Loma Alta Creek in the City of Oceanside. The trapping program is a USFWS requirement as mitigation for impacts to habitat for federally-listed species, including least Bell's vireo, southwestern willow flycatcher, and California gnatcatcher.

EDUCATION

Washington State University
MS Environmental Science
2005

University of Redlands
BA Environmental Studies
2003

MiraCosta College
AA Business Administration
2001

Mid-County Parkway, County of Riverside, California. Assisted in fairy shrimp surveys for potential alignment alternative study for a proposed 32-mile transportation corridor. Surveys for burrowing owl habitat currently in progress.

Master Planned Communities (includes mixed-use projects)

Newhall Specific Plan, Newhall Land and Farming, Inc., Counties of Los Angeles and Ventura, California. Conducted focused surveys for sensitive plant species, including the state-listed San Fernando Valley spineflower.

Otay Ranch, Chula Vista, California. Rare plant survey.

Water/Wastewater/Reclaimed Water

City of San Diego Metropolitan Wastewater Department (MWWD) As-Needed Biologist, City of San Diego, California. Assisted in the preparation of a biological resources technical report for a MWWD project involving necessary sewer line maintenance.

Non-potable Water Distribution System Project, Yucaipa Valley Water District, Riverside and San Bernardino Counties, California. Conducted a jurisdictional wetlands delineation within a six-mile study area along San Timoteo Creek. Assisted in the preparation of a biological resources technical report and wetland permit applications.

Sorrento Valley Utilities Improvement Revegetation Project, City of San Diego, California. Monitored the removal of irrigation equipment used for wetlands creation and enhancement efforts.

Residential Housing

Ferber Ranch, County of Orange, California. Conducted vegetation mapping and wetlands delineation for additional parcels. Surveys for burrowing owl habitat currently in progress.

Saudamini Sindhar – Biologist

EXPERIENCE

Saudamini Sindhar has over six years of experience in conducting habitat assessments, botanical and wildlife surveys, mitigation monitoring, environmental documentation, and project management. She has performed biological and environmental surveys for various construction projects, as well as monitoring for sensitive species during construction. Ms. Sindhar has conducted surveys for state and federal listed plants and has written biological sections of NEPA documents. She has conducted site delineation, plant identification, and GIS/vegetation mapping for the Environmental Protection Agency, and has led field teams in conducting protocol surveys and habitat assessments for special status plant and wildlife species in a variety of habitats. She has also prepared BE/BA reports with sound scientific recommendations in compliance with ESA, CESA and CDFG rules; the Migratory Bird Treaty; and SEC 401/404 of the Clean Water Act.

Standard Pacific Company, Native Grassland Surveys, City of Calabasas, County of Los Angeles, California. Conducted quantitative data collection and delineated the limits of native grasslands in a 21-acre area.

Dos Pueblos High School Native Habitat Restoration Project, Santa Barbara, California. Conduct post-construction monitoring to assess the success of wetland restoration at the site.

Newhall Ranch Project, Newhall Land and Farming, Counties of Los Angeles and Ventura, California. Conducted focused surveys for the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) and other sensitive plants. Also responsible for conducting biological surveys including vegetation mapping and general wildlife surveys.

Newhall Ranch Project, Westridge Native Grassland Restoration, Los Angeles County, California. Conducted quantitative data collection in the westridge native grasslands restoration area in June 2006 to monitor the success of ongoing native grass restoration at the site.

BioResource Consultants, Biologist/Project Manager, Ojai, California. Duties entail leading field teams in conduction of protocol surveys and habitat assessments for special status plant and wildlife species in a variety of habitats (Mojave, Sonoran, and Colorado Deserts; San Gabriel, San Bernardino, Santa Monica, Santa Ynez, and San Jacinto Mountains; Coast Ranges and the valleys in between).

EDUCATION

Duke University
MS Environmental Management
2003

Hamdard University, New Delhi, India
MS Environmental Botany
1999

Delhi University, New Delhi, India
BS Botany
1997

Prepare BE/BA reports with sound scientific recommendations in compliance with ESA, CESA and CDFG rules; the Migratory Bird Treaty; and Section 401/404 of the Clean Water Act. Coordinate Southern California Edison's Hazard Tree Removal Project in the San Bernardino and San Gabriel Mountains. Conduct and supervise biological surveys and monitoring for sensitive plant and animal species and write reports summarizing biological findings.

Southern Nevada Environmental Inc., Biologist, Las Vegas, Nevada. Performed biological/ environmental surveys for construction projects. Conducted protocol surveys for desert tortoises (*Gopherus agassizii*) and burrowing owl (*Athene cunicularia*) and monitored for the species during construction. Conducted surveys for state- and federally-listed plants and wrote biological sections for NEPA documents.

Eastern Nevada Landscape Coalition, Botanist, Ely, Nevada. Conducted site delineation, plant identification, and GIS/vegetation mapping for Environmental Protection Agency's Southwest Re-Gap Project for the State of Nevada. Gained familiarity with rare plants of the Great Basin, Mojave and Sonoran Deserts, and the mountain ranges of Nevada.

Winrock International, Environmental Services Intern, Arlington, Virginia. Analyzed current issues and developed a concept paper and a capability statement in the provision of environmental services for the forestry and natural resource management group. Wrote grant proposals and identified promising opportunities/partners to support payments for environmental services.

National Parks and Conservation Associates, Ecological Assessment Intern, Clinton, Tennessee. Conducted environmental assessments that led to a detailed report on endangered species/areas in the Big South Fork National River and Recreation Area (NPS). Analysis is helping NPCA serve as a public watchdog in the process of prioritizing areas for inclusion in the park's first General Management Plan.

Conservation Volunteer, Worldwide Fund for Nature, India. ***Wetland Conservation Program – River Watch Program***: Assessed the changing water quality of the Yamuna River and involved local communities in the assessment process. ***River Dolphin Conservation Project***: Conducted analysis to protect the endangered freshwater dolphin, *Platanista gangetica*, from extinction. Completed a status survey of the species and its habitat on a 200-km stretch in the upper Ganges River. Wrote a project report, designed a management plan, and proposed to declare the area surveyed as a sanctuary. The proposal was accepted and implemented by the Government of India.

Research Assistant, Forest and Soils Laboratory, Duke University, Durham, North Carolina. Forest Atmosphere Carbon Dioxide Transfer and Storage (FACE) project. Conducted soil and soil water analysis along with data analysis to quantify soil biogeochemical processes affected by sequestration of CO_2 in a carbon dioxide enriched forest.

Teaching Assistant, Duke University, Durham, North Carolina. Assisted with Plant Anatomy (Fall 2001) and Organismal Evolution (Spring 2002) classes.

Instructor, Duke Talent Identification Program for Pre-College Students, University of Kansas, Lawrence, Kansas. Developed and instructed two intensive courses in field ecology. Topics

included identification of trees and shrubs of Kansas, insect diversity in prairie ecosystems, woodland ecology, stream ecology and wetland ecology.

Field Researcher, Kanha Tiger Reserve, Madhya Pradesh, India. Collected soils and studied vegetation succession in the grasslands. Samples analyzed in laboratory to evaluate the rate at which cultivated soils are altered by succession from abandoned fields to grasslands.

APPENDIX B

Vascular Plant Species Observed
Entrada Site (2002–2005)

APPENDIX B

VASCULAR PLANT SPECIES
ENTRADA SITE

FERNS

PTERIDACEAE – BRAKE FAMILY

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

CONIFERS

CUPRESSACEAE – CYPRESS FAMILY

Cupressus sp. – cypress
Juniperus californica – California juniper

PINACEAE – PINE FAMILY

* *Pinus halepensis* – Aleppo pine
Pinus sp. – pine

ANGIOSPERMAE (DICOTYLEDONES)

AMARANTHACEAE – AMARANTH FAMILY

* *Amaranthus albus* – tumbleweed
* *Amaranthus retroflexus* – rough pigweed

ANACARDIACEAE – SUMAC FAMILY

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

APIACEAE – CARROT FAMILY

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

APPENDIX B (Cont.)

ASCLEPIADACEAE – MILKWEED FAMILY

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

ASTERACEAE – SUNFLOWER FAMILY

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

APPENDIX B (Cont.)

* *Dimorphotheca sinuata* – African daisy
Encelia actoni – Acton's encelia
Encelia californica – California bush sunflower
Encelia farinosa – brittlebush, incensio
Ericameria palmeri var. *pachylepis* – Palmer's goldenbush
Ericameria linearifolia – narrowleaf goldenbush
Erigeron foliosus – leaf daisy
Eriophyllum confertiflorum – long-stem golden yarrow
Euthamia occidentalis – western goldenrod
Filago californica – California fluffweed
Gnaphalium californicum – California everlasting
Gnaphalium canescens ssp. *microcephalum* – white everlasting
* *Gnaphalium luteo-album* – white cudweed
Gnaphalium palustre – lowland cudweed
Hazardia squarrosa ssp. *grindelioides* – saw-toothed goldenbush
Helianthus annuus – common sunflower
Heterotheca grandiflora – telegraph weed
Heterotheca sessiliflora – golden aster
* *Hypochaeris glabrata* – smooth cat's ear
Isocoma menziesii – goldenbush
* *Lactuca serriola* – prickly lettuce
Lasthenia californica – coast goldfields
Lasthenia glabrata ssp. *coulteri* – Coulter's goldfields
Layia platyglossa – common tidy-tips
Lepidospartum squamatum – scale-broom
Lessingia filaginifolia – California aster
Lessingia filaginifolia var. *filaginifolia* – California aster
Lessingia glandulifera – valley vinegar-weed
Madia gracilis – slender tarweed
Malacothrix saxatilis var. *commutata* – cliff desertdandelion
Malacothrix saxatilis var. *tenuifolia* – cliff malacothrix
* *Matricaria matricarioides* – pineapple weed
Osmadenia tenella – southern rosinweed
* *Picris echioides* – bristly ox-tongue
Pluchea sericea – arrow weed
Rafinesquia californica – California chicory

APPENDIX B (Cont.)

Senecio californica – California groundsel
Senecio flaccidus var. *douglasii* – butterweed
* *Senecio vulgaris* – common groundsel
* *Silybum marianum* – milk thistle
* *Sonchus asper* – prickly sow-thistle
* *Sonchus oleraceus* – common sow-thistle
Stebbinsoseris heterocarpa – grassland stebbinsoseris
Stephanomeria virgata – twiggy wreathplant
Stylocline gnaphalioides – everlasting nest-straw
Tetradymia comosa – cotton thorn
Uropappus lindleyi – silver puffs
Xanthium spinosum – spiny cocklebur
Xanthium strumarium – cocklebur

BORAGINACEAE – BORAGE FAMILY

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

APPENDIX B (Cont.)

BRASSICACEAE – MUSTARD FAMILY

* *Brassica nigra* – black mustard
* *Capsella bursa-pastoris* – shepherd's purse
* *Cardaria draba* – heart-podded hoary cress
Erysimum capitatum ssp. *capitatum* – western wallflower
* *Hirschfeldia incana* – short-podded mustard
Lepidium virginicum – wild peppergrass
* *Raphanus sativus* – wild radish
* *Rorippa nasturtium-aquaticum* – water cress
* *Sisymbrium irio* – London rocket
* *Sisymbrium orientale* – Oriental mustard
Thysanocarpus curvipes – hairy fringepod
Thysanocarpus laciniatus – lacepod
Tropidocarpum gracile – slender dobie-pod

CACTACEAE – CACTUS FAMILY

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

CAPPARACEAE – CAPER FAMILY

Isomeris arborea – bladderpod

CAPRIFOLIACEAE – HONEYSUCKLE FAMILY

Lonicera subspicata – southern honeysuckle
Sambucus mexicana – Mexican elderberry

CARYOPHYLLACEAE – PINK FAMILY

Loeflingia squarrosa – California loeflingia
* *Silene gallica* – common catchfly
Spergularia sp. – sand-spurrey
* *Spergularia rubra* – sand-spurrey
* *Stellaria media* – common chickweed

APPENDIX B (Cont.)

CHENOPODIACEAE – GOOSEFOOT FAMILY

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

CONVOLVULACEAE – MORNING-GLORY FAMILY

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

CRASSULACEAE – STONECROP FAMILY

Crassula connata – dwarf stonecrop
Dudleya lanceolata – lanceleaf dudleya

CUCURBITACEAE – GOURD FAMILY

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

CUSCUTACEAE – DODDER FAMILY

Cuscuta californica – California dodder

EUPHORBIACEAE – SPURGE FAMILY

Chamaesyce albomarginata – rattlesnake spurge

APPENDIX B (Cont.)

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

FABACEAE – PEA FAMILY

Astragalus didymocarpus – common dwarf locoweed
Astragalus gambelianus – Gambell's dwarf locoweed
Astragalus trichopodus var. *phoxus* – Santa Barbara locoweed
Lotus hamatus – grab lotus
Lotus humistratus – hill lotus
Lotus purshianus – Spanish-clover
Lotus salsuginosus – coastal lotus
Lotus scoparius – deerweed
Lotus strigosus – strigose deerweed
Lotus wrangelianus – Chilean bird's-foot trefoil
Lupinus bicolor – Lindley's annual lupine
Lupinus excubitus var. *hallii* – grape soda lupine
Lupinus formosus var. *formosus* – 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
Trifolium albopurpureum – Indian clover
Trifolium ciliolatum – tree clover
Trifolium gracilentum – pinpoint clover
Trifolium hirtum – rose clover
Trifolium sp. – clover
Trifolium willdenovii – valley clover
* *Vicia villosa* – winter vetch

APPENDIX B (Cont.)

FAGACEAE – BEECH FAMILY

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

GERANIACEAE – GERANIUM FAMILY

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

GROSSULARIACEAE – CURRANT FAMILY

Ribes aureum – golden currant

HYDROPHYLLACEAE – WATERLEAF FAMILY

Emmenanthe penduliflora – whispering bells
Eriodictyon crassifolium var. *nigrescens* – yerba santa
Eucrypta chrysanthemifolia – common eucrypta
Phacelia cicutaria – caterpillar phacelia
Phacelia distans – blue fiddleneck
Phacelia imbricata – imbricate phacelia
Phacelia minor – wild Canterbury bell
Phacelia ramosissima – shrubby phacelia
Phacelia tanacetifolia – tansy-leaved phacelia

JUGLANDACEAE – WALNUT FAMILY

Juglans californica – Southern California black walnut

LAMIACEAE – MINT FAMILY

* *Marrubium vulgare* – horehound
Salvia apiana – white sage
Salvia columbariae – chia
Salvia leucophylla – purple sage

APPENDIX B (Cont.)

Salvia mellifera – black sage
Trichostema lanceolatum – vinegar weed

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

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

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

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

PAEONIACEAE – PEONY FAMILY
Paeonia californica – California peony

PAPAVERACEAE – POPPY FAMILY
Eschscholzia californica – California poppy
Platystemon californicum – cream cups

PLANTAGINACEAE – PLANTAIN FAMILY
Plantago erecta – dot-seed plantain
* *Plantago lanceolata* – English plantain

APPENDIX B (Cont.)

* *Plantago major* – common plantain
* *Plantago ovata* – woolly plantain

POLEMONIACEAE – PHLOX FAMILY

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

POLYGONACEAE – BUCKWHEAT FAMILY

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

PORTULACACEAE – PURSLANE FAMILY

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

APPENDIX B (Cont.)

RANUNCULACEAE – BUTTERCUP FAMILY

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

RHAMNACEAE – BUCKTHORN FAMILY

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

ROSACEAE – ROSE FAMILY

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

RUBIACEAE – MADDER FAMILY

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

SALICACEAE – WILLOW FAMILY

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

SAURURACEAE – LIZARD'S-TAIL FAMILY

Anemopsis californica – yerba mansa

SCROPHULARIACEAE – FIGWORT FAMILY

Castilleja exserta – common owl's-clover
Castilleja foliolosa – indian painbrush
Keckiella cordifolia – heart-leaf penstemon
Mimulus aurantiacus – bush monkeyflower

APPENDIX B (Cont.)

Penstemon centranthifolius – scarlet bugler
* *Veronica anagalis-aquatica* – water speedwell

SOLANACEAE – NIGHTSHADE FAMILY
Datura wrightii – western jimsonweed
* *Nicotiana glauca* – tree tobacco
Solanum americanum – small-flowered nightshade
Solanum parishii – nightshade
Solanum xanti – chaparral nightshade

STERCULIACEAE – CACAO FAMILY
* *Fremontodendron californicum* × *mexicanum* – flannelbush cultivar (ornamental planting observed adjacent to Magic Mountain theme park)

TAMARICACEAE – TAMARISK FAMILY
* *Tamarix ramosissima* – Mediterranean tamarisk

URTICACEAE – NETTLE FAMILY
Urtica dioica – giant creek nettle
* *Urtica urens* – dwarf nettle

VIOLACEAE – VIOLET FAMILY
Viola pedunculata – Johnny jump-up

VITACEAE – GRAPE FAMILY
Parthenocissus vitacea – woodbine

ZYGOPHYLLACEAE – CALTROP FAMILY
* *Tribulus terrestris* – puncture vine

ANGIOSPERMAE (MONOCOTYLEDONES)

CYPERACEAE – SEDGE FAMILY
Cyperus esculentus – nutsedge

APPENDIX B (Cont.)

LILIACEAE – LILY FAMILY

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

POACEAE – GRASS FAMILY

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

APPENDIX B (Cont.)

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

TYPHACEAE – CATTAIL FAMILY

Typha latifolia – broad-leaved cattail

* signifies introduced (non-native) species
** NCN = no common name

APPENDIX C

California Natural Diversity Database Form

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

Document Code _____ Quad Code _____
IndexCode _____ Occurrence # _____

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

PL EA -' Ecopy Sent To _____

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

Reporter: Colin Khoury, Saudamini Sindhar, Chris Oesch, Patricia Schuyler and Makela Mangrich **Phone: (760) 942.5147**

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

Date of Field Work: April 22, 23 & 24, 2006 **County: Los Angeles** **Collection: no** **If yes,** # **Mus./Herb:**

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

Quad Name: **Newhall** **X 7½'** _ **15'** **Elevation: 1075-1250'** **T 4N** **R 16W** **W** **¼ of ¼ Sec** _

Landowner/Manager: Newhall Land, 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 = 229,160 Is this a subsequent visit? X Yes No Compared to your last visit: _ **more** _ same X fewer

Phenology (plants): ___ % **vegetative** **100 % flowering** ___ **% fruiting**

Population Age Structure (animals): ___ **# adults** ___ **#juveniles** ___ **# others**

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

Habitat Description (plant communities, dominants, associates, other rare spp., substrate/soils,

Predominantly California grassland series with coastal sage/California buckwheat and Great basin sagebrush series, also present. The majority of plants occur on southeast slopes, with plants also on south, west, southwest and south-east facing slopes. Slopes average 20%. Dominant plants at these occurrences include *Chaenactis glabriuscula, Bromus spp., Castilleja exserta, and Avena spp.* Vegetative cover in the area of SFVS occurrences ranges from 60 to 100 percent, but individuals are most common in areas with between 75 and 95 percent vegetative cover. About 21 percent of individuals were found on silty loam, 51 percent were found on sandy clay loam, and about 28 percent were found on sandy loam soils.

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

Overall Site Quality: ___ Excellent ___ Good **X Fair** ___ Poor

Comments: This report summarizes 37 discrete locations, each with from 1 to an estimated 100,000 individuals observed.

Should/Could this site be protected? How?

Other comments:

DETERMINATION (Check one or more, fill in blanks)

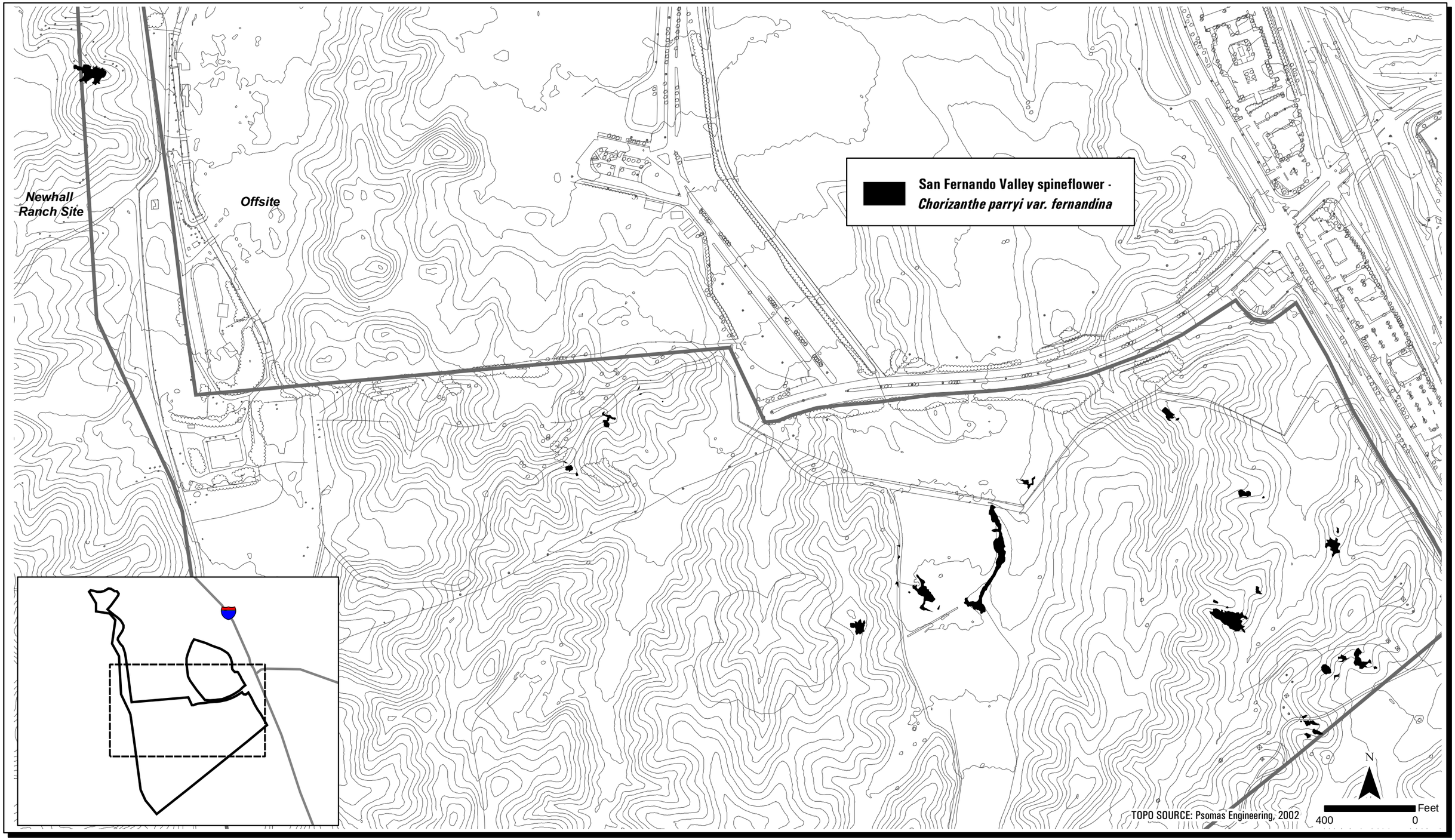
- ___ Keyed in a site reference:
- X ___ Compared with specimen housed at: UCR
- ___ Compared with photo/drawing in:
- ___ By another person (name):
- X Other: personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

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

May we obtain duplicates at our cost?
___ Yes X No



Entrada

2006 San Fernando Valley spineflower Results

FIGURE 1