



2007 Sensitive Plant Survey Report
Newhall Ranch



DECEMBER 2007

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2007 SENSITIVE PLANT SURVEY RESULTS
for
NEWHALL RANCH SPECIFIC PLAN AREA
LOS ANGELES COUNTY, CALIFORNIA

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Newhall Ranch

1.0 INTRODUCTION

The purpose of this report is to document the results of surveys for sensitive plant species within the approximately 7,778-acre Newhall Ranch Specific Plan study area, a subset of the 11,963-acre Newhall Ranch Specific Plan area, for the 2007 field season. Surveys focused on known locations of the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) (SFVS). Other sensitive plant species were recorded if observed on site.

2.0 SITE DESCRIPTION

The Newhall Ranch Specific Plan study area is located in an unincorporated portion of the Santa Clara River Valley in northwestern Los Angeles County (*Figure 1*). It lies roughly one-half mile west of Interstate 5 (I-5) and largely southwest of the junction of I-5 and State Route 126 (SR-126), with portions of the Specific Plan study area located in San Martinez Grande and Chiquito canyons north of SR-126. The City of Santa Clarita is located to the east of the study area, and the Ventura County/Los Angeles County line lies along the western boundary. Site elevations range from 825 feet above mean sea level (AMSL) in the Santa Clara River bottom at the Ventura County/Los Angeles County line to approximately 3,200 feet AMSL on the ridgeline of the Santa Susana Mountains along the southern boundary (*Figure 2*).

Dudek surveyed known locations of SFVS within areas that are designated for development according to the approved Specific Plan. The Newhall Ranch Specific Plan study area consists of approximately 7,778 acres, with the actual area surveyed containing approximately 6,644 acres. The study area includes areas north of SR-126 between Chiquito Canyon west to the Ventura County line; south of SR-126, it includes areas between the Airport Mesa and Potrero Canyon, including Middle, Dead-End, Lion, Humble, and Long canyons. However, the active channel in the Santa Clara River, agriculture fields (e.g., Potrero Mesa), and areas currently proposed for conservation (most notably the “High Country” area) were excluded from the study area. This study area is dominated by east-, west-, and northwest-trending primary ridges, with north- and south-trending secondary ridges. Site elevations range from approximately 850 feet AMSL in the Santa Clara River floodplain to approximately 2,000 feet AMSL along the ridgeline, which separates Potrero Canyon from Salt Creek Canyon and Grave Canyon.

Slope gradients range from moderate to very steep in the hillside areas to very gentle within the Santa Clara River floodplain, tributary canyons, and associated mesas. Distinctive elevated geographic features include Sawtooth Ridge; Razorback Ridge; Windy Gap; Ayers Rock; and Potrero, Grapevine, and Airport Mesas.

Z:\Projects\37380 1\Spineflower Management Plan\arcmap\2007 Sensitive Plant Surveys\Figure 1 - Regional Map.mxd -SL 1/21/2008

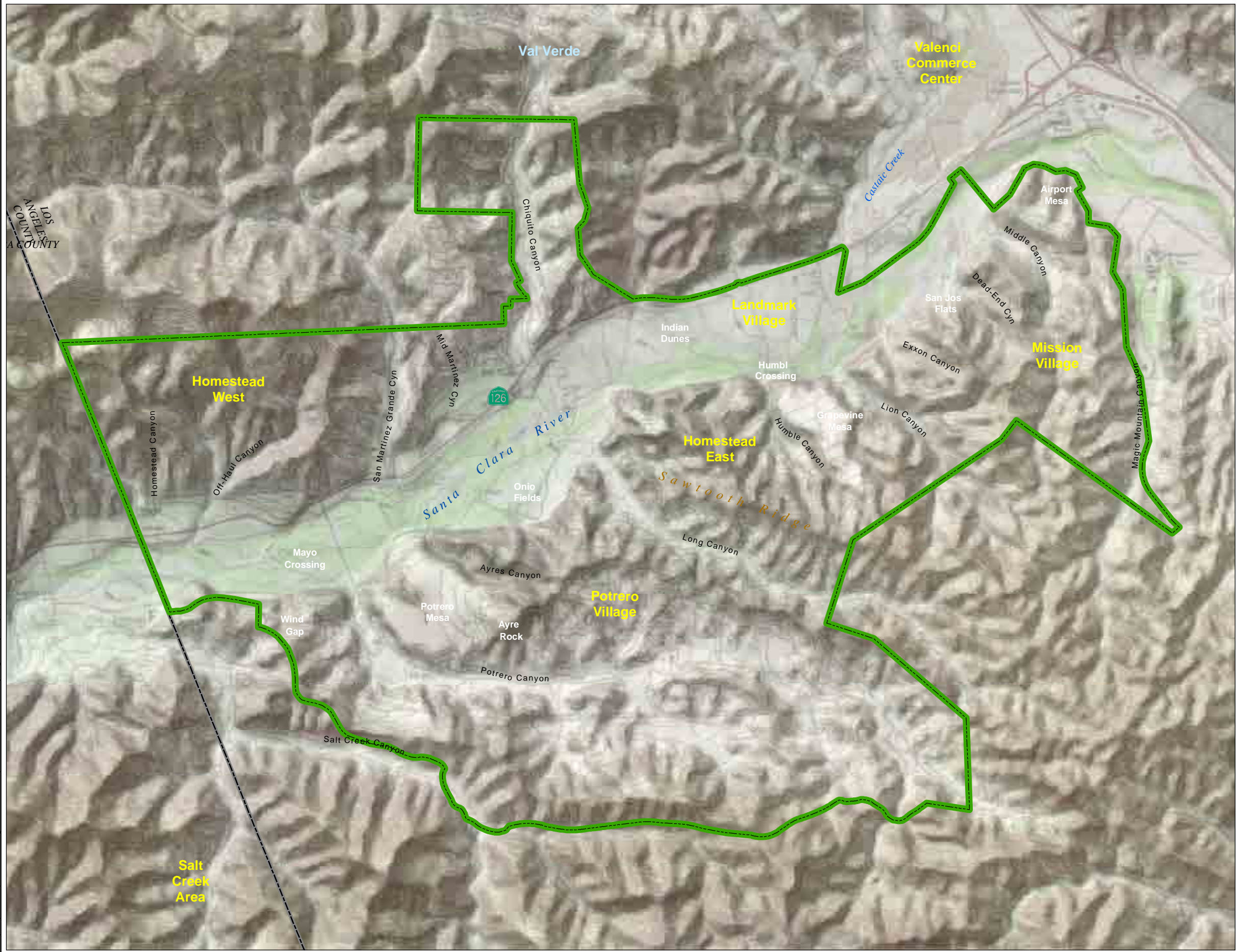




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Newhall Ranch - 2007 Sensitive Plant Surveys
Regional Map

FIGURE
1



-  Newhall Ranch Specific Plan study area
-  County Boundary

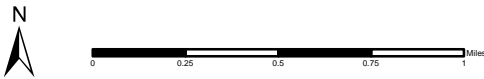


IMAGE SOURCE: USGS 24K Quad

Z:\Projects\37380\1\Spineflower Management Plan\arcmap\2007 Sensitive Plant Survey\Figure 2 - Vicinity Map.mxd - SL 1/21/2008

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2.1 Plant Communities and Land Covers

Native and naturalized vegetation communities within the study area 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. Upland vegetation types dominate the landscape within the study area both north and south of the Santa Clara River. The majority of the site consists of the following upland plant communities: Coastal scrub (including alliances and associations), chaparral (including alliances and associations), coast live oak woodlands, mixed oak woodlands, valley oak woodlands and savannahs, California walnut woodland, and California annual grasslands. The Santa Clara River and its tributaries support a variety of riparian and scrub vegetation communities. These include southern cottonwood willow riparian forest, southern willow scrub, oak riparian forest, mulefat scrub, arrow weed scrub, big sagebrush scrub, alluvial scrub, herbaceous wetlands, coastal and valley freshwater marsh and cismontane alkali marsh. Intermittent and ephemeral drainages onsite also provide habitat for scalebroom and Great Basin series and alluvial scrubs.

Newhall Land leases out portions of the study area for oil and natural gas production, cattle grazing and agricultural operations (e.g., food crop production, dryland farming, honey farming). All such operations are currently ongoing. Grazing activities and oil and natural gas production have had a noticeable effect on much of the natural vegetation communities on site. Scrub communities have been displaced by non-native grasslands as a result of grazing. Southern California Edison and Southern California Gas Company have distribution lines within easements on site as well.

2.2 Geology and Soils

Geologically, the study area is located within the Transverse Ranges 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 on site 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).

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3.0 SURVEY METHODS

Data regarding botanical resources present in the Specific Plan study area were obtained through a review of the pertinent literature, field reconnaissance, and focused surveys for sensitive species, with varying levels of specificity, all of which are described below.

3.1 Literature Review

General floristic and sensitive botanical resources present or potentially present within the Newhall Ranch Specific Plan study area 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 2007); 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, 2004c, 2004d, 2004e, 2004f, 2004g); 2004 Sensitive Plant Survey Results for Valencia Commerce Center, Entrada Site, Legacy, and Newhall Ranch Specific Plan Area (Dudek 2004h, 2004i, 2004j, 2004k); 2005 Sensitive Plant Survey Results for Valencia Commerce Center, Entrada Site, and Newhall Ranch Specific Plan Area (Dudek 2006a, 2006b, 2006c); 2006 Sensitive Plant Survey Results for Valencia Commerce Center, Entrada Site, and Newhall Ranch Specific Plan Area (Dudek 2006d, 2006e, 2006f); *Biological Resource Assessment of the Proposed Santa Susana Mountains/Simi Hills Significant Ecological Area* (PCR et al. 2002); CalFlora (2002); U.S. Fish and Wildlife Service (USFWS 1999); *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001); *Vascular Flora of the Liebre Mountains, Western Transverse Ranges, California* (Boyd 1999); *Checklist of Rare Ventura County Rare Plant Species* (Magney 2002); *A Flora of the Santa Barbara Region, California* (Smith 1976); *A Flora of the Santa Monica Mountains, California* (Raven et al. 1986); *Revised Report: Biology of the San Fernando Valley Spineflower, Ahmanson Ranch, Ventura County, California* (Glenn Lukos and Sapphos Environmental 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 1996); and herbarium specimens from Rancho Santa Ana Botanic Garden (RSA) and the University of California, Riverside (UCR) Herbarium. General vegetation communities' information was obtained from Holland (1986), Sawyer and Keeler-Wolf (1995), and CDFG (2003). Plant species nomenclature follows Hickman (1993).

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3.2 Field Reconnaissance Methods

Botanical surveys were conducted by Dudek staff biologists, with assistance provided by Anuja Parikh and Nathan Gale of FLx. All surveys were conducted on foot. Surveys were conducted in teams of two or more biologists, with at least one senior-level biologist included with each team. Resumes for survey personnel are provided in *Appendix A*.

Botanical surveys of the site were conducted between late May and mid-July of 2007 in accordance with the schedule provided in *Table 1*. Approximately 750 person-hours (75 person-days) were spent conducting SFVS surveys within the study area. Biologists were able to observe reference populations of SFVS and other sensitive plant species in order to develop a search-image prior to conducting surveys of the study area. Surveys focused on the identification and location of SFVS within known populations. Additional sensitive plant species observed during SFVS surveys, including California Native Plant Society (CNPS) List 1B and List 4 species, were also recorded.

Table 1
Survey Schedule & Personnel: Newhall Ranch Specific Plan Area

Date	Biologists	Purpose	General geographic Area
5-21-07	Adam Causey, Callie Ford, Galen Hagen, Rebekah Krebs, Thomas Liddicoat	Focused surveys for SFVS; other sensitive plant species noted as observed.	San Martinez Canyon, Potrero Canyon
5-22-07	Britney Strittmater, Callie Ford, Galen Hagen, Rebekah Krebs, Thomas Liddicoat	Focused surveys for SFVS; other sensitive plant species noted as observed.	Grapevine Mesa
5-23-07 to 5-24-07	Adam Causey, Britney Strittmater, Callie Ford, Galen Hagen, Thomas Liddicoat	Focused surveys for SFVS; other sensitive plant species noted as observed.	Grapevine Mesa
5-29-07 to 5-31-07	Adam Causey, Britney Strittmater,	Focused surveys for SFVS; other sensitive plant species noted as observed.	Airport Mesa
6-01-07	Britney Strittmater, Galen Hagen, Jon Jones	Focused surveys for SFVS; other sensitive plant species noted as observed.	Airport Mesa
6-13-07 to 6-14-07	Brianna Wood, Britney Strittmater, Galen Hagen, Marcus Obregon	Focused surveys for SFVS; other sensitive plant species noted as observed.	Airport Mesa
6-15-07	Brianna Wood, Britney Strittmater, Galen Hagen, Marcus Obregon	Focused surveys for SFVS; other sensitive plant species noted as observed.	San Martinez Canyon
6-18-07 to 6-21-07	Britney Strittmater, Marcella Waggoner, Marcus Obregon	Focused surveys for SFVS; other sensitive plant species noted as observed.	San Martinez Canyon
7-02-07	Britney Strittmater, Galen Hagen	Focused surveys for SFVS; other sensitive plant species noted as observed.	Grapevine Mesa
7-03-07	Adam Causey, Britney Strittmater,	Focused surveys for SFVS; other sensitive	Grapevine Mesa

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Table 1
Survey Schedule & Personnel: Newhall Ranch Specific Plan Area

Date	Biologists	Purpose	General geographic Area
	Galen Hagen	plant species noted as observed.	
7-12-07 to 7-13-07	Britney Strittmater, Callie Ford, Rebekah Krebs	Focused surveys for SFVS; other sensitive plant species noted as observed.	Airport Mesa, Potrero Canyon
7-16-07 to 6-18-07	Britney Strittmater, Jon Jones, Marcus Obregon	Focused surveys for SFVS; other sensitive plant species noted as observed.	Airport Mesa, Grapevine Mesa
7-18-07	FLx (Anujah Parikh , Nathan Gale)	Focused surveys for SFVS; other sensitive plant species noted as observed.	Airport Mesa, Potrero Canyon

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 recently 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 1985 or Roberts 1998).

Surveys in the Newhall Ranch Specific Plan study area during the 2007 field season focused on the observation of current year SFVS plants, with observations of other sensitive plant species noted when observed. Surveys for SFVS were focused in areas of known SFVS populations, generally open areas of California sagebrush, California sagebrush-purple sage series, California buckwheat and California annual grassland series (Sawyer and Keeler-Wolf 1995) on ridgelines, slopes, and escarpments with a southern, southwestern, or southeastern exposure. This strategy was based on information gathered during the documentation of SFVS populations flagged by the CDFG; information gathered during surveys by Dudek for SFVS populations in the Newhall Ranch Specific Plan study area during 2002, 2003, 2004, 2005 and 2006; 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 2001); and conversations with Rick Reifner, the botanist who rediscovered SFVS at Ahmanson Ranch in 1999.

While surveying in the field and mapping SFVS, a 4-meter (13.1-foot) 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 subpopulations, the total extent of the SVFS seed bank, or any other feature of the species life history.

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The outer perimeter of each SFVS polygon was searched in one continuous direction until returning to the starting point, with plants being located within at least every 1 to 4 meters (3.3 to 13.1 feet) 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 every one to four meters. Each SFVS polygon was given a unique identifier (i.e., numbers and/or letters) in the field. Data was either directly entered into the GPS or on field data sheets for each of the SFVS polygons that include data on site conditions (i.e., plant number estimates, associated species). A field checklist also was compiled of polygon numbers and method of data entry (i.e., GPS unit or field form) for each polygon surveyed each day. Polygons were analyzed in the lab and delineated based on a 4-meter minimum convex polygon rule (i.e., all polygons within 4 meters 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).

Due to the small numbers of SFVS individuals that were observed during the 2007 field season, each population was determined through direct counting. No other sensitive plant species were observed. Information regarding the mapping for SFVS is included in *Section 4.2.1* below.

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) or CNPS online inventory (CNPS 2007), and those plant species which are found on the list of “Threatened and Endangered Species and Species of Concern, Los Angeles County” (Los Angeles Almanac 2007). CNPS List 3 or List 4 species were included in discussions only when encountered during the field surveys. Focused surveys were conducted only in areas that were previously known to support SFVS.

3.2.2 Survey Limitations

Surveys were conducted in the late spring and summer of 2007. The timing of the surveys was coincident with the blooming period for SFVS and other early blooming annual species. Surveys continued past the peak bloom period for the SFVS into the summer when SFVS became a highly visible brick red while all of the other plants dried and faded to pale straw colors. Surveying during these two time periods maximized the potential for detection of SFVS during the survey effort.

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Surveys for SFVS were concentrated in areas of suitable habitat, which was generally in openings in vegetation and/or on south-facing slopes. Other sensitive species were recorded when observed.

The focused surveys for SFVS were conducted during daylight hours under weather conditions that did not preclude observation of sensitive plant species (e.g., surveys were not conducted during heavy fog or rain).

The rainfall in the winter and spring of 2007 was less than average; consequently, the new vegetation growth was also very low. The SFVS were smaller and less abundant this year compared to previous years. In addition, other sensitive plant species were not incidentally observed as they had been in previous years.

4.0 RESULTS OF SURVEYS

4.1 Botany – Floral Diversity

The study area is situated at the nexus of the Transverse Ranges, Coast Ranges, Sierra Nevada, 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 average rainfall for the area.

At least 562 plant species were identified within the Newhall Ranch Specific Plan study area. Of these, 406 species (72%) are native to the region and 156 species (28%) are nonnative. The cumulative list of plant species identified on the site in 2002, 2003, 2004, 2005, 2006 and 2007 is provided as *Appendix B*.

4.2 Sensitive Plant Species

Focused surveys were conducted within those areas that were previously known to support SFVS occurrences, and SFVS was the only sensitive plant species observed during the course of 2007 SFVS surveys. Other sensitive species that have the potential to occur within the VCC study area, based on the presence of suitable habitat and soils, are listed in *Table 2*. The sensitive species listed in *Table 2* are 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, and those plant species found on Lists 1A, 1B, or 2 of the CNPS *Inventory of Rare and Endangered Plants of California* (CNPS 2001) or CNPS online inventory (CNPS 2007).

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Table 2
Sensitive Plant Species Observed or Potentially Occurring in the Newhall Ranch Specific Plan Study Area

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
<i>Arenaria paludicola</i>	marsh sandwort	FE/SE	1B	Dense freshwater marsh/perennial herb/May-August	Not observed during 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads; nearest occurrence is in the Santa Ana River. Limited suitable habitat on site; 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 2007 field season. No CNDDDB 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 the 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 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads; however, suitable habitat is present on site. Moderate likelihood of occurrence within the study area.
<i>Atriplex serenana</i> var. <i>dauidsonii</i>	Davidson's saltscale	None/None	1B	Coastal bluff scrub and coastal sage scrub on alkaline substrate/annual herb/May- October	Not observed during 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads. <i>Atriplex serenana</i> var. <i>serenana</i> observed on site. 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 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads; closest known populations 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 2007 field season. CNDDDB records exist for San Francisquito Canyon at confluence with Santa Clara River; suitable habitat is present on site. Moderate likelihood of occurrence within the study area.

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Table 2 (Cont.)

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
<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 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads; nearest occurrence is in San Dimas. Suitable habitat is present on site. Low likelihood of occurrence within the study area.
<i>Calochortus clavatus</i> var. <i>clavatus</i>	club-haired mariposa lily	None/None	4	Chaparral and coastal sage scrub/ perennial herb (geophyte)/March-May	Not observed during 2007 field season. No CNDDDB records exist for Newhall and Val Verde quads. Very low likelihood of occurrence in the 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	Not observed during 2007 field season. Observed during the Not observed during 2007 field season. In 2006, this species was observed on north tending slopes throughout the study area. This species was not mapped throughout the entire study area in 2006. This species is locally abundant and 2 polygons were mapped in 2006 containing an estimated 322 individuals total. CNDDDB records also exist 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 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads; however, records exist for the Santa Susana Mountains and Simi Hills. Suitable habitat exists on site. Moderate likelihood of occurrence within the 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 2007 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. This species was observed at the head of the Salt Creek drainage in the Santa Susana Mountains to the southwest during the 2003 field season. Moderate likelihood of occurrence within the study area.

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Table 2 (Cont.)

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
<i>Calystegia peirsonii</i>	Peirson's morning-glory	None/None	4	Chaparral, coastal sage scrub, cismontane woodland, grassland/perennial herb/May-June	Not observed during 2007 field season. Observed in 2006 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 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads; however, limited suitable habitat is present on site. Low likelihood of occurrence within the study area.
<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 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads; however, suitable habitat is present on site. Low likelihood of occurrence within the study area.
<i>Cercocarpus betuloides</i> var. <i>blancheae</i>	island mountain-mahogany	None/None	4	Chaparral, closed-cone coniferous forest/evergreen shrub/February-May	Not observed during 2007 field season. The species was observed in mixed chaparral in the study area during the 2006 field season.
<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 on site in four general areas within the survey area: Airport Mesa, Grapevine Mesa, Potrero Canyon and San Martinez Grande Canyon. A total of 68 polygons were mapped with an estimated 452 individuals during the 2007 growing season.
<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 2007 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 on site. Moderate likelihood of occurrence within the 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 2007 field season. No likelihood of occurrence.

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Table 2 (Cont.)

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
<i>Dodecahema leptoceras</i>	slender-horned spineflower	FE/SE	1B	Alluvial scrub on sandy substrate/annual herb/April-June	Not observed during 2007 field season; however, Santa Clara River bottom excluded from survey area. Historical CNDDDB records exist for the Newhall or Val Verde quads in alluvial habitat similar to those present on site. Moderate likelihood of occurrence within the study area.
<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 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads. Suitable habitat is present on site. Low likelihood of occurrence within the 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 2007 field season. No CNDDDB records exist for Newhall and Val Verde quads. Unidentified <i>Dudleya cymosa</i> observed on vertical sandstone cliffs and slopewash in 2002 are actually <i>D. lanceolata</i> , a common species. Low likelihood of occurrence within the study area.
<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 2007 field season. No CNDDDB records exist for Newhall and Val Verde quads. Unidentified <i>Dudleya cymosa</i> observed on vertical sandstone cliffs and slopewash in 2002 are actually <i>D. lanceolata</i> , a common species. Low likelihood of occurrence within the 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 2007 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 on site. Moderate likelihood of occurrence within the 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 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads. Suitable habitat exists on site. Low likelihood of occurrence within the study area.

2007 Sensitive Plant Survey Results Newhall Ranch

Table 2 (Cont.)

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
<i>Erodium macrophyllum</i>	round-leaved filaree	None/None	2	Cismontane woodland and grasslands on clay substrate/annual herb/March- May	Not observed during 2007 field season. No CNDDDB 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 is present on site; moderate likelihood of occurrence in the 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 2007 field season. A <i>Helianthus</i> 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 <i>Helianthus</i> species on Newhall Land property is a hybrid between <i>H. nuttallii</i> and <i>H. californicus</i> or an intermediate evolutionary step between the two species (Porter and Fraga 2004). No suitable habitat observed in the 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 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads. Suitable habitat present on site. Low likelihood of occurrence within the study area.
<i>Juglans californica</i>	Southern California black walnut	None/None	4	Chaparral, cismontane woodland, coastal sage scrub, alluvial scrub/ deciduous tree/March-May	Not observed on site during 2007 field season. Observed in past years's surveys in California sagebrush and chaparral on site. High likelihood of occurrence in the study area.
<i>Juncus acutus</i> ssp. <i>leopoldii</i>	southwestern spiny rush	None/None	4	Coastal dunes, meadows, seeps, marshes, and swamps/ perennial herb/May-June	Not observed during 2007 field season. Observed in mesic riparian areas on site during 2006 field season.

2007 Sensitive Plant Survey Results Newhall Ranch

Table 2 (Cont.)

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
<i>Malacothamnus davidsonii</i>	Davidson's bush mallow	None/None	1B	Chaparral, coastal sage scrub, riparian woodland/ deciduous scrub/June-January	Not observed during 2007 field season. Nearest occurrences are in San Fernando and Sunland. Suitable habitat present on site. Moderate likelihood of occurrence within the study area.
<i>Nama stenocarpum</i>	mud nama	None/None	2	Edges of lakes, rivers, ponds, vernal pools/annual/January-July	Not observed during 2007 field season. Moderate likelihood of occurrence on banks of Santa Clara River and other mesic areas on site. No CNDDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat present on site. Low likelihood of occurrence within the study area.
<i>Nemophila parviflora</i> var. <i>quercifolia</i>	oak-leaved nemophila	None/None	4	Cismontane woodland, lower montane coniferous forest/annual herb/May-June	Not observed on site during 2007 field season. Observed in past years's surveys in oak woodland east of Grapevine Mesa. High likelihood of occurrence in the study area.
<i>Nolina cismontana</i>	chaparral nolina	None/None	1B	Chaparral, coastal sage scrub on sandstone or gabbro substrate/ perennial shrub May-July	Not observed during 2007 field season. No CNDDDB records exist for the Newhall or Val Verde quads. Suitable habitat present on site. Low likelihood of occurrence within the 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	Not observed during 2007 field season. This plant was identified as on site by Dudek in 2002; however, recent investigations indicate that the <i>Opuntia basilaris</i> plants on Newhall Ranch are not <i>O. basilaris</i> var. <i>brachyclada</i> , but are <i>O. basilaris</i> var. <i>ramosa</i> .
<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 2007 field season. No CNDDDB 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 the study area.

2007 Sensitive Plant Survey Results Newhall Ranch

Table 2 (Cont.)

Scientific Name	Common Name	Status Federal/State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Presence or Likelihood of Occurrence On Site
<i>Rorippa gambelii</i>	Gambel's watercress	FE/ST	1B	Marsh and swamps (freshwater and brackish)/ perennial herb/April-June	Not observed during 2007 field season. No CNDDB records exist for the Newhall or Val Verde quads. Limited suitable habitat is present on site. Low likelihood of occurrence within the 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 2007 field season. Historical CNDDB record for Saugus, south of Santa Clara River. Suitable habitat is present on site. Moderate likelihood of occurrence within the 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 2007 field season. No CNDDB records exist for the Newhall or Val Verde quads; suitable habitat present on site. Moderate likelihood of occurrence within the 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 2007 field season. 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 the study area.

Legend

FE:	Federally-listed as endangered	CNPS List 1A:	Plants presumed extinct in California
FT:	Federally-listed as threatened	CNPS List 1B:	Plants rare, threatened, or endangered in California and elsewhere
FC:	Federal candidate for listing	CNPS List 2:	Plants rare, threatened, or endangered in California but more common elsewhere
SC:	State candidate for listing	CNPS List 3:	Plants about which we need more information – a review list
SE:	State-listed as endangered	CNPS List 4:	Plants of limited distribution – a watch list
ST:	State-listed as threatened		
SR:	State-listed as rare		

2007 Sensitive Plant Survey Results Newhall Ranch

Figures 3 through 6 depict the locations of sensitive species, including SFVS, in the Newhall Ranch Specific Plan study area. Labels for each of the polygons in the figures correlate with those in *Tables 3 through 6*, which contain estimates for the numbers of individuals within each polygon. *Table 7* provides a summary of occurrence data for the study area. Information regarding the mapping and recorded characteristics of SFVS is included in *Section 4.2.1* below.

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

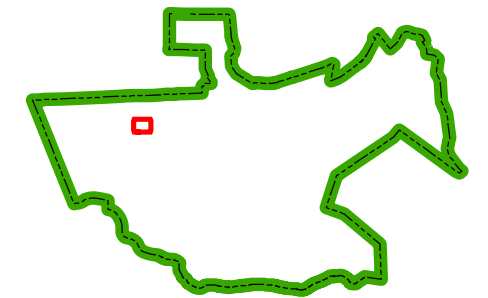
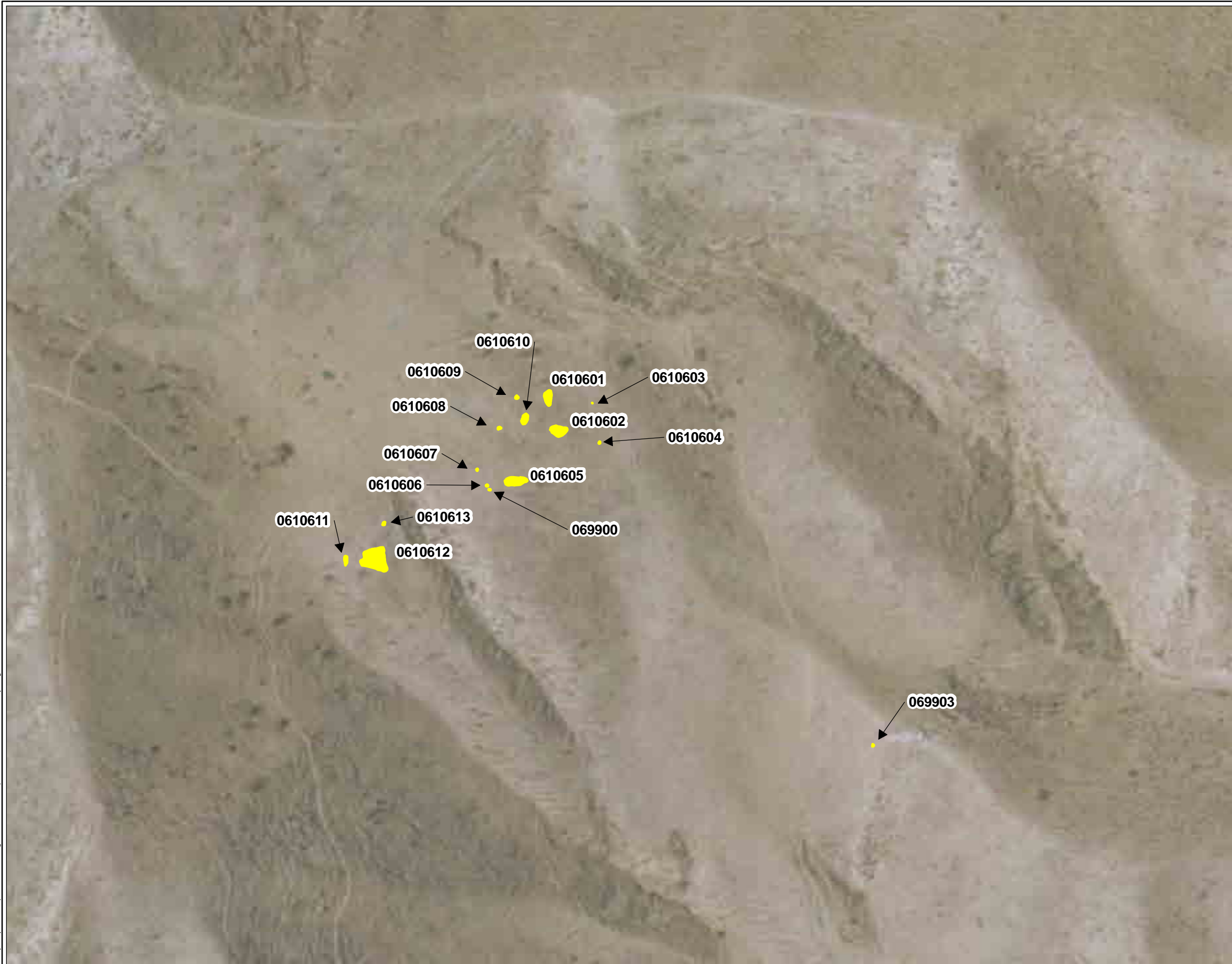
SFVS is state-listed as endangered, a candidate for federal listing, and found on List 1B.1 of the *CNPS Inventory of Rare and Endangered Vascular Plants of California*. Until its rediscovery in 1999 at Laskey Mesa on Ahmanson Ranch in Ventura County, it was thought to be extinct. A review of information of historical occurrences of SFVS in the CNDDDB indicates 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 was not observed on site 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).



SFVS polygons were identified in several general locations of the study area for the Newhall Ranch Specific Plan including areas around Airport Mesa (including Dead-End Canyon), Grapevine Mesa (including Lion Canyon and Long Canyon), Potrero Canyon, and San Martinez Canyon. The polygons for these occurrences are depicted in *Figures 3 through 6*. Labels for each of the polygons in these figures correlate with those in *Tables 3 through 6*, which contain estimates for the numbers of individuals within each polygon.

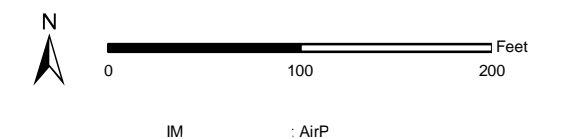
Most of the SFVS individuals were found on slopes with a south-facing component in vegetation communities consisting of open California sagebrush, California buckwheat, ecotonal California sagebrush/California buckwheat and California annual grassland series, or at the edge of agricultural fields on mesas. Most of the observed SFVS individuals were found on soils mapped by the USDA (1969) as slightly eroded to eroded Castaic-Balcom silty clay loam (30% to 50% slopes) or Terrace Escarpments. Plants in the vicinities of Grapevine and Airport mesas were observed downslope of terrace surfaces capped by Zamora clay loam (2% to 9% slopes). Elevations at SFVS locations on site range from approximately 1,000 to 1,300 feet AMSL.

Vegetative cover in the area of SFVS occurrences ranged from 6% to 75% but was more commonly between 15% and 35%. The soil type for all mapped SFVS occurrences in the study area consisted of sandy and clay loams.

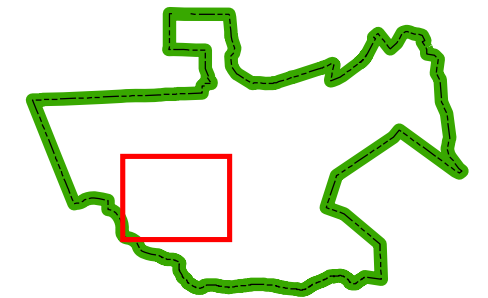
Z:\Projects\37380\1\Spineflower Management Plan\arcmap\2007 Sensitive Plant Surveys\Figure 3 - SMG Area.mxd -SL 1/21/2008





-  Newhall Ranch Specific Plan study area
-  San Fernando Valley Spineflower



Z:\Projects\37380\1\Spineflower Management Plan\arcmap\2007 Sensitive Plant Surveys\Figure 4 - Potrero Area.mxd -SL 1/21/2008

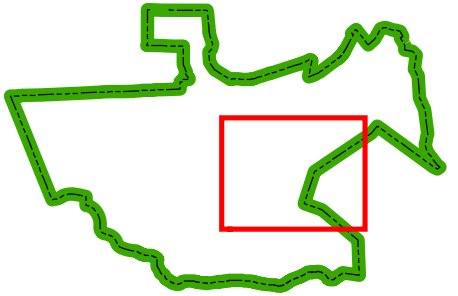




-  Newhall Ranch Specific Plan study area
-  San Fernando Valley Spineflower

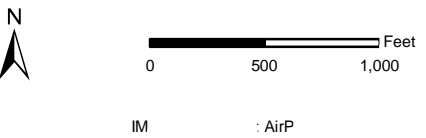


0 500 1,000 Feet

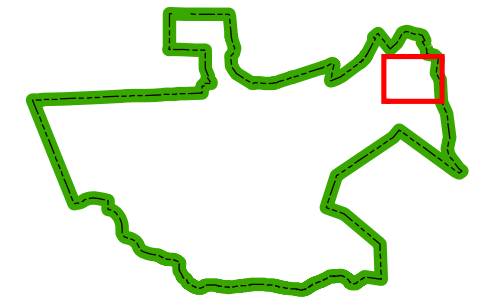
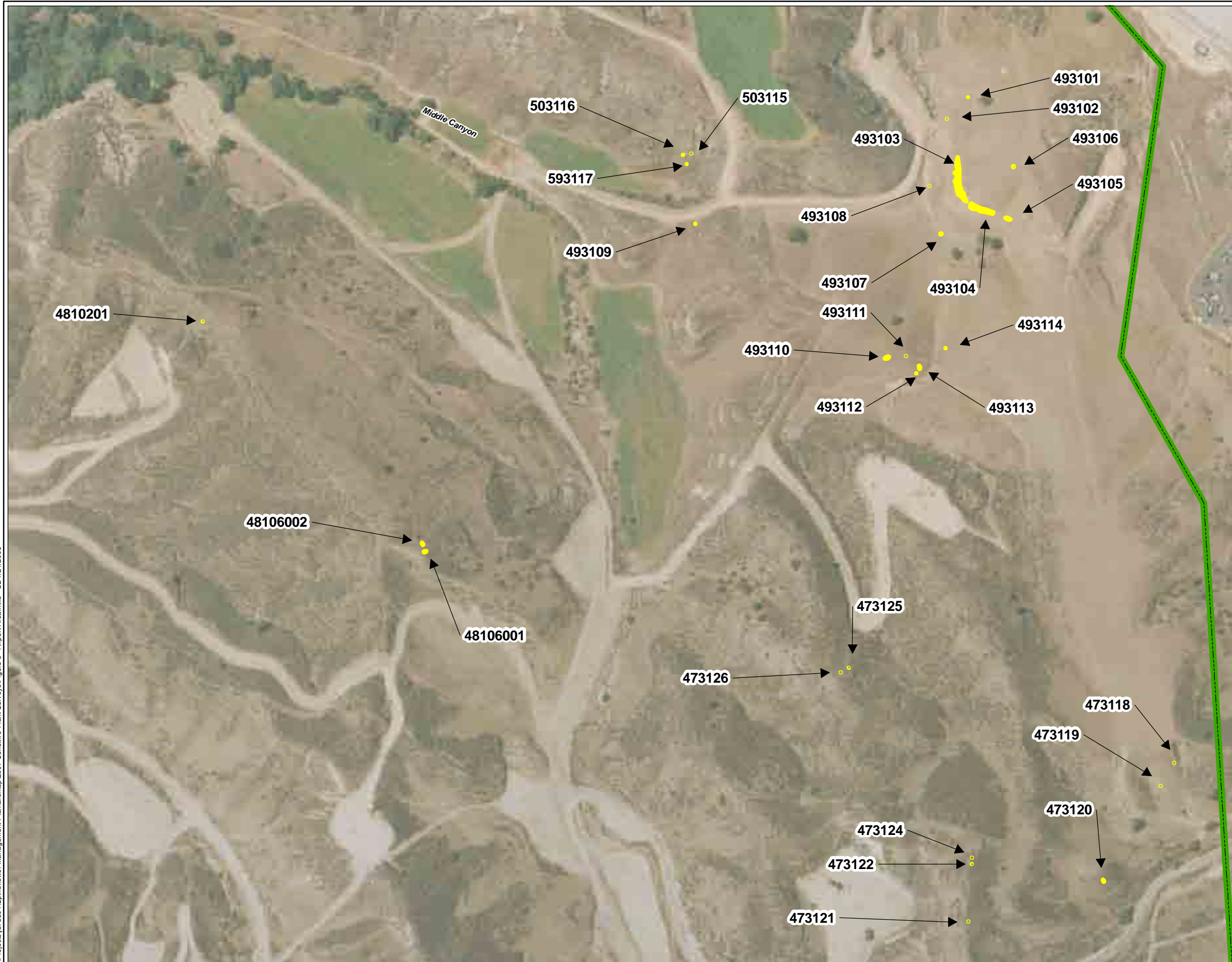
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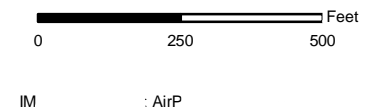
-  Newhall Ranch Specific Plan study area
-  San Fernando Valley Spineflower



Z:\Projects\37380\1\Spineflower Management Plan\arcmap\2007 Sensitive Plant Surveys\Figure 6 - Airport Area.mxd - SL 1/21/2008



-  Newhall Ranch Specific Plan study area
-  San Fernando Valley Spineflower



IM : AirP

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Table 3
San Fernando Valley Spineflower Summary of
Occurrence Data for the San Martinez Grande Canyon Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimated Number of Individuals
069900	2	3
069903	2	7
0610601	79	4
0610602	121	9
0610603	1	1
0610604	2	1
0610605	138	12
0610606	2	2
0610607	1	1
0610608	4	1
0610609	6	1
0610610	44	3
0610611	19	2
0610612	428	22
0610613	5	4
Total	854	73

Table 4
San Fernando Valley Spineflower Summary of
Occurrence Data for the Potrero Canyon Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimated Number of Individuals
143127	54	24
143128	72	7
143129	1	1
143130	103	21
143131	20	2
143132	1	1
133133	1	1
273137	1	1
283134	1	1
283135	115	7
283136	1	1
Total	370	67

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Table 5
San Fernando Valley Spineflower Summary of
Occurrence Data for the Grapevine Mesa Vicinity

Polygon Name	Polygon Area (sq. ft.)	Estimated Number of Individuals
233138	1	1
3310001	1	16
3310002	1	9
338201	58	33
338202	1	4
338203	1	2
359901	1	2
389901	6	2
3810201	1	1
3810601	1	1
3810602	1	1
3810603	1	1
3810604	1	1
3810605	1	2
Total	76	76

Table 6
San Fernando Valley Spineflower
Summary of Occurrence Data for the Airport Mesa Vicinity

Polygon Name	Polygon Size (square feet)	Estimated Number of Individuals
473118	1	1
473119	1	1
473120	32	3
473121	1	1
473122	1	1
473124	1	6
473125	1	2
473126	1	1
4810201	1	4
48106001	33	2
48106002	22	2
493101	1	1
493102	1	1
493103	1782	125
493104	886	35
493105	89	4
493106	15	16
493107	15	2
493108	1	1
493109	1	1
493110	86	6

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Table 6 (Cont.)

Polygon Name	Polygon Size (square feet)	Estimated Number of Individuals
493111	1	1
493112	1	1
493113	54	2
493114	1	1
503115	1	1
503116	1	3
593117	1	1
Total	3032	226

Table 7
San Fernando Valley Spineflower Summary of
Occurrence Data for the Newhall Ranch Specific Plan Study Area

Geographic Occurrence	Estimated Number of Individuals
Airport Mesa	226
Grapevine Mesa	76
Potrero Canyon	67
San Martinez Grande Canyon	73
Totals for the Newhall Ranch Specific Plan Study Area	442

A total of 68 SFVS polygons were mapped ranging in size from less than 1 to 1,782 square feet. The number of individuals within each polygon ranges from 1 to approximately 125. At Airport Mesa, there were an estimated 226 individuals in 28 polygons (*Table 6*). At Grapevine Mesa, there were an estimated 76 individuals in 14 polygons (*Table 5*). At Potrero Canyon, there were 67 individuals in 11 polygons (*Table 4*), and at San Martinez Grande Canyon, there were 73 individuals in 15 different polygons (*Table 3*). The entire Newhall Ranch Specific Plan study area contained an estimated 442 SFVS individuals for the 2007 field season (*Table 7*). CNDDDB forms are included in *Appendix C* for each of the four occurrences on site.

5.0 ACKNOWLEDGMENTS

Britney Strittmater prepared this report, with review by Callie Ford and Sherri Miller and staff at Newhall Land. Spenser Lucarelli provided graphics and GIS mapping analyses.

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APPENDIX A

Resumes of Survey Personnel

EXPERIENCE

Adam Causey has 2 years' experience as a biologist/habitat restoration specialist. He specializes in vegetation surveys and construction monitoring. His responsibilities also include conducting field work and communicating with field and construction personnel.

Newhall Ranch, Newhall Land and Farming, Inc., Los Angeles and Ventura Counties, California.

- **Landmark Village Project.** Completed baseline vegetation data collection. This data was used to assist in preparation of a conceptual wetland mitigation plan that met mitigation requirements and provided maximum benefit to the client.
- **Rivervillage Slender Mariposa Lily and Plummer's Mariposa Lily Transplantation Project.** Provided qualitative and quantitative site monitoring at intervals throughout the year. Documented and analyzed data. Preparing annual reports per clients documenting conditions, providing management recommendations, and progress toward success. Perform monitoring visits to ensure required maintenance is being performed as necessary.
- **Westridge Native Grasslands Restoration Area.** Provided qualitative and quantitative site monitoring at regular intervals throughout the year. Documented and analyzed data. Preparing annual reports per clients documenting conditions, providing management recommendations, and progress toward success.
- **Automall Mitigation Bank Project.** Provided qualitative and quantitative site monitoring at regular intervals throughout the year. Documented and analyzed data. Prepare annual reports per clients documenting conditions, providing management recommendations, and progress toward success.
- **Interim Agricultural Operations Plan for Spineflower Conservation Plan Protection.** Research past, current, and future agricultural land uses on land adjacent to future preserves. Developing guidelines (BMPs, grazing, pesticide usage, monitoring and reporting etc.) to allow agricultural land use to continue while maintaining spineflower populations until preserved in the future.
- **Newhall Ranch Land and Farming.** Assisted in conducting rare plant surveys to document and monitor spineflower on the ranch. Performed biological surveys for spineflower, a state endangered and sensitive plant species, including population counts and using GPS to locate the boundaries of the populations.

EDUCATION

University of California,
Davis
BS Environmental
Horticulture and Urban
Forestry
2005

Adam M. Causey – continued

- **Middle Canyon Spring Habitat Management Plan.** Assisted in developing habitat management plan for two sensitive species.
- **Lily Mitigation and Monitoring Plans.** Completed five various lily mitigation and monitoring plans to be implemented at a later date. Plans provide methods for collection, planting, maintenance, a timeline, success standards, and options for future adaptive management.
- **Valencia Commerce Center (TPM 26363).** Conducted construction monitoring to ensure compliance with construction permits. Conducted nesting bird and rare plant surveys (slender mariposa lily). Monitored observed lilies to ensure growth and successful maintenance and preservation of site.
- **TPM 20685 Slender Mariposa Lily Mitigation and Monitoring.** Provided qualitative and quantitative site monitoring at intervals throughout the year. Documented and analyzed data. Prepare annual reports per clients documenting conditions, providing management recommendations, and progress toward success. Perform monitoring visits to ensure required maintenance is being preformed as necessary.
- **Habitat Restoration Plan for the Soledad Business Park Bank Protection Project.** Provided qualitative and quantitative site monitoring at intervals throughout the year. Documented and analyzed data. Prepare annual reports per clients documenting conditions, providing management recommendations, and progress toward success. Perform monitoring visits to ensure required maintenance is being preformed as necessary.

Tejon Ranch, Kern County, CA

- **Grapevine Creek Water Usage Project, Tejon Mountain Village, Tejon Ranch. Kern County, CA.** Assist preparing and organizing project to quantify vegetation communities surrounding Grapevine Creek. Completed data collection with transect and quadrates. Currently analyzing data and writing report summarizing findings.
- **Tejon Section 7 Preserve Survey and Monitoring Project, Tejon Ranch, Kern County, CA.** Use motion sensitive cameras to help conduct surveys for listed endangered species. Conduct construction monitoring to ensure no loss of animals during work. Completed majority of monitoring the early morning hours.

Santa Ynez Well Field Clean-up Project, Santa Ynez River Water Conservation District, Santa Barbara County, CA. Provided monitoring of construction work being completed in river ensuring compliance with obtained permits.

SCE Bark Beetle Project, Forest Falls, San Bernardino County, CA. Provided monitoring to ensure the loss or no biological resources in the course the tree falling project.

The Nature Conservancy – The Cosumnes River Preserve, Galt, California. Monitored vegetation at multiple sites in vernal pools, riparian forests, grasslands, and restoration projects. Collected, entered, and analyzed vegetation data for management decisions as well as fire and grazing studies. Implemented field mapping projects using a GPS unit. Assisted in prescribed fire efforts and exotic species removal on the preserve. Responsible for designing and conducting a germination study on burned and unburned samples of goatgrass, an invasive species on the preserve.

Adam M. Causey – continued

Davis Fire Crew – Davis, California. Squad boss responsible for supervising and instructing squad of six to seven crew members. Communicated clearly with team while working with the complete crew of 20 people or independently as a squad. Responsible for ensuring professional presentation of crew as well as completion of assigned tasks correctly, safely, and quickly in stressful and dangerous wildland situations. Helped communication flow between crew members and higher authorities.

Mr. Causey was also a member of a Type II hand crew dispatched from the Mendocino National Forest. Common assignments include cutting containment lines, holding line, assisting in mopping up after fire containment, and rehabilitation projects. Successfully completed long hours of physically demanding work.

Tomato Genetic Resource Center, Department of Vegetable Crops, University of California, Davis. As a student assistant, assisted greenhouse manager and curator of collection with pollination, harvesting, seed processing, general plant care, and other tasks while working in the field, greenhouse, and lab. Performed tasks requiring high attention to detail such as preparing seed samples for use, storage, worldwide distribution for research purposes, and data entry into database. Helped with seed scarification, tissue culture work, and the preparation of isozyme gels.

EXPERIENCE

Callie Ford is committed to professional management of environmental resources, including land conservation. As a biologist with Dudek, Ms. Ford has prepared biological sections for environmental impact reports (EIRs) and biological technical reports as well as focused survey reports on multiple projects.

Project Experience

Environmental Services for Newhall Land and Farming Company, Santa Clarita, California. Assisted in writing numerous biological technical reports and biological sections of EIRs with detailed information of special-status wildlife species. Coordinated and performed biological surveys for spineflower, a state endangered and sensitive plant species, including population counts and using GPS to locate the boundaries of the populations. Also performed biological monitoring of known spineflower populations, including population counts and point-intercept transects, and performed vegetation mapping for multiple vegetation classes.

Focused Wildlife Surveys, Yaqui Pass and Viking Farms, Borrego Springs, California. Conducted general nocturnal and diurnal surveys with a focus on special-status wildlife species on two proposed development properties in Borrego Springs.

Hazard Tree Removal Project, San Bernardino and San Jacinto Mountains, Southern California Edison, San Bernardino and Riverside Counties, California. Performed biological monitoring for trees affected by bark beetle infestations, including sensitive plant surveys and nesting wildlife species, and provided recommendations for removing trees in environmentally sensitive areas (e.g., riparian zones). Also assisted in biological monitoring for trees affected by the 2007 fires in the Lake Arrowhead area.

Miramar Trunk Sewer Replacement and Permanent Access Project, City of San Diego Metropolitan Wastewater Department (MWW), San Diego, California. Performed construction monitoring for the sewer replacement in Rose Canyon. Monitored for special-status wildlife species.

Santa Clara River Watershed Basin Analysis, Counties of Ventura and Los Angeles, California. Researched permits issued by the US Army Corps of Engineers (ACOE) and other documents related to the Santa Clara River Watershed Basin Analysis project regarding impacts to jurisdictional waters and any sensitive plant or wildlife species.

EDUCATION

California Polytechnic
State University, San Luis
Obispo
BS Environmental
Management &
Protection/Minor in GIS
2006
Cum Laude

PROFESSIONAL AFFILIATIONS

Association of
Environmental
Professionals (AEP)

Callie Ford – continued

San Diego Metropolitan Wastewater District As-Needed Contract, San Diego, California. Reviewed and analyzed plant survey forms and incorporated pertinent information into a biological report.

Mid-County Parkway Project, County of Riverside, California. Performed wildlife surveys for the sensitive burrowing owl species.

Aliso Creek Water Quality SUPER Project, South Orange County Wastewater Authority, Laguna Niguel, California. Reviewed southwestern willow flycatcher and least Bell's vireo survey records and assisted with writing the focused survey report for the Aliso Creek area.

High Tech Project, High Tech High Learning, City of Chula Vista, California. Reviewed southwestern willow flycatcher and least Bell's vireo survey records and assisted with writing the focused survey report for the High Tech High School Development project.

Gobernadora Multipurpose Basin Project, Santa Margarita Water District, Rancho Santa Margarita, California. Assisted writing the biological technical report for the Canada Gobernadora Multipurpose Basin, which is located next to the Canada Gobernadora Creek and north of the Gobernadora Ecological Reserve Area.

Additional Experience

Morro Bay National Estuary Program, Morro Bay, California—Water Quality Testing Volunteer. Performed water quality testing, including testing for nitrogen, phosphates, dissolved oxygen, turbidity, pH, and flow (using FloMaster).

City of San Diego, Multiple Species Conservation Program Section—Intern.

- Performed biological surveys for native vegetation using hand-held GIS system and uploaded new GIS information into database.
- Reviewed plans with property within the Multiple Habitat Plan Area and made sure the plan was following the correct guidelines for that plan (i.e., riparian buffer zones, landscape plans, etc).
- Revised management plans per comments from local organizations and agencies.
- Organized property information for land put into a trust as part of mitigation measures.

Relevant Studies

- Association of Environmental Professionals CEQA Workshop November 2006.
- Friends of the Jepson Herbarium. *Introduction to the Morphology and Identification of Flowering Plants.* University of Berkeley Sciences Building. March 18–19, 2007.

NATHAN GALE
Principal Scientist, FLx

EDUCATION AND CERTIFICATIONS

Ph.D., Geography, University of California, Santa Barbara, 1985.
M.A., Geography, University of California, Santa Barbara, 1980.
PWS, Certified Professional Wetland Scientist #1216, Society of Wetland Scientists, 1999.

SUMMARY OF QUALIFICATIONS

Dr. Gale has 26 years of experience managing and conducting multidisciplinary projects ranging from methodology development to applied environmental impact assessments, planning studies, and restoration programs. His management experience includes proposal preparation; contract negotiation and client relations; cost control and schedule monitoring; document production supervision; and quality assurance review. His specific technical work has involved experimental and sampling design; photographic documentation; and mapping of natural vegetation, sensitive species, environmental constraints, and land use. He also has field experience in quantitative vegetation sampling, environmental data collection, and wetland delineation. Dr. Gale is skilled in qualitative and quantitative data analysis for numerous applications including ecological and environmental impact assessment as well as mitigation and monitoring planning. He has been responsible for the preparation of NEPA/CEQA environmental documents, planning studies, and technical reports for the Department of Defense (DOD), the Department of Energy (DOE), the Department of Interior (DOI), and for state and local agencies. In addition, he has published extensively in the fields of geography, ecology, planning, and environmental studies.

EXPERIENCE

Rare Plant and Vegetation Surveys and Mapping, Newhall Ranch/Valencia Company Project Sites, Los Angeles and Ventura Counties, CA. Newhall Land and Farming Company, URS Corporation, Impact Sciences, Inc., and Dudek and Associates, Inc. General rare plant surveys and concentrated surveys for *Chorizanthe parryi* var. *fernandina* (San Fernando Valley spineflower), *Dodecahema leptoceras* (slender-horned spineflower), and *Helianthus* sp. (sunflower), vegetation surveys and mapping of plant communities, and report preparation for various sites, including the Santa Clara River and Castaic Creek. Surveys were carried out annually during six field seasons in the years 2000 through 2005. Participation in the development of a spineflower management plan, preserve design, and associated research activities.

Rare Plant and Vegetation Surveys and Mapping, Los Angeles and Riverside Counties, CA. Natural Resource Consultants. General rare plant surveys and concentrated surveys for *Chorizanthe parryi* var. *fernandina* (San Fernando Valley spineflower), *Dodecahema leptoceras* (slender-horned spineflower), *Orcuttia californica* (California Orcutt grass), and *Navarretia fossalis* (spreading navarretia), vegetation surveys, and report preparation for three sites in the year 2003 and two sites in 2004.

Restoration Planning and Implementation, Former Guadalupe Oil Field, San Luis Obispo County, CA. Unocal Corporation and Jordan Environmental Services. Preparation and implementation of site-specific restoration plans, including the development of revegetation specifications, monitoring methods, performance criteria, and performance evaluation. Development of general mitigation and restoration success criteria, including sampling design, data collection, statistical data analysis, and reporting for selected reference

wetlands for future comparison with wetland mitigation and restoration sites. Participation in activities related to uplands and wetlands habitat restoration with the Restoration Working Group, comprising regulatory agency representatives and Unocal consultants, for the long-term Guadalupe Restoration Project.

Vegetation and Rare Plant Surveys and Wetlands Delineations, Ventura and Los Angeles Counties, CA. Impact Sciences, Inc. Vegetation surveys and mapping of plant communities, rare plant surveys, field wetland surveys, delineation of jurisdictional wetlands, and report preparation for more than 35 sites in various locations in Ventura and Los Angeles counties.

Ventura River Estuary Enhancement Project, Ventura County, CA. California Department of Parks and Recreation. Design and implementation of a five-year vegetation monitoring program for restoration efforts at Emma Wood State Beach. The project involved monitoring four vegetation types: willow-cottonwood forest, saltbush scrub, dune scrub, and foredune vegetation. Activities included botanical surveys, survival and growth surveys, photodocumentation, data collection and comparative analysis of natural and revegetated areas, evaluation of exotics eradication, and recommendations for ongoing restoration.

Peacekeeper Rail Garrison Mitigation Program, San Antonio Terrace, Vandenberg AFB. U.S. Air Force and The Earth Technology Corporation. Technical advisor and senior data analyst for wetland creation, upland dune scrub habitat restoration, coast live oak revegetation, and vegetation monitoring for a five-year biological mitigation and monitoring program. Activities included initial planning, budgeting, methodology development, sampling design, vegetation sampling, data analysis, preparation and review of annual monitoring reports.

Guadalupe Oil Field Restoration. California Department of Fish and Game and Hagler Bailly Consulting, Inc. Initial restoration planning, including background research, historical air photo assessment, and analysis of restoration alternatives at the Guadalupe Oil Field. Results from these tasks were used in the evaluation of potential restoration options, and to anticipate biological, hydrological, ecological, logistical, economic, and other issues associated with each restoration option.

Restoration of Coastal Dunes and Associated Wetlands in California. California Department of Fish and Game and Hagler Bailly Consulting, Inc. Principal scientist responsible for compiling and annotating a comprehensive bibliography of restoration and revegetation projects in coastal California, with an emphasis on coastal dune habitats and coastal wetlands.

Recovery Plan for Two Federally Endangered Plant Species. U.S. Fish and Wildlife Service. Technical advisor responsible for developing strategy and task recommendations for the recovery plan for marsh sandwort (*Arenaria paludicola*) and Gambel's watercress (*Rorippa gambelii*). Key aspects of the plan included an outline of steps for habitat protection, species and habitat monitoring, biological and ecological research, and the establishment of new populations.

Implementation of Recovery Activities for Two Federally Endangered Plant Species. California Department of Fish and Game and University of California. Research on species biology and ecology, plant propagation, experimental establishment of new populations, and monitoring of existing and new populations of marsh sandwort (*Arenaria paludicola*) and Gambel's watercress (*Rorippa gambelii*). Reporting of species and habitat status and progress of recovery activities.

Rare Plant Census. All American Pipeline, L.P. Rare plant monitoring census for Gaviota tarplant (*Hemizonia increscens* ssp. *villosa*) in permanent plots established at Gaviota, CA.

UCSB Campus Lagoon Wetland Restoration. The Herbarium, Museum of Systematics and Ecology, University of California, Santa Barbara. Design and implementation of a five-year vegetation monitoring program for wetland plant communities restored at the UCSB Campus Lagoon, Santa Barbara County, CA, as required by the Streambed Alteration Agreement of the California Department of Fish and Game. The project included plant species identification, vegetation sampling, data analysis, photodocumentation, and report preparation.

Vernal Pool Restoration Monitoring, Isla Vista, CA. Isla Vista Recreation and Park District. Vegetation monitoring, data analysis, and publication preparation for a 10-year assessment of restored and created vernal pools at the Del Sol Open Space and Vernal Pool Reserve.

Plant Surveys and Wetland Delineations for Five Land Parcels, Isla Vista, CA. County of Santa Barbara Planning and Development. Field surveys and report preparation for botanical and wetland resources, including jurisdictional wetland delineations and mapping, in coastal mesa vernal pool habitat along Del Playa Drive, Isla Vista.

Santa Barbara County Oak Restoration Program. University of California, Santa Barbara. Vegetation monitoring in savanna and woodland habitats of blue oak, valley oak, and coast live oak, for the long-term assessment of cattle grazing impacts on oak seedling recruitment at Sedgwick Ranch, Santa Barbara County, CA.

Restoration Plan, Naval Base Ventura County, Port Hueneme Site, CA. Naval Base Ventura County and The Environmental Company. Field visits and preparation of a habitat protection and restoration plan for four special interest natural areas.

Biological Surveys and Wetlands Delineation for the National Reconnaissance Office (NRO) Campus, Vandenberg AFB. U.S. Air Force and Titan Corporation. Field biological surveys, jurisdictional wetlands delineation, and preparation of an addendum to the environmental assessment for The General Plan for the Cantonment Area of the base.

Controlled Burn Monitoring, Vandenberg AFB. U.S. Air Force and Museum of Systematics and Ecology, University of California, Santa Barbara. Pre-burn monitoring of vegetation and plant species in coastal sage scrub and chaparral at two prescribed burn sites, South Vandenberg AFB.

Restoration Plans for Installation of VTS Fiber-Optic Cable System, Honda Ridge Road Repair, and El Rancho Road Bridge Project, Vandenberg AFB. U.S. Air Force and Tetra Tech, Inc. Preparation of restoration plans including sections on ecological background, revegetation measures, monitoring and maintenance methods, performance criteria for assessing success, and restoration schedule for sites at North and South Vandenberg AFB.

Implementation of Restoration Plans, South Base and VTS Fiber-Optic Cable Systems, Vandenberg AFB. U.S. Air Force and Foster Wheeler Environmental Corp. Native plant species restoration, long-term monitoring, and restoration evaluation at four sites at Vandenberg AFB, CA.

Natural Resources Surveys and Environmental Assessments, Vandenberg AFB. U.S. Air Force and Tetra Tech, Inc. Principal environmental scientist responsible for conducting field surveys and preparing report sections for vegetation, wildlife, and wetland resources for 17 environmental assessments of facility and infrastructure development projects, and for an EIS on San Antonio Creek.

Integrated Natural Resources Management Plan, Vandenberg AFB. U.S. Air Force and Tetra Tech, Inc. Principal scientist responsible for preparing sections on existing conditions, issues of concern, and management objectives for vegetation, wildlife, and wetland resources for a basewide five-year plan.

EIS and Environmental Assessments. U.S. Air Force. Program manager and contract administrator, under a contract with the Strategic Air Command (SAC), for eight environmental assessments and one EIS for proposed USAF real estate, facility construction, and training actions. Impact analyses were conducted for the full range of environmental and socioeconomic issues; major areas of focus involved endangered species' habitats, cultural and historical resources, and hazardous waste sites.

Goleta Revitalization EIR/EIS. County of Santa Barbara Planning and Development. Wetland delineations at sixteen creek crossings and plant surveys for street extensions, bikepaths and a multipurpose trail.

Oil and Gas Exploration and Facilities Development EIRs/EISs. Santa Barbara County and California State Lands Commission. Environmental analyst for EIRs/EISs of oil and gas development projects located offshore California.

Supplemental Environmental Impact Report for the 1990 Long Range Development Plan. University of California, Santa Barbara. Program manager for a supplemental EIR focussed on growth-related impacts to local school districts, and potential secondary environmental impacts to sensitive wetland habitats that could be caused by needed school facility expansion.

Biological Monitoring for Installation of CITS, VTS, South Base, and Tranquillon Mountain Fiber-Optic Cable Systems, Vandenberg AFB. U.S. Air Force, Tetra Tech, Inc., and Foster Wheeler Environmental Corporation. Onsite biological monitoring for cable installation activities to ensure avoidance of adverse impacts to sensitive biological and wetland resources.

Biological Surveys and Monitoring for Installation of Building 3000 Fiber-Optic Cable System, Vandenberg AFB. U.S. Air Force and System Technology Associates. Field surveys and onsite biological monitoring for cable installation activities to ensure avoidance of adverse impacts to sensitive biological and wetland resources.

Biological Monitoring for Honda Ridge Road Repair and Point Sal Road Repair, Vandenberg AFB. U.S. Air Force, Tetra Tech, Inc., and Ace Engineering, Inc. Onsite biological monitoring for road repair activities to ensure avoidance of adverse impacts to sensitive biological and wetland resources.

Biological Monitoring, Environmental Quality Assurance Program (EQAP), Santa Barbara County, CA. Storrer Environmental Services. Biological monitoring for the Level (3) fiber-optic cable installation project, the stabilization of oil wells for the Venoco State Lease 421 piers, and the AERA/Molino flowlines abandonment project.

MEMBERSHIPS

California Botanical Society; California Exotic Pest Plant Council; Society of Wetland Scientists; Society of Ecological Restoration; The International Mountain Society.

SELECTED PUBLICATIONS

Dr. Gale has been an author and collaborator on numerous academic publications, government research grant reports, and presentations at national and international professional conferences. In addition, he has contributed to environmental and planning documents. A summarized count of his work includes: Refereed Journal Articles - 28; Book Chapters - 5; Papers in Conference Proceedings - 3; Government Research Reports - 13; Contributions to Planning Studies - 44; Contributions to Environmental Documents - 55.

Journal Articles

"Coast Live Oak Revegetation on the Central Coast of California," (with A. Parikh), *Madroño*, 45(4), 1998, 301-309.

"Vegetation Monitoring of Created Dune Swale Wetlands, Vandenberg Air Force Base, California," (with A. Parikh), *Restoration Ecology*, 6(1), 1998, 83-93.

"The Analysis of Class Dispersion Patterns Using Matrix Comparisons," (with L.E. Harvey and F.W. Davis), *Ecology*, 69(2), 1988, 537-542.

"Tests of Randomness: Unidimensional and Multidimensional," (with L.J. Hubert, R.G. Golledge, and C.M. Costanzo), *Environment and Planning A*, 17, 1985, 373-385.

"Measuring Association Between Spatially Defined Variables: An Alternative Procedure," (with L.J. Hubert, R.G. Golledge, and C.M. Costanzo), *Geographical Analysis*, 17, 1985, 36-46.

"Unclassed Matrix Shading and Optimal Ordering in Hierarchical Cluster Analysis," (with W.C. Halperin and C.M. Costanzo), *Journal of Classification*, 1, 1984, 775-92.

Conference Proceedings

"Review of Ten Years of Vernal Pool Restoration and Creation in Santa Barbara, California," (with W.R. Ferren Jr., D.M. Hubbard, S. Wiseman, and A. Parikh), in C.W. Witham, E.T. Bauder, D. Belk, W.R. Ferren Jr., and R. Ornduff (Eds.) *Ecology, Conservation, and Management of Vernal Pool Ecosystems*, Proceedings from a 1996 Conference, California Native Plant Society, Sacramento, CA, 1998, 206-216.

"Vegetation Monitoring of Created Wetland Sites on the San Antonio Terrace, Vandenberg Air Force Base, California," (with A. Parikh), in M.C. Landin (Ed.) *Proceedings of the National Interagency Workshop on Wetlands: Technology Advances for Wetlands Science*, Technical Report, Wetlands Research and Technology Center, U.S. Army Engineers Waterways Experiment Station, Vicksburg, MS, 1995, 153-55.

"Wetland Creation and Vegetation Monitoring in a Stabilized Sand Dune Ecosystem, San Antonio Terrace, Vandenberg Air Force Base, California," (with A. Parikh and T. Waddell), in M.C. Landin (Ed.) Proceedings of the 13th Annual Meeting of the Society of Wetland Scientists (SWS), New Orleans, LA, 1993, 368-76.

"First-Year Vegetation Monitoring of Created Wetlands on the San Antonio Terrace, Vandenberg Air Force Base, California," (with A. Parikh and T. Waddell), in A.E. Leviton and M.L. Aldrich (Eds.) Proceedings of the Pacific Division, American Association for the Advancement of Science, University of California, Santa Barbara, June 1992, p. 46.

EXPERIENCE

Galen Hagen has 4 years' experience as a researcher and instructor of physics, statistics, and research methods. Mr. Hagen is a published researcher and is familiar with experimental design, data analysis, and scientific report writing.

Hazard Tree Removal Project, Southern California Edison, San Bernardino and San Jacinto Mountains, Riverside and San Bernardino County, California. Conducted wildlife surveys, botanical surveys, habitat assessments and surveys for sensitive and US Forest Service threatened, endangered, and sensitive species throughout the San Bernardino and San Jacinto Mountains along Southern California Edison power line routes. The surveys are supporting implementation of a bark beetle tree removal project along existing power lines within San Bernardino County. The project area encompasses 106 square miles, with an estimated 62,000 acres of tree removal, 22,000+ power poles, and 538 linear miles of utility lines.

Barstow Industrial Park, San Bernardino County, California. Conducted biological surveys, including vegetation mapping and focused plant surveys.

Focused Wildlife Surveys, Yaqui Pass and Viking Farms, Borrego Springs, California. Conducted general nocturnal and diurnal surveys with a focus on special-status wildlife species on two proposed development properties in Borrego Springs.

Newhall Ranch Project, Newhall Land and Farming Company, Counties of Los Angeles and Ventura, California. Responsible for several tasks under this contract, including the following:

- **Newhall Ranch Special-Status Plant Surveys.** Conducted and coordinated focused surveys as a member of a team of botanists for the state-listed endangered San Fernando Valley spineflower plant species and other sensitive plants, recording population counts and using GPS to delineate the boundaries of the populations. Also performed biological monitoring of known spineflower populations, including population counts and point-intercept transects.
- **Valencia Commerce Center (TPM 26363).** Construction monitoring to assure client compliance with CDFG permit requirements protecting riparian habitat and listed species.

Assisted with the preparation and writing of numerous biological technical reports, biological sections of environmental impact reports/

EDUCATION

University of Otago,
New Zealand
Fulbright Fellow
2004–2005

University of California,
San Diego
BS Cognitive Psychology
—Minor in Economics
2003

AWARDS

Fulbright Fellowship
2004

UCSD Chancellor's
Research Scholarship
2002

Provost's Honors
1999–2003

PUBLICATIONS

Hagen, G., J.
Gatherwright, B.A.
Lopez, and J. Polich.
2006. "P3a from Visual
Stimuli: Task Difficulty
Effects." *International
Journal of Psychophysiology*
59(1):8–14.

FURTHER STUDIES

Association of
Environmental
Professionals "CEQA"
Seminar
November 2003

Galen Hagen – continued

environmental impact statements (EIR/EIS), biota reports, and conservation easements, with detailed information on special-status plant and wildlife species. Some examples include:

- **Spineflower Conservation Plan.** Assisted in the preparation and writing of the San Fernando Valley Spineflower Conservation Plan for the management of spineflower preserves and assisted with the preparation of an associated 2081 permit for take.
- **Landmark Village EIS/EIR.** Assisted in the preparation and writing of the Landmark Village EIS/EIR, providing detailed information on special-status plant and wildlife species.
- **Mission Village Biota.** Assisted in the preparation and writing of the Mission Village Biota report, providing detailed information on special-status plant and wildlife species.
- **Castaic Creek Conservation Easement.** Assisted with the coordination and assembly of the Castaic Creek conservation easement.

EXPERIENCE

Jon Jones is a restoration specialist with ample experience using topographic maps. He has led a field crew researching the recovery of montane vegetation communities following disturbance. During this project, he was responsible for collecting a large volume of plant data (including species inventory and biometrics), utilizing a wide variety of sampling protocols, while operating in strenuous conditions. Mr. Jones has taught undergraduate field and computer labs in forest ecology. During these, he supervised the collection of field data on the vegetation community, analysis of this data, and reporting on ecological relationships. While residing in the Santa Ynez Valley in California, Mr. Jones served as a volunteer with Los Padres National Forest. Here, he primarily assisted with preparation of records and documents relating to the monitoring of endemic species of special concern and management of their habitats, particularly within riparian corridors of coastal California near Santa Barbara. Additionally, he has authored multiple biological publications and conference presentations. Mr. Jones is familiar with issues relating to non-native plants in the south-central California region. He has also had some acquaintance with steelhead restoration in coastal California.

Relevant Projects

Volunteer, USDA National Forest Service. Mr. Jones worked intermittently as a Forest Service volunteer for the Fisheries program at Los Padres National Forest, California part-time during 1998–99; for the Threatened, Endangered, Sensitive and Proposed Species program at the Southwest Regional Office, New Mexico part-time during 1999–2001; and for the Fisheries program at Alabama National Forests, Alabama part-time during 2001–2003. He assisted the Forest Fish Biologist or TESP Coordinator, often with large-scale (and sometimes controversial) issues relating to monitoring impacts on endemic species of special concern and riparian habitat management. Mr. Jones assisted in preparing Forest Service documents, such as forest plans and biological assessments, through organizing, analyzing, and graphic presentation of data, through collecting and organizing supporting literature and materials, and through document review, editing, and basic administrative functions. He occasionally assisted in fisheries fieldwork, including preparation of equipment used in stream habitat surveys or fish species inventories. He directly participated in an invasive bullfrog eradication project and helped install an interpretive display on fisheries. Mr. Jones obtained the permit necessary to drive National Forest Service 4WD vehicles.

EDUCATION

Texas Christian
University
MS Environmental
Science
1995

Texas Christian
University
BS Criminal Justice
1989

Research Assistant, Department of Natural Resources, University of New Hampshire. Mr. Jones conducted a labor-intensive field research project investigating patterns and processes of post-disturbance forest ecosystem recovery on a chronosequence of landslides in the White Mountains, New Hampshire. Supervised two full-time and three part-time field technicians, and delegated responsibilities within the crew. Designed, planned, and operated independently with minimal consultation with his supervisor. Adapted ecological research protocols to perform a wide variety of forest and vegetation sampling procedures in examination of factors influencing rates and trajectories of forest succession following cataclysmic disturbance. Established transects and plots. Collected extensive data on plant species inventory, plant species distribution, plant biometrics and age, foliage samples to be dried and prepared for chemical analysis, and basic soil descriptive data. Prepared basic mapping of many study sites. Organized field data for later analysis. Organized and maintained equipment and supplies for project. Operated in remote mountainous areas, often in hazardous terrain and adverse weather. Performed extensive scientific literature review to integrate methods and objectives with related studies. Coordinated project activities and shared facilities use with White Mountain National Forest personnel.

Teaching Assistant, Department of Natural Resources, University of New Hampshire. Mr. Jones taught two labs per week for undergraduate Forest Ecology course. Total of 55 students. Field labs consisted of teaching and supervising students in use of standard forestry research protocols and equipment, including establishing permanent forest study plots, identifying plant species, collecting a wide variety of biometric data, including tree height and DBH, performing increment boring of trees for age determination, and collecting basic site climatic data. Computer labs consisted of teaching and supervising students in analysis and presentation of biological data; calculating many indicators of ecological community composition, such as dominance, density, evenness, heterogeneity, diversity, basal area, and parabolic stem volume; analyzing complex relationships among many ecological variables through correlation, regression, and statistics; and preparing reports and graphic presentations to address questions of ecological community composition over time. Organized and maintained equipment, supplies, and records for these labs. Led one class discussion per week. Graded student lab reports and projects. Graded student exams (including essays) for the lecture component of this course. Basic administrative support of course. Safely operated University vehicles.

Science Assistant II, Department of Physiology, TCOM University of North Texas Health Science Center. Mr. Jones worked as a medical research laboratory technician during summers throughout the 1980s. Performed and assisted in animal surgeries and experiments. Collected blood and tissue samples. Analyzed blood samples. Prepared chemical compounds. Operated, calibrated, and maintained highly complex medical and scientific equipment in a cardiovascular physiology lab. Constructed specialized scientific devices. Measured and recorded data. Produced graphic presentations of data. Coordinated activities with other technicians and doctors. Provided veterinary treatment for animals.

Thesis Research

Awarded an Adkins Fellowship Grant in 1993–94 through a competitive application process at the Biology Department, Texas Christian University. This grant provided financial support to procure supplies and contract services for MS thesis research investigating interactions of micronutrients and ultraviolet radiation on the reproduction, health, and behavior of old-world chameleons. These

Jon R. Jones – continued

experiments pioneered the new research model of photonutritional ecology, and produced multiple peer-reviewed publications and conference presentations.

Publications

J.R. Jones et al. "Vitamin D Nutritional Status Influences Voluntary Behavioral Photoregulation in a Lizard." Chapter in *Biologic Effects of Light*, M.F. Holick, E.G. Jung, eds., Walter de Gruyter & Co., Berlin, New York. 1996.

J.R. Jones et al. "Hematology and Serum Chemistries for Captive, Female Panther Chameleons, *Chamaeleo pardalis*, with Hepatocellular Lipidosis." *Bulletin of the Association of Reptilian and Amphibian Veterinarians*, Vol 6, Number 2. 1996.

G.W. Ferguson, J.R. Jones, et al. "Indoor Husbandry of the Panther Chameleon, *Chamaeleo pardalis*: Effects of Dietary Vitamins A and D and Ultraviolet Irradiation on Pathology and Life-History Traits." *Zoo Biology*. 15:279–299. 1996.

Presentations

"Vitamin D Ingestion Influences Behavioral Photoregulation in the Panther Chameleon *Chamaeleo pardalis*." J.R. Jones, G.W. Ferguson et al. *39th Annual Meeting of the Society for the Study of Amphibians and Reptiles*, University of Kansas. July 1996.

"Vitamin D Nutritional Status Influences Voluntary Behavioral Photoregulation." J.R. Jones, G.W. Ferguson et al. *Biologic Effects of Light International Symposium*, Atlanta, Georgia. October 1995.

"Reproductive and Pathological Effects of Dietary Vitamin D3 and Ultraviolet Radiation Manipulation in Old World Chameleons." J.R. Jones. *19th Annual Meeting of the International Herpetological Symposium*, Denver, Colorado. June 1995.

"Differential Behavioral Responses to Ultraviolet Light Based on Nutritional State Regarding Vitamin D." J.R. Jones et al. *Texas Academy of Science, Annual Meeting*, Waco, Texas. March 1995.

Rebekah Krebs – Environmental Specialist

EXPERIENCE

Rebekah Krebs' interest in environmental education, sustainable land activities and methods, environmental auditing, sustainable design, and wildlife rehabilitation make her a valuable asset to Dudek. Ms. Krebs' general duties as an Environmental Specialist with Dudek include specializing in Lee, Collier, Charlotte, and Hendry County protected species surveys; bald eagle monitoring; red cockaded woodpecker surveys and cavity tree searches; FWCC deer and hog spotlight and track surveys; gopher tortoise surveys and relocation; wetland flagging and delineation; environmental resource permits and other permitting documents; wetland monitoring; and reviewing exotic vegetation control.

RELEVANT EXPERIENCE

Environmental Scientist I, Boylan Environmental, Inc., Ft. Myers, Florida, 2004. Completed permitting-associated activities and reports for the following agencies: DEP, ASOE, FWCC, USFWS, and SFWMD. Created maps used for environmental permitting with the use of AutoCAD and associated programs. Performed wetland delineation and monitoring as well as wildlife monitoring and surveying duties.

Ecologist I, Passarella and Associates, Inc., Ft. Myers, Florida, 2002–2004. Completed permitting-associated activities and reports for the following agencies: DEP, ACOE, FWCC, USFWS, and the SFWMD. Carried out wetland delineation, monitoring, and sustainability reporting duties, as well as wildlife monitoring, relocation, and surveys.

Internship, CREW Land and Water Trust, Ft. Myers, Florida, 2001–2002. Designed and implemented environmental curriculum for guided hikes and school field trip, assisted in land stewardship of public lands, participated in community outreach programs, and assisted in the operation of a non-profit environmental organization.

EDUCATION

Florida Gulf Coast
University
BA Environmental
Studies
2002

Valencia Community
College
AA Associate in Arts
1999

Florida Gulf Coast
University
Plant ID Coursework

38 Hours of Army Corps
of Engineers Wetland
Delineation and
Management Training

DEP Wetland
Delineation and
Management Training

CERTIFICATIONS & AFFILIATIONS

Florida Association of
Environmental
Professionals

Society of Wetland
Scientists

Thomas S. Liddicoat – Biologist

EXPERIENCE

Thomas Liddicoat has extensive experience in environmental document preparation and permitting and has been evaluating impacts to special-status plant communities and wildlife species throughout Southern California for over 2 years. Mr. Liddicoat conducts biological resource assessments, biotic inventories, vegetation mapping, wetland delineations, mitigation plan implementation and monitoring, and brown-headed cowbird (*Molothrus ater*) trapping, and has conducted general and focused surveys for special-status species throughout San Diego, Riverside, Orange, Los Angeles, Kern, and San Bernardino Counties.

Mr. Liddicoat has performed biological monitoring of construction and infrastructure projects occurring in environmentally sensitive and/or protected areas (e.g., vegetation removal, grading, BMPs, and SWPPP requirements), produced assessments of wetlands and uplands to support management plans, identified regulatory issues for development and infrastructure projects to guide project designs, completed project permit applications with federal, state, and local environmental regulations, and managed permit compliance. Mr. Liddicoat also has experience working safely around the large earth-moving equipment found at various construction projects.

Mr. Liddicoat currently holds a federal recovery permit for several special-status vernal pool branchiopod species and is also currently working towards achieving federal permits for the federally-listed threatened coastal California gnatcatcher (*Polioptila californica californica*) and federally-listed endangered southwestern willow flycatcher (*Empidonax traillii*).

Electric Utility/Fiber Optics/Energy

Hazard Tree Removal Project, Southern California Edison, San Bernardino and San Jacinto Mountains, Riverside and San Bernardino County, California. Responsible for Edison's Hazard Tree Removal Project occurring in the San Bernardino National Forest and surroundings. Responsible for conducting biological surveys along all Edison circuits within the San Bernardino and San Jacinto Mountains prior to removal of bark-beetle-infested trees, drought-stressed trees, and other damaged trees from the vicinity of its poles, lines, and other facilities. The project area encompasses 106 square miles, an estimated 62,000 acres of tree removal, 22,000+ power poles, and 538 linear miles of utility lines. Biologist's responsibilities include coordinating with Edison personnel and US Forest Service (USFS) biologists regarding

EDUCATION

San Diego State
University
BS Biological Sciences,
Ecology Emphasis
2005

PROFESSIONAL AFFILIATIONS

Association of
Environmental
Professionals (AEP)

REGISTRATIONS & CERTIFICATIONS

Fairy Shrimp 10a Survey
Permit, USFWS Federal
Permit TE 139634-0
(Expires 05/16/2011)

Thomas S. Liddicoat – continued

site-specific sensitivities, conducting biological surveys of all lines within San Bernardino National Forest, monitoring tree-cutting crews felling infected trees, and writing biological documents.

Southern California Edison Pole and Utilities Replacement Project, Riverside and San Bernardino Counties, California. Biologist's responsibilities included conducting habitat assessments, monitoring tree removal activities, and conducting wildlife surveys, botanical surveys, and surveys for sensitive and US Fish and Wildlife Service (USFWS) threatened, endangered, and sensitive species throughout the project area. Activities were performed in multiple locations within Riverside and San Bernardino Counties, specifically the Santa Ana Mountains and western valleys of Riverside County to San Jacinto Mountain, Palm Springs, Coachella Valley, southern slopes of San Bernardino County, San Bernardino Mountains, and the Apple Valley region of San Bernardino County.

Master-Planned Communities

Tejon Mountain Village, Kern County, California. The 280,000-acre ranch is held in private ownership by the Tejon Ranch Company (TRC). Duties included biotic resource assessments and inventories, habitat assessments and focused surveys for several special-status species, vegetation mapping, California condor (*Gymnogyps californianus*) tracking and monitoring, wildlife corridor studies, and preparation of specific survey reports and a biological technical report.

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

Ferber Ranch, The Planning Center, County of Orange, California. Proposed development of approximately 1,100 acres of unincorporated terrain required vegetation mapping, habitat assessments, jurisdictional delineation of waters of the US (including wetlands), USFWS focused surveys for the federally-listed endangered Arroyo toad (*Bufo californicus*) and federally-listed endangered burrowing owl (*Athene cunicularia*), and the collection of mammalian data for a wildlife corridor study.

Parks and Recreation Facilities

Carlsbad Municipal Golf Course Project, City of Carlsbad Recreation Department, City of Carlsbad, California. Biological construction monitor for the municipal golf course project in Carlsbad, California, completed in 2007. The approximately 400-acre project area contains sensitive coastal sage scrub, southern maritime chaparral, and wetland habitat for the federally-listed threatened coastal California gnatcatcher (*Polioptila californica*), the federally endangered least Bell's vireo (*Vireo bellii pusillus*), and southwestern willow flycatcher (*Empidonax traillii extimus*). Performed construction monitoring to support permit compliance (e.g., vegetation removal, grading requirements, construction surveys, BMPs, and SWPP regulations), prepared project monitoring reports, and assisted in monitoring the installation and maintenance of approximately 40 acres of coastal sage scrub and 1.83 acres of wetland mitigation.

Development (including private and commercial)

Denton Testamentary Trust Project, City of San Diego, California. Biologist's responsibilities included habitat/resources assessment, vegetation mapping, jurisdictional delineation of waters of the US (including wetlands), general wildlife and botanical surveys, potential impacts analysis, and preparation of biological resources report.

Escondido Police Firing Range Project, City of Escondido, San Diego, California. Performed vegetation mapping, habitat assessment, jurisdictional delineation of waters of the US (including wetlands), general flora and fauna surveys, and impacts analysis as well as preparing the biological technical letter report.

White Horse Estates Project, Barratt American, City of San Diego, California. Monitoring construction activities adjacent to sensitive native habitats within the Multiple Habitat Planning Area of the City of San Diego's Multiple Species Conservation Program. Responsibilities included the preparation of daily observation reports, making recommendations for remedial measures as necessary, and coordination with City staff.

Transportation

Mid-County Parkway, Riverside County Integrated Project, Riverside County, California. Conducted a variety of field surveys within the Mid-County Parkway study area, which ranges from approximately 1.7 km (1.1 miles) to 6.5 km (4 miles) in width and is approximately 32 miles in length. Field surveys included vegetation mapping, habitat assessments, rare plant surveys, general and focused sensitive wildlife surveys, and focused surveys for the state- and federally-listed fairy shrimp. Responsibilities also included preparation of annual reports submitted to USFWS.

Brown-Headed Cowbird Trapping Program, Sprinter Project, North County Transit District, City of Oceanside, California. Managed the daily operation and maintenance of a cowbird trapping program along Loma Alta Creek in the City of Oceanside and at the Carlsbad Municipal Golf Course. 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. Responsibilities also included preparation of annual reports for submission to USFWS.

Habitat Conservation Plans

Habitat and Fire Management Plan, Riverside County Habitat Conservation Agency, City of Riverside, California. Project activities were conducted within the Steele Peak and Lake Mathews Riverside Habitat Conservation Agency Reserves. Duties included habitat assessments, vegetation sampling via modified relevé methodology within all grid locations, and trap grid installation (539 traps).

Trump National Golf Course Annual Gnatcatcher Surveys, City of Rancho Palos Verdes, California. Conducted California gnatcatcher surveys over approximately 100 acres of restored coastal sage scrub and coastal bluff scrub habitat within and surrounding the golf course on the Palos Verdes Peninsula. The goal of the surveys was to determine the breeding status of paired birds, territory number, size, and location, breeding success, and cowbird predation in accordance with the Ocean Trails Habitat Conservation Plan.

Water/Wastewater/Reclaimed Water/Flood Protection

As-Needed Biological Resources, City of San Diego Metropolitan Wastewater Department (MWWD), City of San Diego, California. Completed biological surveys, monitoring and reporting for multiple urban canyons within the City of San Diego. Provided construction monitoring and emergency sewer maintenance monitoring services, conducted biological resources and habitat impact assessments, and developed construction design recommendations and minimization and avoidance measures for work in sensitive habitat areas for a variety of project impact areas within urban canyons and open space in San Diego.

Reservoir Improvement Program Mitigated Negative Declaration (MND), Rainbow Municipal Water District, San Diego County, California. The project involved the construction of geomembrane covers on five reservoirs within the District's boundaries and associated inlet/outlet piping. Primary biologist's duties included performing habitat assessments, vegetation mapping, and impacts analysis as well as preparing the biological resources report and biological section of the CEQA-submitted MND.

San Marcos Creek Roadway Improvements and Flood Protection Project, City of San Marcos, California. Performed vegetation mapping, habitat assessment, and focused botanical survey for sensitive plant species, specifically the southern tarplant (*Hemizonia parryi* ssp. *Australis*).

Wetlands Permitting Project, El Camino Memorial Park, City of San Diego, California. Prepared and processed applications for Army Corps of Engineers Nationwide Permit 13, Regional Water Quality Control Board, California Department of Fish and Game RGP 63 for emergency bank stabilization certification application pursuant to Section 401 of the federal Clean Water Act and a Streambed Alteration Agreement pursuant to Section 1602 of the California Fish and Game Code. Also completed vegetation mapping, general flora and fauna survey, impacts analysis, and jurisdictional delineation of waters of the US, including wetlands.

EXPERIENCE

F. Marcus Obregon is a talented biologist with a comprehensive background in natural resources, ecological management practices, geospatial analysis (global positioning systems and geographic information systems (GPS/GIS)), field sampling, and data organization. As a seasoned biological field technician, he has experience in many different areas around the country, which provides him with knowledge of a variety of environments, plant communities, and monitoring techniques. Mr. Obregon has participated in, organized, and directed a wide variety of field activities, including the development and implementation of impacted ecosystem restoration projects; forest, range, and riparian management; research greenhouse operations; wetland analysis; and fire effects monitoring.

Master-Planned Communities (includes mixed-use projects)

Tejon Ranch, Tejon Mountain Village LLC, Kern County, California. Conducted biological investigations, including vegetation mapping, wetlands delineation, ringtail and golden eagle surveys, and focused surveys for sensitive plant species over a 28,000-acre site. Contributed to the biological technical resources report in support of California Environmental Quality Act (CEQA) documentation.

Newhall Ranch, Newhall Land and Farming Company, Los Angeles County, California. Conducted biological investigations, including focused surveys for sensitive plant species and a baseline pilot study to evaluate mitigation requirements for the San Fernando spineflower. Contributed to the biological technical resources report in support of CEQA documentation.

Residential (subdivisions)

Vineyard-Ventura (Casden), City of Oxnard, Ventura County, California. Conducted biological investigations, including vegetation mapping and focused surveys for sensitive plant species, and prepared a biological technical resources report in support of CEQA documentation for a 344-unit residential development.

Parcel 129, Hollister Ranch, Santa Barbara County, California. Conducted biological investigations and prepared a biological technical resources report in support of CEQA documentation for a proposed staff house and road improvements.

EDUCATION

University of Texas, San Antonio
BS Biology with Minor in Anthropology
2004

PROFESSIONAL AFFILIATIONS

Southern California Botanists

PUBLICATIONS

Produced “The Invasive Plant Handbook” in the *Santa Monica Mountains* NRA, February 2005

Frank Marcus Obregon – continued

Commercial Development

Cabrillo Business Park, City of Goleta, Santa Barbara County, California. Conducted biological investigations and prepared wetland delineation and existing conditions technical report in support of CEQA documentation for a business park expansion.

Utility Development

Las Virgenes Pipeline, City of Calabasas, Los Angeles County, California. Conducted biological investigations in support of CEQA documentation for a utility pipeline through Malibu Creek State Park.

South Orange County Wastewater Authority, City of Dana Point, Orange County, California. Conducted biological investigations and prepared an impacts analysis and existing conditions report in support of CEQA documentation for the upgrade of an outfall structure upgrade.

Construction Monitoring

Tejon Ranch, Tejon Industrial Complex, Kern County, California. Conducted surveys for sensitive plants and animals and monitored construction activities for various projects.

Commerce Center, Newhall Land and Farming Company, Kern County, California. Monitored construction activities to ensure compliance with California Department of Fish and Game (CDFG) guidelines.

Previous Experience

Western Ecological Research Center, Las Vegas Field Station, US Geological Survey, Henderson, Nevada. As a biological science technician, Mr. Obregon was a member of a six-person team that collected data using well-established measurement and sampling methods to evaluate plant, seed, and soil conditions in fire-affected areas within the Colorado Plateau, Great Basin, and Mojave Desert. Assembled and tabulated collected data, e.g., computed and checked records from field data and computed figures to determine biological measurements. Used the inventory of plants and their distribution, habitat characteristics, and response to various experimental treatments to research the role plant invasions have on the function of fire-impacted ecosystems.

Specific duties included establishing permanent sampling sites, collecting soil samples, gathering vegetation inventory and monitoring data using handheld computers, identifying plant species using taxonomic keys, collecting and preparing herbarium specimens, managing geospatial data using ArcGIS, analyzing fire data, and maintaining field, laboratory, and computer equipment. Regularly worked in a research greenhouse to provide assistance in departmental soil seed bank assays. Used geospatial data, in coordination with aerial and topographic maps, to prepare operations and coordinate field-sampling trips that were carried out in remote locations for 2 to 14 days at a time.

Gulf Coast Exotic Plant Management Team, Big Thicket National Preserve, National Park Service, Beaumont, Texas. As a range technician, Mr. Obregon led a four-person summer seasonal team in the fulfillment of partner parks' exotic plant control programs. Performed interrelated tasks in

Frank Marcus Obregon – continued

support of rangeland, forest, and wetland management projects to improve resource quality on federal lands.

Trained team members in forest, range, and wetland restoration techniques. Coordinated efforts that focused on herbicide treatment of noxious weeds, plant identification, vegetation monitoring, and map reading. Calibrated, adjusted, and used standard technicians' research, testing, and treatment devices in difficult working conditions.

Led the collection and analysis of scientific data for a variety of investigative projects. Selected and modified standard techniques and methods to meet project goals. Coordinated and trained technicians on the collection of treatment data using standardized methods and GPS. Directed the collection, organization, and analysis of spatial data using GPS units and the ArcGIS suite of software. Used spatial data collected from inventoried, monitored, and treated vegetation plots to create project maps and develop work plans. Used the National Park EPMT data management tool, APCAM, to input field data for national distribution.

Native Plant Conservation Corps Internship, Ecological Restoration Department, Santa Monica Mountains NRA, National Park Service, Thousand Oaks, California. As crew leader, led a four-person team to meet riparian restoration program outcomes. Managed finances, handled administrative matters, and coordinated training for crewmembers in restoration ecology management practices. Regularly participated in and supervised restoration site preparation in both riparian and upland Mediterranean environments. Exotic plant abatement, operation and maintenance of a native plant nursery, threatened and endangered species management, and site-specific revegetation and restoration projects were conducted to remediate the invasion of exotic plant species and disruption of hydrology and soil communities.

Assisted in the preparation and execution of volunteer restoration and planting days. Educated volunteers on the ecological significance of restored lands, proper planting techniques, and the characteristics of the target native plants. Supervised exotic species removal projects and prepared, monitored, and maintained landscape-scale restoration projects. Surveyed native areas and reviewed publications to determine appropriate plant palettes for restoration areas. Assisted in the preparation of native plant requests for granted departmental projects. Prepared native plants by collecting and processing local seeds to ensure true gene characteristics, estimated seed and seedling mortality to meet orders, and propagated and cared for plant stock.

Learn, Lead, and Serve Internship, Department of Biology, University of Dayton, Ohio. Developed *ATHENA*, a web-based learning tool, to provide University of Dayton students with advanced solutions for biological questions using open source software. Statistically analyzed the consequences of applying this method over a test segment of freshman biology majors. Received funding from a cooperative NSF and University of Dayton grant. Published the results of *ATHENA* in a formal thesis.

ANUJA K. PARIKH
Principal Ecologist, FLx

EDUCATION AND CERTIFICATIONS

Ph.D., Plant Geography, University of California, Santa Barbara, 1989.

M.S., Geography, University of Bombay, India, 1981.

B.S., Zoology and Geology, University of Bombay, India, 1979.

PWS, Certified Professional Wetland Scientist #841, Society of Wetland Scientists, 1995.

SUMMARY OF QUALIFICATIONS

Dr. Parikh has 22 years of field and research experience in the areas of botany, plant ecology, wetlands, biogeography, and earth resources. Her work has included environmental baseline inventories and impact assessments, rare and endangered plant species surveys, revegetation and mitigation plans, restoration and monitoring of native upland and wetland habitats, and coast live oak revegetation studies. She has expertise in field vegetation sampling, plant species identification, wetland delineation, and the collection of physical environmental data. Using aerial photography and field surveys, she has prepared vegetation maps based on classification and quantification of plant communities in a variety of habitats; she also has mapped environmental constraints, incorporating data on sensitive species, natural habitats, and physiographic and man-made features. Dr. Parikh is experienced with experimental design as well as processing and analyzing ecological data using statistical and graphics software.

EXPERIENCE

Rare Plant and Vegetation Surveys and Mapping, Newhall Ranch/Valencia Company Project Sites, Los Angeles and Ventura Counties, CA. Newhall Land and Farming Company, URS Corporation, Impact Sciences, Inc., and Dudek and Associates, Inc. General rare plant surveys and concentrated surveys for *Chorizanthe parryi* var. *fernandina* (San Fernando Valley spineflower), *Dodecahema leptoceras* (slender-horned spineflower), and *Helianthus* sp. (sunflower), plant species identification and comprehensive species lists, vegetation surveys and mapping of plant communities, and report preparation for various sites, including the Santa Clara River and Castaic Creek. Surveys were carried out annually during six field seasons in the years 2000 through 2005. Participation in the development of a spineflower management plan, preserve design, and associated research activities.

Rare Plant and Vegetation Surveys and Mapping, Los Angeles and Riverside Counties, CA. Natural Resource Consultants. General rare plant surveys and concentrated surveys for *Chorizanthe parryi* var. *fernandina* (San Fernando Valley spineflower), *Dodecahema leptoceras* (slender-horned spineflower), *Orcuttia californica* (California Orcutt grass), and *Navarretia fossalis* (spreading navarretia), vegetation surveys, and report preparation for three sites in the year 2003 and two sites in 2004.

Restoration Planning and Implementation, Former Guadalupe Oil Field, San Luis Obispo County, CA. Unocal Corporation and Jordan Environmental Services. Preparation and implementation of site-specific restoration plans, including the development of revegetation specifications, monitoring methods, performance criteria, and performance evaluation. Development of general mitigation and restoration success criteria, including sampling design, data collection, statistical data analysis, and reporting for selected reference wetlands for future comparison with wetland mitigation and restoration sites. Participation in activities

related to uplands and wetlands habitat restoration with the Restoration Working Group, comprising regulatory agency representatives and Unocal consultants, for the long-term Guadalupe Restoration Project.

Vegetation and Rare Plant Surveys and Wetlands Delineations, Ventura and Los Angeles Counties, CA. Impact Sciences, Inc. Vegetation surveys and mapping of plant communities, rare plant surveys, field wetland surveys, delineation of jurisdictional wetlands, and report preparation for more than 35 sites in various locations in Ventura and Los Angeles counties.

Peacekeeper Rail Garrison Mitigation Program, San Antonio Terrace, Vandenberg AFB, CA. U.S. Air Force and The Earth Technology Corporation. Project biologist responsible for directing, planning, and implementing biological field activities related to wetlands creation, upland habitat restoration, coast live oak revegetation, and vegetation monitoring for all mitigation and restoration sites.

Recovery Plan for Two Federally Endangered Plant Species. U.S. Fish and Wildlife Service. Ecologist and principal author responsible for background research and all botanical elements of the recovery plan for marsh sandwort (*Arenaria paludicola*) and Gambel's watercress (*Rorippa gambelii*).

Implementation of Recovery Activities for Two Federally Endangered Plant Species. California Department of Fish and Game and University of California. Research on species biology and ecology, plant propagation, experimental establishment of new populations, and monitoring of existing and new populations of marsh sandwort (*Arenaria paludicola*) and Gambel's watercress (*Rorippa gambelii*). Reporting of species and habitat status and progress of recovery activities.

Rare Plant Census. All American Pipeline, L.P. Rare plant monitoring census for Gaviota tarplant (*Hemizonia increscens* ssp. *villosa*) in permanent plots established at Gaviota, CA.

Ventura River Estuary Enhancement Project, Ventura County, CA. California Department of Parks and Recreation. Design and implementation of a five-year vegetation monitoring program for restoration efforts at Emma Wood State Beach. The project involved monitoring four vegetation types: willow-cottonwood forest, saltbush scrub, dune scrub, and foredune vegetation. Activities included botanical surveys, survival and growth surveys, photodocumentation, data collection and comparative analysis of natural and revegetated areas, evaluation of exotics eradication, and recommendations for ongoing restoration.

Santa Barbara County Oak Restoration Program. University of California, Santa Barbara. Plant identification and vegetation monitoring in savanna and woodland habitats of blue oak, valley oak, and coast live oak, for the long-term assessment of cattle grazing impacts on oak seedling recruitment at Sedgwick Ranch, Santa Barbara County, CA.

Vernal Pool Restoration Monitoring, Isla Vista, CA. Isla Vista Recreation and Park District. Vegetation monitoring, data analysis, and publication preparation for a 10-year assessment of restored and created vernal pools at the Del Sol Open Space and Vernal Pool Reserve.

Plant Surveys and Wetland Delineations for Five Land Parcels, Isla Vista, CA. County of Santa Barbara Planning and Development. Field surveys and report preparation for botanical and wetland resources, including jurisdictional wetland delineations and mapping, in coastal mesa vernal pool habitat along Del Playa Drive, Isla Vista.

Rare and Endangered Plant Species Surveys. Metropolitan Water District and ERC Environmental and Energy Services Co. Plant species identification and sensitive plant species surveys at proposed reservoir and mitigation sites (Potrero Creek, Harford Springs, Crown/Rawson Valleys, Motte Rimrock Reserve, Domenigoni Valley, Santa Rosa Plateau Preserve, Lake Skinner, and Vail Lake) for the Metropolitan Water District's Eastside Reservoir Project, Riverside County, CA.

Vegetation Mapping and Plant Species Surveys. Santa Barbara County, CA. Vegetation mapping using aerial photographs of riparian communities along the Santa Ynez River, Santa Barbara County; field vegetation and topographical data collection from transects, species identification, rare and endangered plant species surveys, and report preparation for the County Flood Control District.

Rare and Endangered Plant Species Surveys. California Department of Water Resources. Rare and endangered plant species identification and mapping along a proposed aqueduct route in the Lompoc and Lake Cachuma areas in Santa Barbara County, and near Santa Margarita, San Luis Obispo County; field verification, ground truthing and mapping of vegetation communities along the Santa Ynez River, CA.

Floristic and Vegetation Surveys. U.S. Department of Agriculture, Forest Service. Preparation of floras and vegetation surveys in the Los Padres National Forest at Mt. Pinos, a subalpine community in Ventura and Kern counties, and at Alder Creek Botanical Area, Monterey County, CA. Identification of plant species and collection of vegetation and site data in permanent plots established in blue oak woodland in San Luis Obispo County, CA, as part of a Forest Service project on vegetation and habitat inventory and classification.

Wetland Vegetation Surveys, Mapping, and Monitoring. Dames & Moore. Vegetation mapping using aerial photographs, calculations of riparian habitat acreages, and field botanical surveys for a land development project along the Santa Clara River, Los Angeles County, CA. Biological construction monitoring for an archaeological site investigation in the Los Carneros wetlands, Goleta, CA. Field surveys and mapping of wetlands and vernal pools at Beale AFB, CA.

Rare and Endangered Plant Species Surveys and Vegetation Mapping. Jones and Stokes Associates, Inc. Field surveys for rare and endangered plant species at the proposed Los Vaqueros Reservoir site near Livermore, Contra Costa and Alameda counties, CA, and along ephemeral drainages near Taft in the Central Valley, Kern County, CA, for a project involving clean-up of oil and brea deposits. Habitat mapping and field surveys of riparian vegetation and plant species on transects along the Lower Ventura River, for an aquatic biology survey.

Ecological Survey Reports for Candidate Research Natural Areas. U.S. Department of Agriculture, Forest Service. Field work, literature reviews, and document preparation for the San Emigdio Mesa and Sawmill Mountain Candidate Research Natural Areas, Los Padres National Forest, Ventura County, CA.

Restoration Plan, Naval Base Ventura County, Port Hueneme Site, CA. Naval Base Ventura County and The Environmental Company. Field visits and preparation of a habitat protection and restoration plan for four special interest natural areas.

Biological Surveys and Wetlands Delineation for the National Reconnaissance Office (NRO) Campus, Vandenberg AFB. U.S. Air Force and Titan Corporation. Field biological surveys, jurisdictional wetlands delineation, and preparation of an addendum to the environmental assessment for The General Plan for the Cantonment Area of the base.

Controlled Burn Monitoring, Vandenberg AFB. U.S. Air Force and Museum of Systematics and Ecology, University of California, Santa Barbara. Pre-burn monitoring of vegetation and plant species in coastal sage scrub and chaparral at two prescribed burn sites, South Vandenberg AFB.

Restoration Plans for Installation of VTS Fiber-Optic Cable System, Honda Ridge Road Repair, and El Rancho Road Bridge Project, Vandenberg AFB. U.S. Air Force and Tetra Tech, Inc. Preparation of restoration plans including sections on ecological background, revegetation measures, monitoring and maintenance methods, performance criteria for assessing success, and restoration schedule for sites at North and South Vandenberg AFB.

Implementation of Restoration Plans, South Base and VTS Fiber-Optic Cable Systems, Vandenberg AFB. U.S. Air Force and Foster Wheeler Environmental Corp. Native plant species restoration, long-term monitoring, and restoration evaluation at four sites at Vandenberg AFB, CA.

Integrated Natural Resources Management Plan, Vandenberg AFB. U.S. Air Force and Tetra Tech, Inc. Principal ecologist responsible for preparing sections on existing conditions, issues of concern, and management objectives for vegetation, wildlife, and wetland resources for a basewide five-year plan.

Natural Resources Surveys and Environmental Assessments, Vandenberg AFB. U.S. Air Force and Tetra Tech, Inc. Principal environmental scientist responsible for conducting field surveys and preparing report sections for vegetation, wildlife, and wetland resources for 17 environmental assessments of facility and infrastructure development projects, and for an EIS on San Antonio Creek.

Natural Resources Management Plans. U.S. Air Force and Higginbotham/Briggs & Associates. Participation in data collection, field visits, agency coordination, document preparation and review for Natural Resources Management Plans prepared for Kaena Point Satellite Tracking Station, HI, and Onizuka AFB, CA.

Biological Monitoring, Environmental Quality Assurance Program (EQAP), Santa Barbara County, CA. Storrer Environmental Services. Biological monitoring for the Level (3) fiber-optic cable installation project, the All-American Pipeline relocation at Gaviota Creek, and the stabilization of oil wells for the Venoco State Lease 421 piers.

Goleta Revitalization EIR/EIS. County of Santa Barbara Planning and Development. Wetland delineations at sixteen creek crossings and plant surveys for street extensions, bikepaths and a multipurpose trail.

UCSB Campus Lagoon Wetland Restoration. The Herbarium, Museum of Systematics and Ecology, University of California, Santa Barbara. Design of a five-year vegetation monitoring program for wetland plant communities restored at the UCSB Campus Lagoon, Santa Barbara County, CA, as required by the Streambed Alteration Agreement of the California Department of Fish and Game. The monitoring project included plant species identification, vegetation sampling, data analysis, photodocumentation, and report preparation.

Vegetation Surveys and Analysis. The Herbarium, Department of Biological Sciences, University of California, Santa Barbara. Plant species identification and vegetation sampling in upland and wetland areas for baseline data inventory of botanical resources and rare plants at Fish Slough, Inyo and Mono

counties, CA. Project design and field surveys of topography, riparian vegetation, and plant species in the Ventura River estuary, Ventura County, CA; computer graphics, analysis, and document preparation of environmental relationships and distribution of species and vegetation communities. Computer analysis for a project on the botanical wetland resources of the Carpinteria salt marsh, Santa Barbara County, CA.

Wetlands Management Plan. Department of Geography and Campus Wetlands Committee, University of California, Santa Barbara. Field and literature surveys of hydrology and sedimentation of the campus-owned wetland resources in Devereux Slough and the Storke Campus wetlands.

Watershed Surveys. U.S. Department of Agriculture, Forest Service. Geomorphological, botanical, and hydrological field work in preliminary watershed surveys in Santa Barbara and Ventura counties, CA.

Research Activities. Department of Geography, University of California, Santa Barbara. Sampling and monitoring regeneration of tree and herbaceous species in the riparian zone of a chaparral watershed recovering from wildfire (N. Fork Matilija Creek, Ventura County); topographic channel surveys, computer plotting, ecological and botanical field, laboratory and greenhouse experiments, literature review, and data analysis. Vegetation sampling, inventory and analysis, and topographical surveys in chaparral ecosystems and oak woodlands in Burton Mesa chaparral, Santa Barbara County. Field sampling in coniferous forests of the Mendocino National Forest Reserve, CA.

MEMBERSHIPS

California Native Plant Society; Society of Wetland Scientists; Society of Ecological Restoration; California Botanical Society.

SELECTED PUBLICATIONS AND REPORTS

"Coast Live Oak Revegetation on the Central Coast of California," (with N. Gale), *Madroño*, 45(4), 1998, 301-309.

"Vegetation Monitoring of Created Dune Swale Wetlands, Vandenberg Air Force Base, California," (with N. Gale), *Restoration Ecology*, 6(1), 1998, 83-93.

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"Recovery Plan for Marsh Sandwort (*Arenaria paludicola*) and Gambel's Watercress (*Rorippa gambelii*)," (with N. Gale), U.S. Fish and Wildlife Service, Ventura, CA, August 1994.

"Wetland Creation and Vegetation Monitoring in a Stabilized Sand Dune Ecosystem, San Antonio Terrace, Vandenberg Air Force Base, California," (with N. Gale and T. Waddell), in M.C. Landin (Ed.) Proceedings of the 13th Annual Meeting of the Society of Wetland Scientists (SWS), New Orleans, LA, 1993, 368-76.

"First-Year Vegetation Monitoring of Created Wetlands on the San Antonio Terrace, Vandenberg Air Force Base, California," (with N. Gale and T. Waddell), in A.E. Leviton and M.L. Aldrich (Eds.) Proceedings of the Pacific Division, American Association for the Advancement of Science, University of California, Santa Barbara, June 1992, p. 46.

"Biotic Inventory and Ecosystem Characterization for Fish Slough, Inyo and Mono Counties, California," (with the Fish Slough Research Team), Report to State of California, The Resources Agency, Department of Fish and Game, by the Departments of Biological Sciences, Geography, and Geological Sciences, University of California, Santa Barbara, June 1991.

"Ecology of a Mediterranean-Climate Estuarine Wetland at Carpinteria, California: Plant Distributions and Soil Salinity in the Upper Marsh," (with R. Callaway, S. Jones, W. Ferren), *Canadian Journal of Botany*, 68, 1990, 1139-1146.

"Botanical Resources at Emma Wood State Beach and the Ventura River Estuary, California: Inventory and Management," (with W. Ferren, M. Capelli, D. Magney, K. Clark, and J. Haller), Report to the State of California Department of Parks and Recreation, Environmental Report No. 15, The Herbarium, Department of Biological Sciences, University of California, Santa Barbara, August 1990.

"UCSB Campus Wetlands Management Plan, Part II—Technical Report—Hydrology, Water Quality, and Sedimentation of West and Storke Campus Wetlands," (with F. Davis, D. Theobald, and R. Harrington), Report to the California Coastal Conservancy and Campus Wetlands Committee, University of California, Santa Barbara, CA, 1990.

"Recovery of the Chaparral Riparian Zone After Wildfire," (with F. Davis, E. Keller, and J. Florsheim), Proceedings of the California Riparian Systems Conference, September 22-24, 1988, Davis, CA, Protection, Management, and Restoration for the 1990s, Gen. Tech. Rep. PSW-110, U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station, 1989, 194-203.

"Plant Communities and Flora of the Proposed Botanical Reserve on Mt. Pinos, Ventura and Kern counties, CA," (with D. Capralis), Survey Report, U.S. Department of Agriculture, Forest Service, Los Padres National Forest Headquarters, Goleta, CA, August 1988.

"Terrestrial Vegetation of Rattlesnake Canyon," (with F. Davis), Proceedings of the Chaparral Ecosystems Research Conference, Santa Barbara, CA, Report No. 62, California Water Resources Center, University of California, Davis, CA, 1986, 13-17.

Britney Strittmater – Environmental Analyst

EXPERIENCE

Britney Strittmater has project experience that includes National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) report preparation, vegetation mapping, biological resource surveys, data collection and analysis, and biological monitoring. Ms. Strittmater has also successfully completed a background course in CEQA.

Newhall Specific Plan, Newhall Land and Farming, Inc., Counties of Los Angeles and Ventura, California. Conducted focused surveys for the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*). Performed population counts and point-intercept transects. Assisted with writing related biological technical reports and environmental impact statements/ environmental impact reports (EISs/EIRs).

Bark Beetle Infestation Project, Southern California Edison, San Bernardino and Riverside Counties, California. Monitored tree removal and pole maintenance activities in biologically sensitive areas to ensure avoidance of impacts to potentially occurring US Forest Service (USFS) Threatened, Endangered, and Sensitive species.

Southern Subregion Natural Community Conservation Plan (NCCP) Habitat Reserve Vegetation Communities Mapping, Orange County, California. Conducted vegetation mapping for both native and developed land uses based on the Gray and Bramlet habitat classification system.

San Juan Preserve Oak Inventory, Riverside and Orange Counties, California. Assisted in oak inventory on USFS land. Performed diameter-at-breast-height (DBH) recordings and tagged all oak, sycamore, pine, and eucalyptus trees.

EDUCATION

Humboldt State
University
BS Botany
2007

LICENSES & CERTIFICATIONS

Association of
Environmental
Professionals—CEQA
Basics Workshop
Fall 2007

PROFESSIONAL AFFILIATIONS

California Invasive Plant
Council (Cal-IPC)

California Native Plant
Society (CNPS)

EXPERIENCE

Marcella Waggoner has 20 years' experience working as a biologist with the University of California Riverside. Ms. Waggoner has conducted insect surveys and insect identification, including ant surveys in least tern nesting sites, and has conducted nesting bird surveys for the US Fish and Wildlife Service, Alaska (North Slope Bird Habitat Study). She worked as a technician for the US Forest Service Pacific Southwest Forest Experiment Station, conducting plant transect surveys for fuel-load research. Ms. Waggoner recorded data using global positioning system (GPS) units and created maps with a geographic information system (GIS) for presentations and publications.

Ms. Waggoner's design project experience has focused on sustainable design and master planning for residential properties, private land trust properties, and camps. Design features include trails, permeable parking areas, and native plantings.

Ms. Waggoner has conducted environmental damage assessments and surveys for sensitive plant and animal species in California. She regularly conducts biological monitoring for construction projects and long-term monitoring of mitigation projects in environmentally sensitive areas. She is currently working on a variety of habitat restoration projects with various responsibilities at Dudek.

North Green Valley Interceptor Sewer Upgrade Wetlands Mitigation and Monitoring, Leucadia Wastewater District, Carlsbad, California. Conducted biological monitoring for this restoration project. Also prepared annual reports to document the condition of the restoration project. Habitat types restored include coastal sage scrub and southern willow scrub.

Conceptual Wetland Mitigation and Monitoring Plan Vista South Project, California. Helped to develop a mitigation plan including goals, assessment criteria, and biological monitoring directives. Habitat types restored include coastal sage scrub and southern willow scrub.

Saddleback Estates Munz's Onion (*Allium munzii*) Salvage and Monitoring Project, California. Conducted biological monitoring during the salvage and translocation of the rare and endangered Munz's onion. Prepared monitoring reports of the salvage operation. Collected GPS data at pre- and post-salvage locations of Munz's onion bulbs. Collected and delivered Munz's onion bulbs to Rancho Santa Ana Botanic Garden for storage and propagation.

EDUCATION

Conway School of Landscape Design,
Conway, Massachusetts
MA Sustainable Design
and Land Use Planning
2006

Certificate in Geographic
Information Systems,
University of California,
Riverside
2002

University of California,
Riverside
BS Biology
1976

PROFESSIONAL AFFILIATIONS

American Planning
Association (APA)

Marcella Waggoner – continued

Newhall Ranch Project, Newhall Land and Farming Company, Counties of Los Angeles and Ventura, California. Conducted focused surveys as a member of a team of botanists for the state-listed endangered San Fernando Valley spineflower plant species and other sensitive plants.

Brianna Wood – Environmental Analyst

EXPERIENCE

Brianna Wood's expertise includes rare and endangered wildlife field surveying, technical report writing, CEQA/NEPA compliance, and environmental regulatory compliance for agencies such as US Army Corps of Engineers, US Fish and Wildlife Service, California Department of Fish and Game, and California Water Quality Control Board, among others. Ms. Wood has extensive experience with scientific field techniques, including biodiversity, habitat assessment, and wildlife behavioral surveys. She performs quality control for wetland delineations and permit applications and is skilled at presenting report findings to clients and agencies in conferences. Ms. Wood is also an experienced and proficient technical writer, producing reports such as biological assessments, wildlife survey reports, wetland delineations, initial studies, environmental impact reports, etc.

Ms. Wood has nearly 3 years' experience as a professional permit coordinator for small and large-scale housing/commercial developments, mitigation/restoration, gravel extraction, and mining projects requiring numerous federal, state, and local permits. Further experience includes extensive inputting, organizing, and deciphering of large volumes of numerical, physical, and qualitative data for biological studies and inventories. She is also experienced in using GPS equipment for habitat analysis and wildlife behavioral studies.

Environmental Field Surveys and Monitoring. Conducted and directed field surveys for special-status species, including raptor surveys and wildlife habitat assessments, and conducted supporting field work for botanical inventories, cultural resource surveys, phase I site assessments, and wetland delineations. Recent wildlife survey experience includes local field surveys for presence of protected species such as Foothill yellow-legged frog, Valley elderberry longhorn beetle mitigation monitoring, giant garter snake habitat monitoring, and specialized surveys for birds (especially raptors) of special concern. Ms. Wood has performed wildlife research and habitat analyses in a variety of ecosystems, including California Central Valley oak woodlands/annual grasslands, chaparral, Sierra/Cascade montane forests, Southern California coastal sage scrub, and numerous marine ecosystems in Southern California, Baja Mexico, northeastern Australia, and Belize.

Technical Report Writing and Formatting. Ms. Wood has prepared numerous CEQA and NEPA documents, such as Initial Studies/Environmental Assessments, Mitigated Negative Declarations/FONSI, Environmental Impact Reports, Municipal Services Reviews, Biological Assessment Reports, and various Natural Environment

EDUCATION

San Diego State University, California
BS General Biology, emphasis in Marine Biology
2003

LICENSES & CERTIFICATIONS

Certificate for CEQA course, UC Davis Extension

Certificate for Mitigation Monitoring Course, City of Chico Center for Economic Development

Scuba Dive Master and Scientific Research Scuba Diving Certification through San Diego State University

PROFESSIONAL AFFILIATIONS

Association of Environmental Professionals

Audubon Society – Altacal Local Chapter

Brianna Wood – continued

Studies. In her capacity as an Environmental Analyst, she has made determinations of significant effects on the distribution and relative health of species of concern and their habitat as well as determining avoidance and mitigation measures. She also regularly produces Requests for Proposals, Scope of Work Contracts, and budget tracking sheets.

Preparation of Permitting Applications and Agency Correspondence. Ms Wood's duties as permit coordinator have included the preparation of application packages for US Army Corps of Engineers Section 404 permits, California Department of Fish and Game Streambed Alteration Agreements, Water Quality Certification applications, and permits for many other public agencies. Additionally, she has been responsible for the quality control of wetland delineations submitted to the US Army Corps of Engineers. She has experience dealing with wetland delineation procedures and regulations pertaining to wetlands, regularly communicating with local, state, and federal agency staff on behalf of clients and coordinating the permitting needs to streamline the regulatory compliance process.

APPENDIX B

*Vascular Plant Species Observed
at Newhall Ranch*

(2002, 2003, 2004, 2005, 2006, and 2007)

APPENDIX B
Vascular Plant Species Observed at
Newhall Ranch

LYCOPODIAE

SELAGINELLACEAE – SPIKE-MOSS FAMILY

Selaginella bigelovii – Bigelow's spike-moss

EQUISETAE

EQUISETACEAE – HORSETAIL FAMILY

Equisetum hyemale – common scouring-rush

Equisetum laevigatum – smooth scouring-rush

Equisetum telmateia – giant horsetail

FILACEAE

AZOLLACEAE – MOSQUITO FERN FAMILY

Azolla c.f. filiculoides – duckweed fern

DENNSTAEDTIACEAE – BRAKEN FAMILY

Adiantum jordani – California maiden-hair

Pellaea andromedifolia – coffee fern

Pellaea mucronata var. *mucronata* – bird's-foot fern

Pentagramma triangularis – goldenback fern

POLYPODIACEAE – POLYPODY FAMILY

Polypodium californicum – California polypody

CONIFERAE

CUPRESSACEAE – CYPRESS FAMILY

* *Cedrus deodara* – Deodar cedar

Juniperus californica – California juniper

PINACEAE – PINE FAMILY

* *Pinus halepensis* – Aleppo pine

* *Pinus pinea* – stone pine

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

ANGIOSPERMAE (DICOTYLEDONES)

AIZOACEAE – FIG-MARIGOLD FAMILY

- * *Aptenia cordifolia* – baby sun-rose
- * *Carpobrotus* sp. – sea-fig

AMARANTHACEAE – AMARANTH FAMILY

- * *Amaranthus albus* – tumbleweed
- Amaranthus blitoides* – prostrate amaranth
- * *Amaranthus hybridus* – amaranth
- Amaranthus palmeri* – Palmer's amaranth
- Amaranthus powellii* – Powell's amaranth
- * *Amaranthus retroflexus* – rough pigweed

ANACARDIACEAE – SUMAC FAMILY

- Malosma laurina* – laurel sumac
- Rhus ovata* – sugar-bush
- Rhus trilobata* – squaw bush
- * *Schinus molle* – Peruvian pepper-tree
- Toxicodendron diversilobum* – poison-oak

APIACEAE – CARROT FAMILY

- * *Anethum graveolens* – dill
- Apiastrum angustifolium* – wild celery
- * *Apium graveolens* – celery
- Berula erecta* – cutleaf water-parsnip
- Bowlesia incana* – American Bowlesia
- * *Conium maculatum* – poison hemlock
- * *Coriandrum sativum* – cilantro
- * *Daucus carota* – Queen Anne's lace
- Daucus pusillus* – rattlesnake weed
- Lomatium utriculatum* – common lomatium
- Sanicula bipinnata* – poison sanicle

APOCYNACEAE – DOGBANE FAMILY

- Apocynum cannabinum* – Indian hemp
- * *Vinca major* – periwinkle

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

ASCLEPIADACEAE – MILKWEED FAMILY

- Asclepias californica* – California milkweed
- Asclepias fascicularis* – narrow-leaf milkweed

ASTERACEAE – SUNFLOWER FAMILY

- Achillea millefolium* – yarrow
- Achyrachaena mollis* – blow-wives
- Acourtia microcephala* – sacapellote
- Agoseris grandiflora* – large-flowered agoseris
- Ambrosia acanthicarpa* – annual burweed
- Ambrosia confertifolia* – weak-leaved burweed
- Ambrosia psilostachya* – western ragweed
- Artemisia californica* – coastal sagebrush
- Artemisia douglasiana* – California mugwort
- Artemisia dracunculus* – tarragon
- Artemisia tridentata* – Great Basin sagebrush
- Baccharis douglasii* – marsh baccharis
- Baccharis emoryi* – Emory's baccharis
- Baccharis pilularis* – coyote brush
- Baccharis salicifolia* – mulefat
- 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
- * *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* – horseweed
- Conyza coulteri* – Coulter's conyza
- Coreopsis bigelovii* – Bigelow's coreopsis
- * *Coreopsis tinctoria* – calliopsis
- Corethrogyne filaginifolia* – virgate cudweed aster
- * *Cotula coronopifolia* – African brass-buttons

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

- Encelia actoni* – Acton’s encelia
Encelia californica – California bush sunflower
Encelia farinosa – brittlebush, incensio
Ericameria palmeri var. *pachylepis* – goldenbush
Ericameria pinifolia – pine-bush
Erigeron foliosus – leafy daisy
Eriophyllum confertiflorum – long-stem golden yarrow
Euthamia occidentalis – western goldenrod
Filago californica – California fluffweed
* *Filago gallica* – narrow-leaf filago
* *Gazania linearis* – gazania
Gnaphalium bicolor – bicolor cudweed
Gnaphalium californicum – California everlasting
Gnaphalium canescens ssp. *microcephalum* – white everlasting
Gnaphalium leucocephalum – Sonora everlasting
Gnaphalium luteo-album – white cudweed
Gnaphalium sp. *nova* – everlasting
Gnaphalium palustre – lowland cudweed
Hazardia squarrosa ssp. *grindelioides* – saw-toothed goldenbush
Helianthus annuus – common sunflower
Helianthus nuttallii c.f. ssp. *parishii* – Los Angeles sunflower
Hemizonia fasciculata – fascicled tarweed
Hemizonia kelloggii – Kellogg’s tarweed
Heterotheca grandiflora – telegraph weed
Heterotheca sessiliflora – golden aster
Isocoma menziesii – goldenbush
Iva axillaris – poverty weed
* *Lactuca saligna* – willowleaf lettuce
* *Lactuca serriola* – prickly lettuce
Lagophylla ramosissima – common hareleaf
Lasthenia californica – coast goldfields
Lepidospartum squamatum – scale-broom
Lessingia filaginifolia – California aster
Lessingia glandulifera – lessingia
Malacothrix saxatilis – cliff malacothrix
* *Matricaria matricarioides* – pineapple weed
Micropus californicus – slender cottonweed

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

- Pluchea odorata* – marsh-fleabane
Pluchea sericea – arrow weed
* *Pulicaria paludosa* – Spanish sunflower
Rafinesquia californica – California chicory
Senecio californicus – California butterweed
Senecio flaccidus var. *douglasii* – butterweed
* *Senecio vulgaris* – common groundsel
Silybum marianum – milk thistle
* *Sonchus asper* – prickly sow-thistle
* *Sonchus oleraceus* – common sow-thistle
Stebbinoseris heterocarpa [*Microseris heterocarpa*] – brown puffs
Stephanomeria exigua – small wreathplant
Stephanomeria pauciflora – wire-lettuce
Stephanomeria virgata – twiggy wreathplant
Stylocline gnaphaloides – everlasting nest-straw
Uropappus lindleyi [*Microseris lindleyi*] – silver puffs
Wyethia ovata – mule ears
Xanthium spinosum – spiny cocklebur
Xanthium strumarium – cocklebur

BETULACEAE – BIRCH FAMILY

Alnus rhombifolia – white alder

BORAGINACEAE – BORAGE FAMILY

Amsinckia menziesii var. *intermedia* – yellow fiddleneck
Amsinckia menziesii var. *menziesii* – yellow fiddleneck
Amsinckia tessellata – devil's lettuce
Cryptantha sp. – forget-me-not
Cryptantha intermedia – common forget-me-not
Cryptantha micrantha – redroot cryptantha
Cryptantha microstachys – tejon cryptantha
Cryptantha muricata – prickly cryptantha
Heliotropium curassavicum – wild heliotrope
Pectocarya linearis – slender pectocarya
Pectocarya penincillata – pectocarya
Pectocarya setosav – pectocarya
Plagiobothrys arizonicus – popcorn flower

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

Plagiobothrys canescens – rusty popcorn flower
Plagiobothrys collinus – California popcorn flower
Plagiobothrys fulvus – common popcorn flower

BRASSICACEAE – MUSTARD FAMILY

- Athysanus pusillus* – dwarf athysanus
- * *Brassica nigra* – black mustard
 - * *Capsella bursa-pastoris* – shepard's purse
 - Caulanthus lasiophyllus* – California mustard
 - Descurainia pinnata* ssp. *halictorum* – tansy mustard
 - * *Hirschfeldia incana* – short-podded mustard
 - Lepidium lasiocarpum* – peppergrass
 - * *Lepidium latifolium* – peppergrass
 - Lepidium virginicum* – wild peppergrass
 - * *Lobularia maritime* – sweet-alyssum
 - * *Raphanus sativus* – wild radish
 - * *Rorippa nasturtium-aquaticum* – water cress
 - * *Sisymbrium altissimum* – tumble mustard
 - * *Sisymbrium irio* – London rocket
 - * *Sisymbrium officinale* – hedge mustard
 - * *Sisymbrium orientale* – Oriental mustard
 - Stanleya pinnata* var. *pinnata* – Prince's plume
 - Thysanocarpus curvipes* – fringedpod
 - Tropidocarpum gracile* – slender dobie-pod

CACTACEAE – CACTUS FAMILY

- * *Cereus peruvianus* – Peruvian apple cactus
- Opuntia basilaris* var. *ramosa* – beaver-tail cactus
- Opuntia californica* var. *parkeri* – cane cholla
- Opuntia littoralis* – coastal prickly-pear
- Opuntia X vaseyi* – prickly-pear cactus
- * *Trichocereus spachianus* – golden torch cactus

CAPPARACEAE – CAPER FAMILY

Isomeris arborea – bladderpod

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

CAPRIFOLIACEAE – HONEYSUCKLE FAMILY

- Lonicera subspicata* – southern honeysuckle
- Sambucus mexicana* – Mexican elderberry
- Symphoricarpos* sp. – snowberry
- Symphoricarpos c.f. mollis* – spreading snowberry

CARYOPHYLLACEAE – PINK FAMILY

- * *Cerastium glomeratum* – sticky mouse-ear
- * *Herniaria cinerea* – gray herniaria
- Loeflingia squarrosa* – no common name
- * *Silene gallica* – common catchfly
- Spergularia* sp. – stickwort, starwort
- * *Spergularia rubra* – sand-spurrey
- * *Spergularia c.f. villosa* – villous sand-spurrey
- * *Stellaria media* – common chickweed

CASURINACEAE – SHEET OAK FAMILY

- * *Casuarina cunninghamiana* – Australian Pine

CHENOPODIACEAE – GOOSEFOOT FAMILY

- Atriplex canescens* – four-winged saltbush
- * *Atriplex heterosperma* – weedy orache
- Atriplex lentiformis* – big saltbush, quail brush
- * *Atriplex rosea* – tumbling orache
- * *Atriplex semibaccata* – Australian saltbush
- Atriplex serenana* var. *serenana* – bractscale
- Atriplex suberecta* – Australian saltbush
- Atriplex triangularis* – spearscale
- * *Bassia hyssopifolia* – five-hooked bassia
- * *Beta vulgaris* – garden beet
- * *Chenopodium album* – lamb's-quarters
- * *Chenopodium ambrosioides* – Mexican tea
- Chenopodium berlandieri* – pitseed goosefoot
- * *Chenopodium botrys* – goosefoot
- Chenopodium californicum* – California goosefoot
- * *Chenopodium murale* – nettle-leaved goosefoot
- Chenopodium rubrum* – red goosefoot

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

- * *Salsola tragus* – Russian-thistle
- * *Spinacia oleracea* – spinach

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 cymosa* – unidentified dudleya
- Dudleya lanceolata* – lanceleaf dudleya

CUCURBITACEAE – GOURD FAMILY

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

CUSCUTACEAE – DODDER FAMILY

- Cuscuta californica* – California dodder
- Cuscuta pentagona* – five-angled dodder
- Cuscuta subinclusa* – canyon dodder

DATISCAACEAE – DASTICA FAMILY

- Dastica glomerata* – Durango root

ERICACEAE – HEATH FAMILY

- Arctostaphylos glauca* – bigberry manzanita

EUPHORBIACEAE – SPURGE FAMILY

- Chamaesyce albomarginata* – rattlesnake spurge
- * *Chamaesyce maculata* – spotted spurge
- Chamaesyce polycarpa* – small-seed sand mat
- Chamaesyce serpyllifolia* – thyme-leaved spurge
- Croton californicus* – California croton
- Eremocarpus setigerus* – doveweed
- Euphorbia spathulata* – reticulate-seed spurge
- * *Ricinus communis* – castor-bean
- Stillingia linearifolia* – linear-leaved stillingia

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

FABACEAE – PEA FAMILY

- * *Acacia baileyana* – golden wattle
- Astragalus didymocarpus* – white dwarf locoweed
- Astragalus gambelianus* – Gambel's locoweed
- Astragalus trichopodus* – Santa Barbara locoweed
- Glycyrrhiza lepidota* – wild licorice
- Lathyrus laetiflorus* – wild sweet pea
- Lathyrus vestitus* – wild pea
- Lotus corniculatus* – bird's-foot lotus
- Lotus hamatus* – grab lotus
- Lotus humistratus* – lotus
- Lotus purshianus* – Spanish-clover
- Lotus salsuginosus* – coastal lotus
- Lotus scoparius* var. *scoparius* – deerweed
- Lotus strigosus* – strigose deerweed
- Lupinus bicolor* – Lindley's annual lupine
- Lupinus excubitus* – Mountain Springs bush lupine
- Lupinus excubitus* var. *hallii* – grape soda lupine
- Lupinus hirsutissimus* – stinging lupine
- Lupinus microcarpus* var. *densiflorus* – chick lupine
- Lupinus microcarpus* var. *microcarpus* – chick lupine
- Lupinus sparsiflorus* – Coulter's lupine
- Lupinus succulentis* – arroyo lupine
- Lupinus truncatus* – collar lupine
- * *Medicago polymorpha* – California burclover
- * *Medicago polymorpha* var. *brevispina* – short-spined California burclover
- * *Medicago sativa* – alfalfa
- * *Melilotus alba* – white sweet-clover
- * *Melilotus indica* – yellow sweet-clover
- * *Robinia pseudoacacia* – black locust
- Trifolium* sp. – clover
- Trifolium albopurpureum* – rancheria clover
- Trifolium ciliolatum* – tree clover
- * *Trifolium fragiferum* – strawberry clover

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

- Trifolium gracilentum* – pin-point clover
- * *Trifolium hirtum* – rose clover
- Trifolium microcephalum* – maiden clover
- * *Trifolium repens* – white clover
- Trifolium willdenovii* – valley clover
- Vicia hassei* – Hesse's vetch
- * *Vicia villosa* ssp. *villosa* – winter vetch

FAGACEAE – BEECH FAMILY

- Quercus agrifolia* – coast live oak
- Quercus berberidifolia* – scrub oak
- Quercus douglasii* – blue oak
- Quercus lobata* – valley oak

GERANIACEAE – GERANIUM FAMILY

- * *Erodium brachycarpum* – shortfruit stork's bill
- * *Erodium botrys* – long-beaked filaree
- * *Erodium cicutarium* – red-stemmed filaree
- * *Erodium moschatum* – white-stemmed filaree

GROSSULARIACEAE – CURRANT FAMILY

- Ribes aureum* – golden currant
- Ribes malvaceum* – chaparral currant

HYDROPHYLLACEAE – WATERLEAF FAMILY

- Emmenanthe penduliflora* – whispering bells
- Eriodictyon crassifolium* var. *nigrescens* – yerba santa
- Eucrypta chrysanthemifolia* – common eucrypta
- Nemophila menziesii* – baby blue-eyes
- Nemophila parviflora* var. *quercifolia* – oak-leaved nemophila
- Phacelia cicutaria* – caterpillar phacelia
- Phacelia cicutaria* var. *hispida* – caterpillar phacelia
- Phacelia distans* – blue fiddleneck
- Phacelia imbricata* ssp. *imbricata* – imbricate phacelia
- Phacelia minor* – wild canterbury-bell
- Phacelia ramosissima* – shrubby phacelia

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

JUGLANDACEAE – WALNUT FAMILY

Juglans californica – Southern California black walnut

LAMIACEAE – MINT FAMILY

- * *Marrubium vulgare* – horehound
- Mentha citrata* – orange mint
- Salvia apiana* – white sage
- Salvia columbariae* – chia
- Salvia leucophylla* – purple sage
- Salvia mellifera* – black sage
- Stachys ajugoides* – bugle hedge-nettle
- Stachys ajugoides* var. *rigida* – rigid hedge-nettle
- Stachys albens* – white hedge-nettle
- Trichostema lanceolatum* – vinegar weed

LAURACEAE – LAUREL FAMILY

Umbellularia californica – California laurel

LOASACEAE – STICK-LEAF FAMILY

Mentzelia sp. – blazing star

Mentzelia laevicaulis – blazing star

Mentzelia micrantha – small-flowered stick-leaf

LYTHRACEAE – LOOSESTRIFE FAMILY

Lythrum californicum – California loosestrife

MALVACEAE – MALLOW FAMILY

- Malacothamnus fasciculatus* ssp. *laxiflorus* – chaparral bush mallow
- Malacothamnus fremontii* – bush mallow
- Malacothamnus marrubioides* – bush mallow
- * *Malva neglecta* – common mallow
 - * *Malva parviflora* – cheeseweed

MELIACEAE – MAHOGANY FAMILY

- * *Melia azedarach* – China berry

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

MORACEAE – FIG FAMILY

- * *Ficus carica* – edible fig

MYRTACEAE – MYRTLE FAMILY

- * *Eucalyptus* sp. – eucalyptus
- * *Eucalyptus camaldulensis* – red gum
- * *Eucalyptus globulus* – blue gum
- * *Eucalyptus leucoxylon* – white ironbark
- * *Eucalyptus polyanthemos* – silver dollar gum
- * *Eucalyptus sideroxylon* – red ironbark

NYCTAGINACEAE – FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia* [*M. californica*] – California wishbone-bush

OLEACEAE – OLIVE FAMILY

- Fraxinus dipetala* – California ash
- * *Fraxinus uhdei* – tropical ash
- Fraxinus velutina* – velvet ash
- * *Ligustrum lucidum* – glossy privet
- * *Olea europaea* – mission olive

ONAGRACEAE – EVENING-PRIMROSE FAMILY

Camissonia bistorta – southern sun cup
Camissonia boothii – sun cup
Camissonia boothii ssp. *decorticans* – shredding evening primrose
Camissonia californica – mustard primrose
Camissonia hirtella – sun cup
Camissonia micrantha – miniature sun cup
Camissonia strigulosa – sun cup
Clarkia purpurea – winecup clarkia
Clarkia speciosa – clarkia
Clarkia unguiculata – elegant clarkia
Epilobium brachycarpum – willow herb
Epilobium canum ssp. *canum* – California fuchsia
Epilobium ciliatum – California cottonweed
Ludwigia peploides – yellow waterweed
Ludwigia repens – water primrose

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

- Oenothera elata* – evening primrose
* *Oenothera laciniata* – evening primrose

OROBANCHACEAE – BROOM-RAPE FAMILY

- Orobanche parishii* ssp. *parishii* – broom-rape
Orobanche sp. – broom-rape

PAEONIACEAE – PEONY FAMILY

- Paeonia californica* – California peony

PAPAVERACEAE – POPPY FAMILY

- Argemone corymbosa* – prickly poppy
Eschscholzia californica – California poppy
Platystemon californicus – California creamcups

PLANTAGINACEAE – PLANTAIN FAMILY

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

PLATANACEAE – SYCAMORE FAMILY

- Platanus racemosa* – western sycamore

POLEMONIACEAE – PHLOX FAMILY

- Allophyllum divaricatum* – purple false gillyflower
Allophyllum glutinosum – sticky false gillyflower
Eriastrum densifolium – woollystar
Eriastrum densifolium ssp. *elongatum* – elongate eriastrum
Eriastrum densifolium ssp. *mohavense* – Mohave eriastrum
Eriastrum sapphirinum – sapphire eriastrum
Gilia angelensis – angel gilia
Gilia capitata – globe gilia
Leptodactylon californicum – prickly phlox
Linanthus androsaceus – common linanthus
Linanthus pygmaeus – linanthus

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

Navarretia atractyloides – holly-leaf skunkweed

Phlox gracilis – slender phlox

POLYGONACEAE – BUCKWHEAT FAMILY

Chorizanthe fimbriata – fringed spineflower

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

Chorizanthe staticoides – turkish rugging

Eriogonum angulosum – angle-stem buckwheat

Eriogonum baileyi – Bailey's buckwheat

Eriogonum brachyanthum – short-flowered buckwheat

Eriogonum elongatum – long-stemmed buckwheat

Eriogonum fasciculatum ssp. *foliolosum* – California buckwheat

Eriogonum fasciculatum ssp. *polifolium* – California buckwheat

Eriogonum gracile var. *gracile* – slender woolly buckwheat

Eriogonum gracillimum – rose and white buckwheat

Eriogonum maculatum – spotted buckwheat

Eriogonum c.f. *viridescens* – buckwheat

Lastarriaea coriacea – lastarriaea

* *Polygonum arenastrum* – common knotweed

* *Polygonum argyrocoleon* – smartweed

Polygonum lapathifolium – willow weed

Polygonum punctatum – perennial smartweed

Pterostegia drymarioides – pterostegia

* *Rumex conglomeratus* – whorled dock

* *Rumex crispus* – curly dock

Rumex hymenosepalus – wild rhubarb

Rumex maritimus – golden dock

Rumex obtusifolius – dock

Rumex salicifolius – willow dock

PORTULACACEAE – PURSLANE FAMILY

Calandrinia ciliata – redmaids

Calyptridium sp. – pussypaws

Claytonia parviflora – small-leaved montia

Claytonia perfoliata – miner's lettuce

* *Portulaca oleracea* – common purslane

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

RANUNUCULACEAE – BUTTERCUP FAMILY

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

RHAMNACEAE – BUCKTHORN FAMILY

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

ROSACEAE – ROSE FAMILY

- Adenostoma fasciculatum* – chamise
Cercocarpus betuloides – mountain-mahogany
Cercocarpus betuloides var. *betuloides* – birch-leaf mountain-mahogany
Cercocarpus betuloides var. *blancheae* – island mountain-mahogany
Heteromeles arbutifolia – toyon
Prunus ilicifolia – holly-leaf cherry
Rosa californica – California rose
Rubus ursinus – California blackberry
* *Sangwisorba minor* – garden burnet

RUBIACEAE – MADDER FAMILY

- Galium angustifolium* – narrow-leaved bedstraw
* *Galium aparine* – goose grass
Galium nuttallii ssp. *nuttallii* – San Diego bedstraw
Galium porrigens – climbing bedstraw

SALICACEAE – WILLOW FAMILY

- Populus fremontii* – Fremont cottonwood
Populus tremuloides – Quaking aspen
Salix exigua – narrow-leaved willow
Salix gooddingii – black willow
Salix laevigata – red willow
Salix lasiolepis – arroyo willow
Salix lucida ssp. *lasiandra* – golden willow

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

SAURURACEAE – LIZARD'S-TAIL FAMILY

Anemopsis californica – yerba mansa

SCROPHULARIACEAE – FIGWORT FAMILY

Antirrhinum coulterianum – white snapdragon

Antirrhinum multiflorum – withered snapdragon

Castilleja affinis – coast paintbrush

Castilleja densiflora – dense-flowered owl's-clover

Castilleja exserta – common owl's-clover

Castilleja foliolosa – woolly Indian paintbrush

Collinsia heterophylla – purple Chinese houses

Cordylanthus rigidus – bird's beak

Keckiella cordifolia – heart-leaf penstemon

Linaria canadensis – toadflax

Mimulus aurantiacus – bush monkeyflower

Mimulus aurantiacus var. *pubescens* – bush monkeyflower

Mimulus guttatus – seep monkeyflower

Mimulus pilosus – downy monkeyflower

Penstemon centranthifolius – scarlet bugler

* *Verbascum thapsus* – woolly mullein

* *Verbascum virgatum* – wand mullein

* *Veronica anagallis-aquatica* – water speedwell

SIMAROUBACEAE – QUASSIA FAMILY

* *Ailanthus altissima* – tree of heaven

SOLANACEAE – NIGHTSHADE FAMILY

Datura wrightii – western jimsonweed

* *Nicotiana glauca* – tree tobacco

Nicotiana quadrivalvis – Indian tobacco

* *Solanum americanum* – small-flowered nightshade

Solanum douglasii – white nightshade

* *Solanum eleagnifolium* – silver leaf horse-nettle

* *Solanum sarrachoides* – hairy nightshade

Solanum xanti – chaparral nightshade

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

TAMARICACEAE – TAMARISK FAMILY

- * *Tamarix* sp. – tamarisk
- * *Tamarix ramoissima* – tamarisk

ULMACEAE – ELM FAMILY

- * *Ulmus pumila* – Siberian elm

URTICACEAE – NETTLE FAMILY

- Hesperocnide tenella* – western nettle
- Parietaria hespera* – western pellitory
- Urtica dioica* – giant creek nettle
- * *Urtica urens* – dwarf nettle

VERBENACEAE – VERVAIN FAMILY

- Verbena lasiostachys* – western verbena

VIOLACEAE – VIOLET FAMILY

- Viola pedunculata* – Johnny jump-ups

VISCACEAE – MISTLETOE FAMILY

- Phoradendron macrophyllum* – big leaf mistletoe
- Phoradendron villosum* – oak mistletoe

VITACEAE – GRAPE FAMILY

- Parthenocissus vitacea* – woodbine, Virginia creeper
- Vitis girdiana* – desert wild grape

ZYGOPHYLLACEAE – CALTROP FAMILY

- * *Tribulus terrestris* – puncture vine

ANGIOSPERMAE (MONOCOTYLEDONES)

ARECACEAE – PALM FAMILY

- * *Washingtonia robusta* – Mexican fan palm

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

CYPERACEAE – SEDGE FAMILY

- Carex alma* – sturdy sedge
- Carex praegracilis* – clustered field sedge
- Carex* sp. – sedge
- Cyperus eragrostis* – tall cyperus
- Cyperus esculentus* – yellow nut-grass
- * *Cyperus involucratus* – nutsedge
- Cyperus odoratus* – coarse cyperus
- Eleocharis montevidensis* – slender creeping spike-rush
- Eleocharis parishii* – Parish’s spikerush
- Eleocharis rostellata* – beaked spikerush
- Scirpus acutus* – hard-stemmed bulrush
- Scirpus americanus* – winged three-square
- Scirpus maritimus* – alkali bulrush
- Scirpus microcarpus* – bulrush
- Scirpus robustus* – Pacific coast bulrush

JUNCACEAE – RUSH FAMILY

- Juncus* sp. – rush
- Juncus acutus* ssp. *leopoldii* – southwestern spiny rush
- Juncus balticus* – wire rush
- Juncus bufonius* – toad rush
- Juncus longistylis* – rush
- Juncus mexicanus* – Mexican rush
- Juncus rugulosus* – wrinkled rush
- Juncus textilis* – Indian rush
- Juncus torreyi* – rush
- Juncus triformis* – Yosemite dwarf rush
- Juncus xiphioides* – iris-leaved rush

LEMNACEAE – DUCKWEED FAMILY

- Lemna miniscula* – duckweed
- Lemna valdiviana* – duckweed

LILIACEAE – LILY FAMILY

- * *Allium cepa* – onion
- Allium porrum* – onion

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

- * *Amaryllis bella-donna* – naked lady
- * *Asparagus officinalis* – asparagus
- Bloomeria crocea* – common goldenstar
- Brodiaea terrestris* ssp. *kernensis* – dwarf brodiaea
- Calochortus clavatus* var. *gracilis* – slender mariposa lily
- Calochortus venustus* – mariposa lily
- Dichelostemma capitatum* – blue dicks
- Muilla maritima* – common muilla
- Yucca whipplei* – Our Lord's candle
- Yucca schidigera* – Mojave Yucca

POACEAE – GRASS FAMILY

- Achnatherum coronatum* – giant needlegrass
- * *Agrostis* sp. – bentgrass
- * *Agrostis viridis* – water bent
- * *Arundo donax* – giant reed
- * *Avena barbata* – slender oat
- * *Avena fatua* – wild oat
- Avena sativa* – cultivated oat
- Bromus catharticus* – California brome
- Bromus catharticus* var. *catharticus* – California brome
- * *Bromus diandrus* – ripgut grass
- * *Bromus hordeaceus* – soft chess
- * *Bromus madritensis* ssp. *rubens* – foxtail chess
- * *Bromus sterilis* – sterile brome
- * *Bromus tectorum* – cheat grass
- * *Cortaderia jubata* – pampas grass
- * *Crypsis schoenoides* – prickly grass
- * *Cynodon dactylon* – Bermuda grass
- * *Digitaria sanguinalis* – hairy crabgrass
- Distichlis spicata* – salt grass
- * *Echinochloa colonum* – jungle-rice
- Echinochloa crus-galli* – barnyard grass
- * *Eleusine indica* – goose grass
- Elymus glaucus* – western wild-rye
- Elymus multisetus* – big squirreltail
- Eragrostis mexicana* – lovegrass

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

- * *Festuca arundinacea* – tall fescue
- * *Hordeum marinum* – Mediterranean barley
- * *Hordeum murinum* – glaucous foxtail barley
- * *Lamarckia aurea* – goldentop
- * *Leptochloa uninerva* – Mexican sprangletop
- Leymus condensatus* – giant ryegrass
- Leymus triticoides* – beardless wild rye
- * *Lolium multiflorum* – Italian ryegrass
- * *Lolium perenne* – perennial ryegrass
- Melica imperfecta* – California melic
- Muhlenbergia asperifolia* – scratch-grass
- Muhlenbergia microsperma* – littleseed muhly
- Nassella cernua* – nodding needlegrass
- Nassella lepida* – foothill needlegrass
- Nassella pulchra* – purple needlegrass
- Panicum capillare* – western witchgrass
- * *Panicum miliaceum* – broom corn millet
- * *Parapholis incurve* – sickle grass
- Paspalum distichum* – knotgrass
- * *Phalaris aquatica* – Harding grass
- * *Phalaris minor* – Mediterranean canary grass
- * *Piptatherum miliaceum* – smilo grass
- * *Poa annua* – annual bluegrass
- Poa secunda* – Malpais bluegrass
- * *Polypogon interruptus* – ditch beard grass
- * *Polypogon monspeliensis* – rabbit's-foot grass
- Schismus barbatus* – abumashi
- Sorghum bicolor* – sorghum
- Sorghum halepense* – Johnsongrass
- Sporobolus airoides* – alkali scation
- * *Triticum aestivum* – cultivated wheat
- Vulpia microstachys* – fescue
- * *Vulpia myuros* – rattail fescue
- Vulpia octoflora* – six-weeks fescue

POTAMOGETONACEAE – PONDWEED FAMILY

Potamogeton foliosus – leafy pondweed

APPENDIX B

Vascular Plant Species Observed at Newhall Ranch

TYPHACEAE – CATTAIL FAMILY

Typha domingensis – slender cattail

Typha latifolia – broad-leaved cattail

* signifies introduced (non-native) species

APPENDIX C

California Natural Diversity Database Forms

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

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

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

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

Reporter: Anuja Parikh, Nathan Gale, and others

Phone: (760) 942.5147

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

Date of Field Work: May 29-June 1, June 13-14, July 12-13, 16-18, 2007 **County:** Los Angeles **Collection:** No **If yes, # Mus./Herb:**

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

Quad Name: Newhall X 7½' 15' **Elevation:** 1120-1240' T 4N R 16W Sec 13

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 = 226 Is this a subsequent visit? X Yes ___ No Compared to your last visit: ___ more ___ same X fewer

Phenology (plants): ___ % vegetative ___ % 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):

Most occurred in coastal scrub habitat with *Artemisia californica*, *Salvia leucophylla*, and *Eriogonum fasciculatum*. Most plants were on 30- 50% slopes with southwest, southeast, northwest, west, and east aspects, and flat areas; plants found on silty clay loam soil.

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

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

Comments: This report summarizes 28 discrete locations, each with from 1 to an estimated 125 individuals observed.

Should/Could this site be protected? How?

Other comments: Rainfall was less than recent years.

DETERMINATION (Check one or more, fill in blanks)

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

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

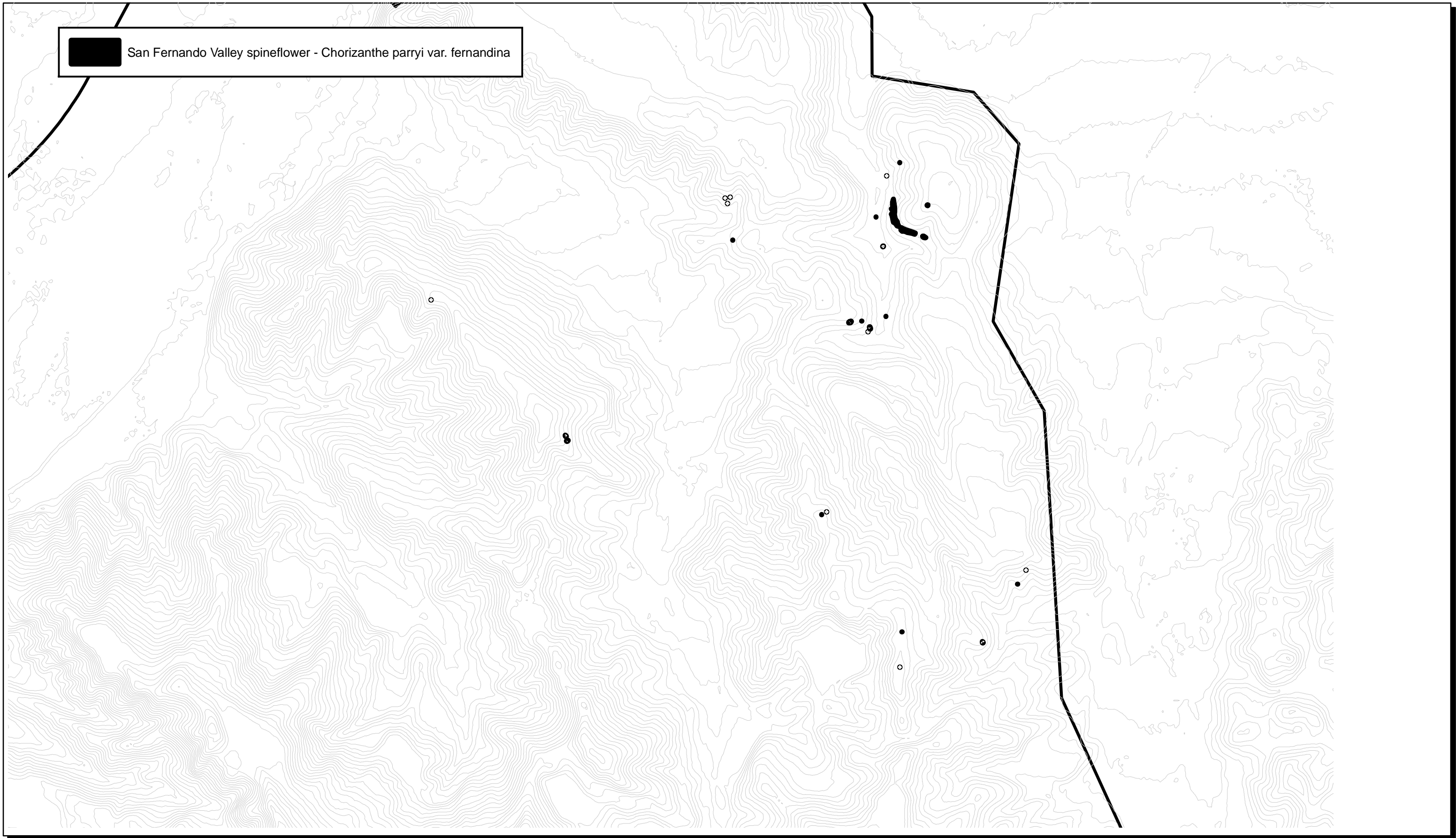
PHOTOGRAPHS (Check one or more)

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

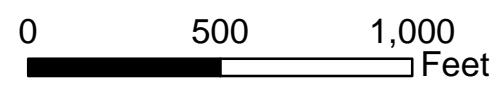
May we obtain duplicates at our cost?
___ Yes X No

Z:\Projects\373801\Newhall Ranch\map\2007 SPSR\CNDDB_AirportMesa.mxd 11/15/2007

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



DUDEK
Santa Barbara GIS Division
621 Chapala Street
Santa Barbara, Ca 93101
(805)963-0651



Newhall Ranch - Airport Mesa
2007 Sensitive Plant Survey Results

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

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

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

Reporter: C. Ford, B. Strittmater, G. Hagen, R. Krebs, T. Liddicoat, A. Causey, J. Jones, and F. M. Obregon **Phone:** (760) 942.5147

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

Date of Field Work: May 22-24, July 2-3, 16-18, 2007 **County:** Los Angeles **Collection:** No **If yes, # Mus./Herb:**

Location: Northern Santa Susana Mountains/Santa Clarita Valley, Newhall Ranch, south of confluence of the Santa Clara River and Castaic Creek, eastern, southern, and western edges of Grapevine Mesa and scattered ridges in the area.

Quad Name: Newhall X 7½' 15' **Elevation:** 1040-1400' **T** 4N **R** 17W **Sec** 23

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 = 76 **Is this a subsequent visit?** X Yes ___ No ___ Compared to your last visit: ___ more ___ same X fewer

Phenology (plants): ___ % vegetative ___ % 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):

Open California sagebrush, California buckwheat, ecotonal California sagebrush/California buckwheat and coast live oak woodland, and at the edge of agricultural fields on mesas. Associated native species include *Artemisia californica* and *Eriogonum fasciculatum*. Slopes were generally southwest facing between 30 and 65% slopes on severely eroded terrace escarpments. Soil texture is predominantly clay loam.

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

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

Comments: This report summarizes 14 discrete locations, each with from one to an estimated 33 individuals observed.

Should/Could this site be protected? How?

Other comments: Rainfall less than recent years.

DETERMINATION (Check one or more, fill in blanks)

___ Keyed in a site reference:

___ Compared with specimen housed at:

___ Compared with photo/drawing in:

___ By another person (name):

X Other: Personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject _____ Type _____

___ Plant/Animal ___ Slide

___ Habitat ___ Print

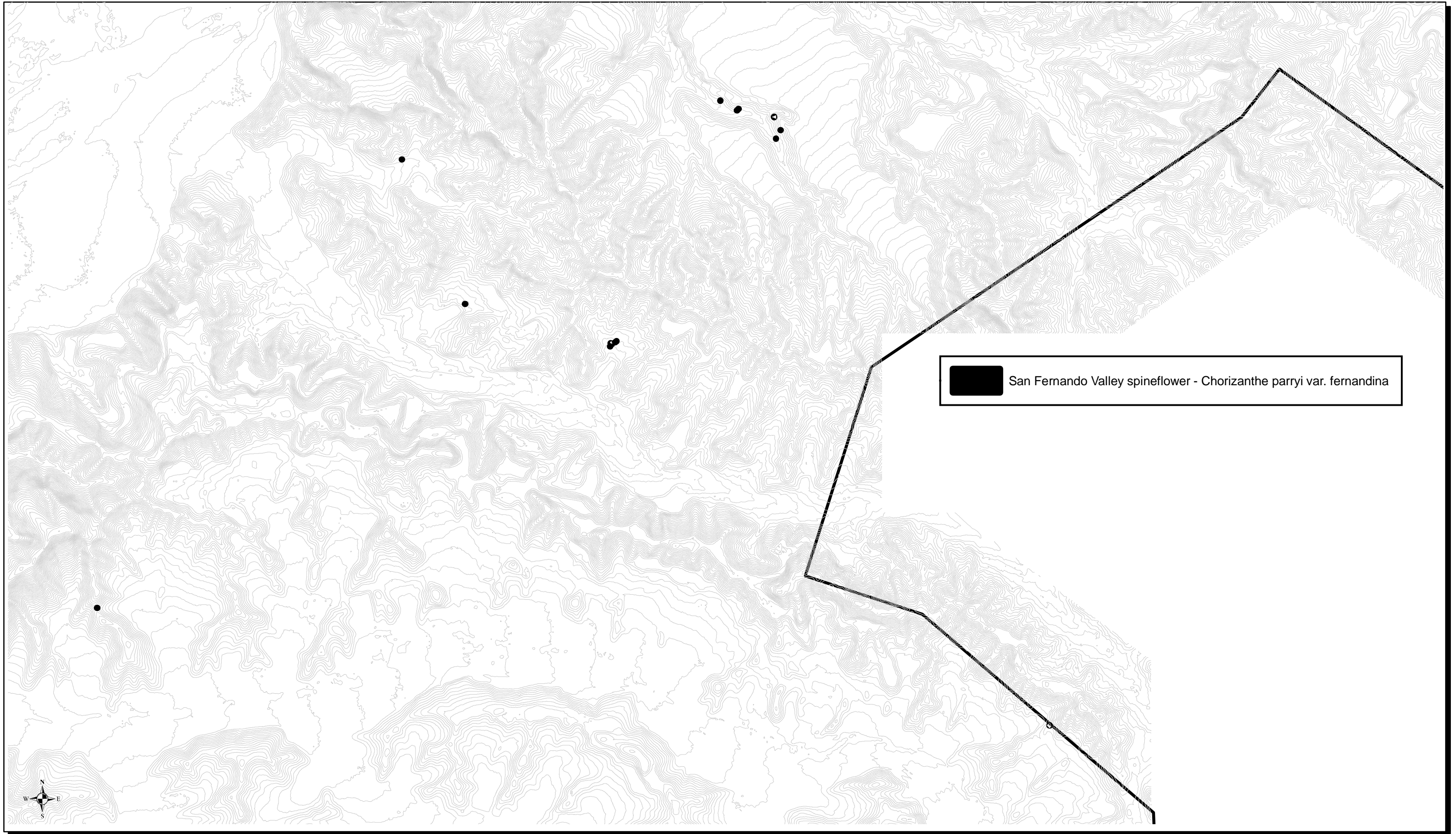
___ Diagnostic Feature

___ Other

May we obtain duplicates at our cost?

___ Yes X No

Z:\Projects\373601Newhall Ranch\map\2007 SPSR\CNDDB_GrapvineMesa.mxd 11/15/2007



CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

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

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

Reporter: Anuja Parikh, Nathan Galen, and others

Phone: (760) 942.5147

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

Date of Field Work: May 21, July 12-13, 18, 2007

County: Los Angeles

Collection: No **If yes, # Mus./Herb:**

Location: Northern Santa Susana Mountains/Santa Clarita Valley, Newhall Ranch: south of State Route 126 just east of the Ventura County line, on ridges and north facing slopes throughout Potrero Canyon

Quad Name: Newhall X 7½' ____ 15' **Elevation:** 960-1160' T 4N R 17W Sec 29

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 = 67 Is this a subsequent visit? X Yes ____ No Compared to your last visit: ____ more ____ same X fewer

Phenology (plants): ____ % vegetative ____ % 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):

Coastal scrub, including California sagebrush - black sage series, and California sagebrush - purple sage series, and California annual grasslands. Dominant plants associated with the populations include *Artemisia californica*, *Salvia leucophylla*, *Centaurea melitensis*, *Erodium cicutarium*, *Bromus* spp. and *Eriogonum fasciculatum*. Most plants are on south-east to south facing slopes, with some in flat areas. Slopes were generally between 30 and 50%. Soil texture is generally silty clay loam.

Current Land Use Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, fire in recent past (5-10 years); Possible Threats: Proposed for estate residential development.

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

Comments: This report summarizes 11 discrete locations, each with from one to an estimated 24 individuals observed.

Should/Could this site be protected? How?

Other comments: Rainfall less than recent years.

DETERMINATION (Check one or more, fill in blanks)

____ Keyed in a site reference:

____ Compared with specimen housed at:

____ Compared with photo/drawing in:

____ By another person (name):

X Other: Personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject _____ Type _____

____ Plant/Animal _____ Slide

____ Habitat _____ Print

____ Diagnostic Feature

____ Other

May we obtain duplicates at our cost?

____ Yes X No

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DUDEK
Santa Barbara GIS Division
621 Chapala Street
Santa Barbara, Ca 93101
(805)963-0651

0 500 1,000
Feet

Newhall Ranch - Potrero Canyon
2007 Sensitive Plant Survey Results

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

OFFICE USE ONLY

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

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

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

Reporter: C. Ford, B. Strittmater, G. Hagen, R. Krebs, T. Liddicoat, A. Causey, J. Jones, B. Wood, M. Waggoner and F. M. Obregon Phone: (760) 942.5147

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

Date of Field Work: May 21, June 15, 18-21, 2007

County: Los Angeles

Collection: No **If yes, #** **Mus./Herb:**

Location: Northern Santa Susana Mountains/Santa Clarita Valley, Newhall Ranch: north of State Route 126, west of San Martinez Grande Canyon Road

Quad Name: Val Verde X 7½' 15' **Elevation:** 1040-1200' T 4N R 17W Sec 21

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 = 73 Is this a subsequent visit? X Yes No Compared to your last visit: more same X fewer

Phenology (plants): % vegetative % 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):

Locations are predominantly within California annual grassland and coastal scrub, dominated by *Bromus hordeaceus*, *Avena fatua*, *Centaurea melitensis*, *Vulpia myuros*, and *Hirschfeldia incana*, and *Artemisia californica*. Most plants are on east- or southeast-facing slopes from 30 to 50% slopes. Silty clay loams dominate.

Current Land Use Visible Disturbances/Possible Threats: Current Land Use: Cattle grazing, farming; Visible Disturbances: cattle grazing, fire in recent past (5-10 years); Possible Threats: Currently proposed for estate residential development.

Overall Site Quality: Excellent Good X Fair Poor

Comments: This report summarizes 15 discrete locations, each with from one to an estimated 22 individuals observed.

Should/Could this site be protected? How?

Other comments: Rainfall less than recent years.

DETERMINATION (Check one or more, fill in blanks)

 Keyed in a site reference:

 Compared with specimen housed at:

 Compared with photo/drawing in:

 By another person (name):

X Other: Personal knowledge

OTHER KNOWLEDGEABLE INDIVIDUALS (Name/Address/Phone)

PHOTOGRAPHS (Check one or more)

Subject _____ Type _____

 Plant/Animal Slide

 Habitat Print

 Diagnostic Feature

 Other

May we obtain duplicates at our cost?

 Yes X No

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