

David Magney Environmental Consulting

**BOTANICAL ASSESSMENT:
DEFENSE FUEL SUPPORT POINT,
SAN PEDRO, CALIFORNIA**

Prepared for:

THE ENVIRONMENTAL COMPANY, INC.



Mission Statement

*To provide quality environmental consulting
services with integrity that protect and
enhance the human and natural environment*

August 2003



**Botanical Assessment:
Defense Fuel Support Point,
San Pedro, California**

Prepared for:

The Environmental Company, Inc.

115 West Plaza Street
Solana Beach, California 92075
Contact: Glenn Metzler
858/509-3157

Prepared by:

David Magney Environmental Consulting

P.O. Box 1346
Ojai, California 93024-1346
Contact: David L. Magney
805/646-6045

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Cover Photograph: Ruderal Grassland Series along southern DFSP San Pedro road and perimeter fence (view SE).



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SECTION 1. INTRODUCTION

PROJECT PURPOSE

The purpose of this project was to conduct botanical surveys to support an Environmental Assessment and associated Biological Assessments, evaluating the potential impacts that may result from (1) repairs to and maintenance of the perimeter security fence, (2) repairs and drainage improvements to selected facility roads, and (3) repairs to the electrical distribution line system at Defense Fuel Support Point (DFSP) San Pedro.

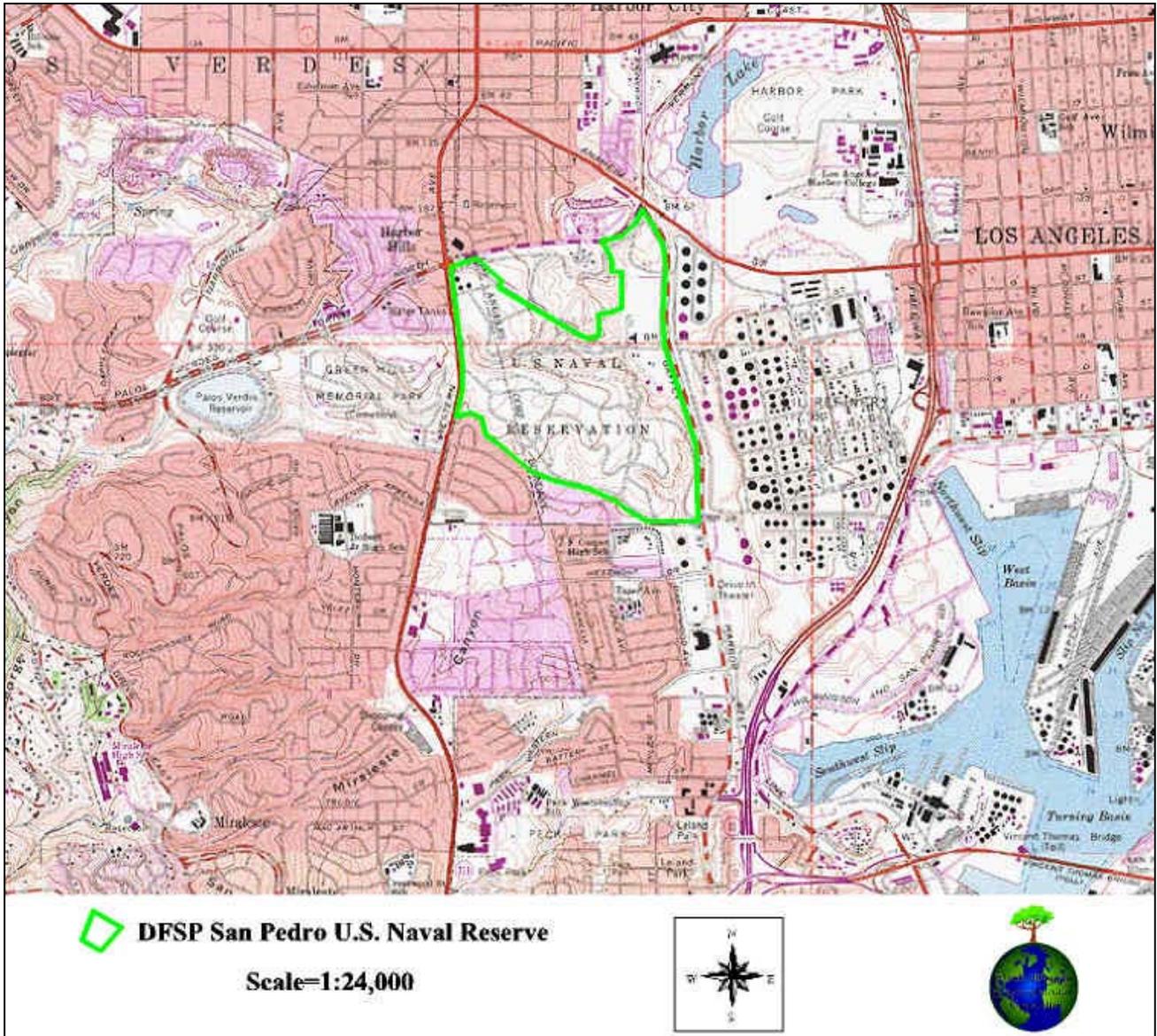
David Magney Environmental Consulting (DMEC) was subcontracted by The Environmental Company, Inc. (TEC) to locate populations, or individuals, of special-status plant species that have potential for conservation, protection, and management of the species. In addition to special-status plant species surveys and a floristic assessment, the purpose of this project was to locate the host plants, including Deerweed (*Lotus scoparius* var. *scoparius*) and Three-Pod Milkvetch (*Astragalus trichopodus* var. *lonchus*), of the Palos Verdes Blue butterfly (*Glaucopsyche lygdamus* ssp. *palosverdesensis*), for vegetation mapping.

STUDY SITE LOCATION

DFSP San Pedro is located in the City of San Pedro, Los Angeles County, California (Torrance California Quadrangle, USGS 7.5-minute Series Topographic Map), and its center is at approximately 33.77302° north latitude, 118.30186° west longitude. Elevation ranges from approximately 6 to 260 feet. Palos Verdes Drive North is the northern site boundary, North Gaffey Street is the eastern site boundary, State Route 213 is the western site boundary, and a residential area is immediately to the south.

DFSP San Pedro is approximately 330 acres and represents one of the last areas of open space on the Palos Verdes Peninsula. Approximately $\frac{3}{4}$ of this area is occupied by Ruderal Grassland Series, and the remaining natural vegetation consists of scattered patches of disturbed Coastal Sage Scrub. Many species of planted ornamental trees, herbs, and shrubs are also present onsite, and are typically found not only in the landscaped areas onsite, but also as escaped ornamentals throughout the more natural areas of the naval reserve. The survey area onsite is approximately 200 acres.

Figure 1. General DFSP San Pedro Location Map



SECTION 2. SURVEY METHODS

The special-status plant species surveys were conducted by a team of two botanists during the appropriate time of the year to allow for the detection and identification during optimal blooming and/or fruiting period for each species. David Magney and Cher Batchelor conducted the first special-status plant species surveys, and a floristic assessment, on 3, 4, and 5 June 2003. Ms. Batchelor and Rita DePuydt, under the direction and coordination of Mr. Magney, conducted the second special-status plant species survey on 10 July 2003. One day of fieldwork generally averaged nine hours of survey time for each botanist.

TEC provided DMEC with base maps and aerial photographs of the DFSP San Pedro Naval Reserve at a scale of 1" = 200'. All fencing, roads, and power lines requiring replacement, maintenance, or repair were identified on the aerial photographs and were then located and surveyed onsite. Using aerial photographs, and Garmin Global Positioning System (GPS) units, the identified target areas of the 330-acre parcel were generally accessed by vehicle; then, all botanical surveys were conducted on foot. The survey corridor width for each fence, road, and power line surveyed was approximately 200 feet, or 100 feet on either side of the feature.

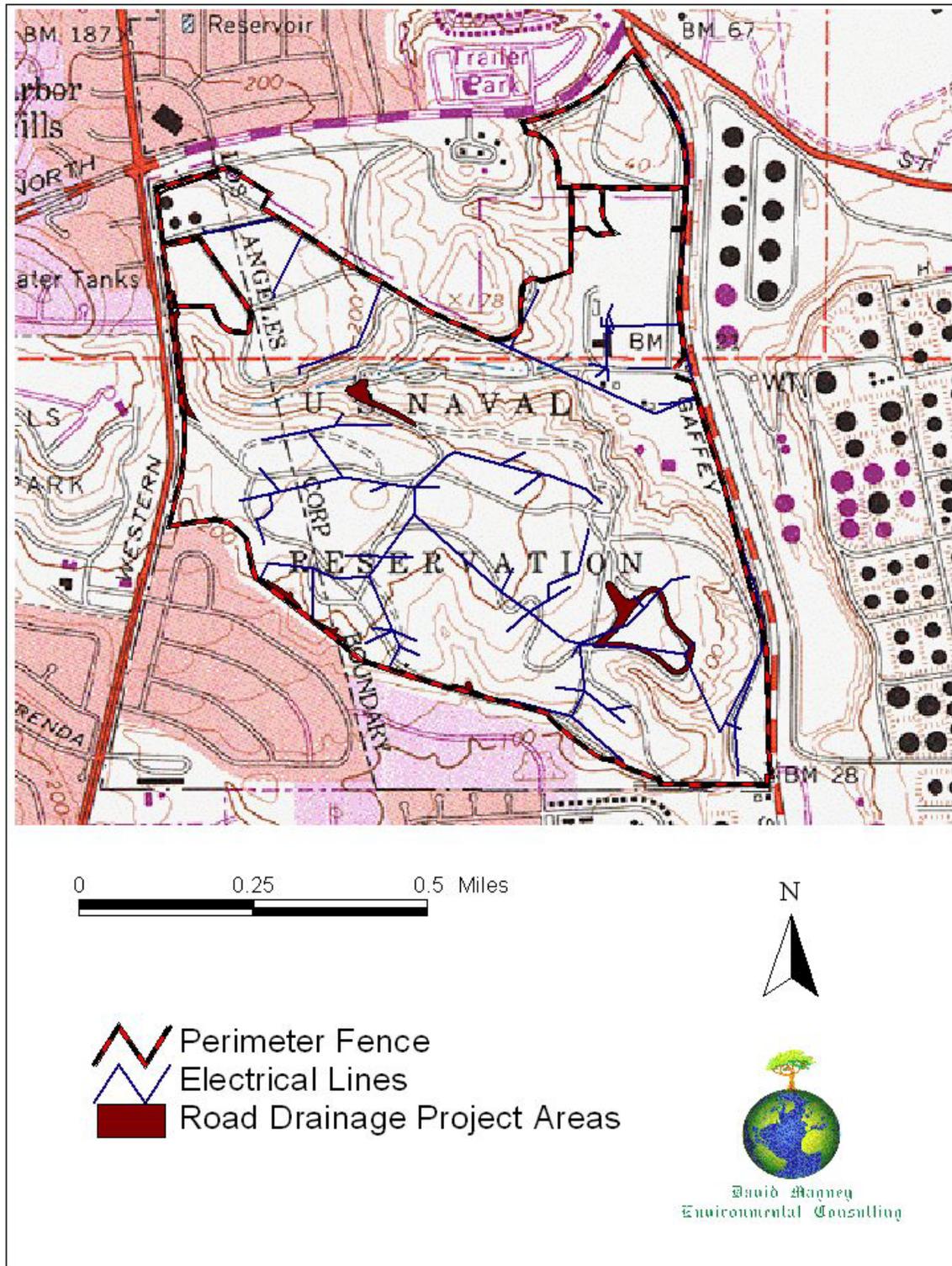
Figure 2, Fencing, Electrical Lines, and Roads to be Surveyed at the DFSP San Pedro U.S. Naval Reserve, shows the features and areas on the Naval Reserve proposed for maintenance and/or replacement.

In addition to marking (with GPS way points) any observed special-status species observed onsite, DMEC also marked all observed locations of the two subject host plants for the Palos Verdes Blue butterfly, including Deerweed and Three-Pod Milkvetch. Although DMEC was not contracted to map vegetation and host plants at DFSP San Pedro, DMEC flagged all observed specimens of the host plants to aid mapping efforts conducted by TEC.

Each member of the survey team carried the following equipment:

- Aerial maps of the survey areas for surveying habitats along the appropriate features onsite;
- GPS unit to track all paths walked by botanists during rare plant surveys, and to mark locations of host plants and special-status species;
- Flagging to mark where host plants and rare plants were located onsite for later mapping;
- Field notebook for documenting the DFSP San Pedro flora, and for recording notes regarding rare plants or host plant habitat characteristics; and
- Cameras (35mm Single Lens Reflex [SLR] camera or digital camera) to further document findings by photographing habitat conditions and any special-status plant species observed onsite.

Figure 2. Fencing, Electrical Lines, and Roads to be Surveyed at the DFSP San Pedro U.S. Naval Reserve



Data recorded for survey results, include:

- Date, hours, and time of each survey;
- GPS tracks of routes traveled and areas surveyed by each botanist;
- Habitat conditions;
- All vascular plants observed onsite (native, rare, naturalized, and ornamental species);
- Any special-status species observed and associate species growing nearby;
- Locations of significant findings by Township and Range, latitude and longitude coordinates (WGS 84 datum), and California State Plane V (NAD 83); and
- Elevation.

A search of the California Department of Fish and Game Natural Diversity Database (CNDDDB 2002) RareFind2 found several special-status plant species with potential to occur at DFSP San Pedro. Based on the facility's Integrated Natural Resources Management Plan, five special-status plant species have the potential to occur at DFSP San Pedro. *Calystegia peirsonii* (Peirson's Morning-glory) currently exists onsite, while *Pentachaeta lyonii* (Lyon's Pentachaeta [tracked by CNDDDB]), *Calochortus catalinae* (Catalina Mariposa Lily), *Crossosoma californicum* (Catalina Crossosoma), and *Dichondra occidentalis* (Western Dichondra) have the potential to occur onsite based on the species range of occurrence and required habitat.

Although several special-status plant species have potential to occur in the vicinity of DFSP San Pedro, surveys were generally targeted for the above mentioned five special-status plant species that have high potential to occur onsite. Prior to special-status plant species surveys, any relevant facility reports were evaluated to determine potential locations for these species. Special-status plant species were surveyed for by walking one pass through a 100-foot corridor (50-foot radius) on either side of the road, fence, or electrical line that is proposed for maintenance, repair, or replacement. Additional evaluation was conducted if deemed appropriate by the surveying botanists.

Lyon's Pentachaeta (Federally and State listed as Endangered) and Catalina Crossosoma (CNPS List 1B), were surveyed for based on their habitat requirements and favorable environmental factors. Specifically, they were surveyed for by attempting to locate the species habitat requirement and/or typical associate species onsite. If appropriate conditions were observed the areas of interest were thoroughly surveyed within a visual distance of approximately 15 feet. Other project areas were surveyed for these species by one pass through a 100-foot corridor (as conducted for the other three targeted special-status species mentioned above).

When individuals or populations of special-status plant species were located, GPS waypoints were recorded, which include information on location, date, and elevation. Species were also documented by photograph at the appropriate scale to show the flowers and/or fruits of the species, and to show the habitat in which it was observed. California Native Species Field Survey Forms were filled out for each individual or population of special-status plant species found. All California Native Species Field Survey Forms are included in Appendix A at the end of this report.

The first special-status plant species survey was conducted on 3, 4, and 5 June 2003 by Mr. Magney and Ms. Batchelor. Surveys during this three-day period consisted of walking within 100 feet along all features requiring maintenance or replacement to document all vascular plants observed onsite, and to report any rare plant findings. Although all areas requiring maintenance were walked over and surveyed for botanical resources, the areas inhabited by Coastal Sage Scrub (California Sagebrush



Series) habitat were generally surveyed more thoroughly. Most areas onsite, that were not inhabited by Coastal Sage Scrub habitat, were mowed prior to the botanical surveys, or were being mowed during the time of the surveys. Many plants were mowed to the point that they were unidentifiable; however, it is highly unlikely that the rare species of interest could become established under such environmental stresses.

Ms. Batchelor and Ms. DePuydt conducted the second special-status plant species survey on 10 July 2003. This second one-day survey consisted of concentrating only in areas inhabited by Coastal Sage Scrub habitat. Features requiring maintenance that exist in recently mowed portions of the parcel, which includes most of the parcel, were not surveyed. Since all proposed maintenance areas were thoroughly surveyed during the June survey, it was not deemed necessary to conduct surveys in those areas of significantly disturbed habitat (Ruderal Grassland Series) a second time. Portions of DFSP San Pedro inhabited by Coastal Sage Scrub habitat were walked over carefully during this second survey to attempt to detect any rare plants and to record any newly observed plant species not recorded during the first site visit.

SPECIAL-STATUS SPECIES DEFINITIONS

All plant species encountered during surveys that are within any of the following status categories were documented if encountered during the botanical surveys: (1) plants listed or proposed for listing as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) or by the State of California; or (2) plants included on the California Native Plant Society's (CNPS's) List 1B, List 2, List 3, or List 4.

The CNPS's *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001) categorizes rare California plants into one of five lists (1A, 1B, 2, 3, & 4) representing the five levels of species status, one of which is assigned to a sensitive species to indicate its status of rarity and distribution. A CNPS List status is a significant designation in terms of a species' overall status throughout all of California. Table 1, California Native Plant Society List (CNPS List) Definitions, provides a definition for each List code number.

Table 1. California Native Plant Society List (CNPS List) Definitions

CNPS List	Definition
1A	Presumed Extinct in California
1B	Rare or Endangered in California and elsewhere
2	Rare and Endangered in California, more common elsewhere
3	Need more information
4	Plants of Limited Distribution

The NDDDB Element Ranking system provides a numeric global- and state-ranking system for all special-status species tracked by the NDDDB. The global rank (G-rank) is a reflection of the overall condition of an element (species or natural community) throughout its global range. The state ranking (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank. This Element Ranking system is defined below in Table 2, California Natural Diversity Database Element Ranking System.



Table 2. California Natural Diversity Database Element Ranking System

Global Ranking (G)	
G1	Less than 6 viable elements occurrences (populations for species), OR less than 1,000 individuals, OR < 809.4 hectares (ha) (2,000 acres [ac]).
G2	6 to 20 element occurrences OR 809.4 to 4,047 ha (2,000 to 10,000 ac).
G3	21 to 100 element occurrences OR 3,000 to 10,000 individuals OR 4,047 to 20,235 ha (10,000 to 50,000 ac).
G4	Apparently secure; this rank is clearly lower than G3, but factors exist to cause some concern (i.e. there is some threat, or somewhat narrow habitat).
G5	Population, or stand, demonstrably secure to ineradicable due to being commonly found in the world.
GH	All sites are historic ; the element has not been seen for at least 20 years, but suitable habitat still exists.
GX	All sites are extirpated ; this element is extinct in the wild.
GXC	Extinct in the wild; exists in cultivation.
G1Q	The element is very rare, but there is a taxonomic question associated with it.
Subspecies Level: Subspecies receive a T-rank attached to the G-rank. With the subspecies, the G-rank reflects the condition of the entire <u>species</u> , whereas the T-rank reflects the global situation of just the <u>subspecies</u> or <u>variety</u> . * For example: <i>Chorizanthe robusta</i> var. <i>hartwegii</i> is ranked G2T1. The G-rank refers to the whole species range (<i>Chorizanthe robusta</i>), whereas the T-rank refers only to the global condition of the variety (var. <i>hartwegii</i>).	
State Ranking (S)	
S1	Less than 6 element occurrences OR less than 1,000 individuals OR less than 809.4 ha (2,000 ac). S1.1 = very threatened S1.2 = threatened S1.3 = no current threats known
S2	6 to 20 element occurrences OR 3,000 individuals OR 809.4 to 4,047 ha (2,000 to 10,000 ac). S2.1 = very threatened S2.2 = threatened S2.3 = no current threats known..
S3	21 to 100 element occurrences OR 3,000 to 10,000 individuals OR 4,047 to 20,235 ha (10,000 to 50,000 ac). S3.1 = very threatened S3.2 = threatened S3.3 = no current threats known
S4	Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern (i.e., there is some threat, or somewhat narrow habitat). NO THREAT RANK.
S5	Demonstrably secure to ineradicable in California. NO THREAT RANK.
SH	All California sites are historic ; the element has not been seen for at least 20 years, but suitable habitat still exists.
SX	All California sites are extirpated ; this element is extinct in the wild.
Notes	
<p>1. Other considerations used when ranking a species or natural community include the pattern of distribution of the element on the landscape, fragmentation of the population/stands, and historical extent as compared to its modern range. It is important to take an aerial view when ranking sensitive elements rather than simply counting element occurrences.</p> <p>2. Uncertainty about the rank of an element is expressed in two major ways: by expressing the rank as a range of values (e.g. S2S3 means the rank is somewhere between S2 and S3), and by adding a ? to the rank (e.g. S2?). This represents more certainty than S2S3, but less than S2.</p>	

SECTION 3. RESULTS

The routes walked by DMEC botanists throughout the DFSP San Pedro survey areas, as tracked by GPS units, are presented below in Figure 3, DMEC Survey Tracks at the DFSP San Pedro U. S. Naval Reserve. Figure 3 shows the land coverage during DFSP San Pedro botanical surveys.

BOTANICAL RESOURCES

Botanical resources (or plant life) include the habitats and the flora that form and occupy those habitats. This section includes a discussion of the predominant habitat types surveyed for special-status plant species, a list of the project site flora (vascular plant species observed during the special-status plant surveys), and a description of the special-status species observed onsite. The surveys were conducted early June and early July of 2003.

Habitat Types

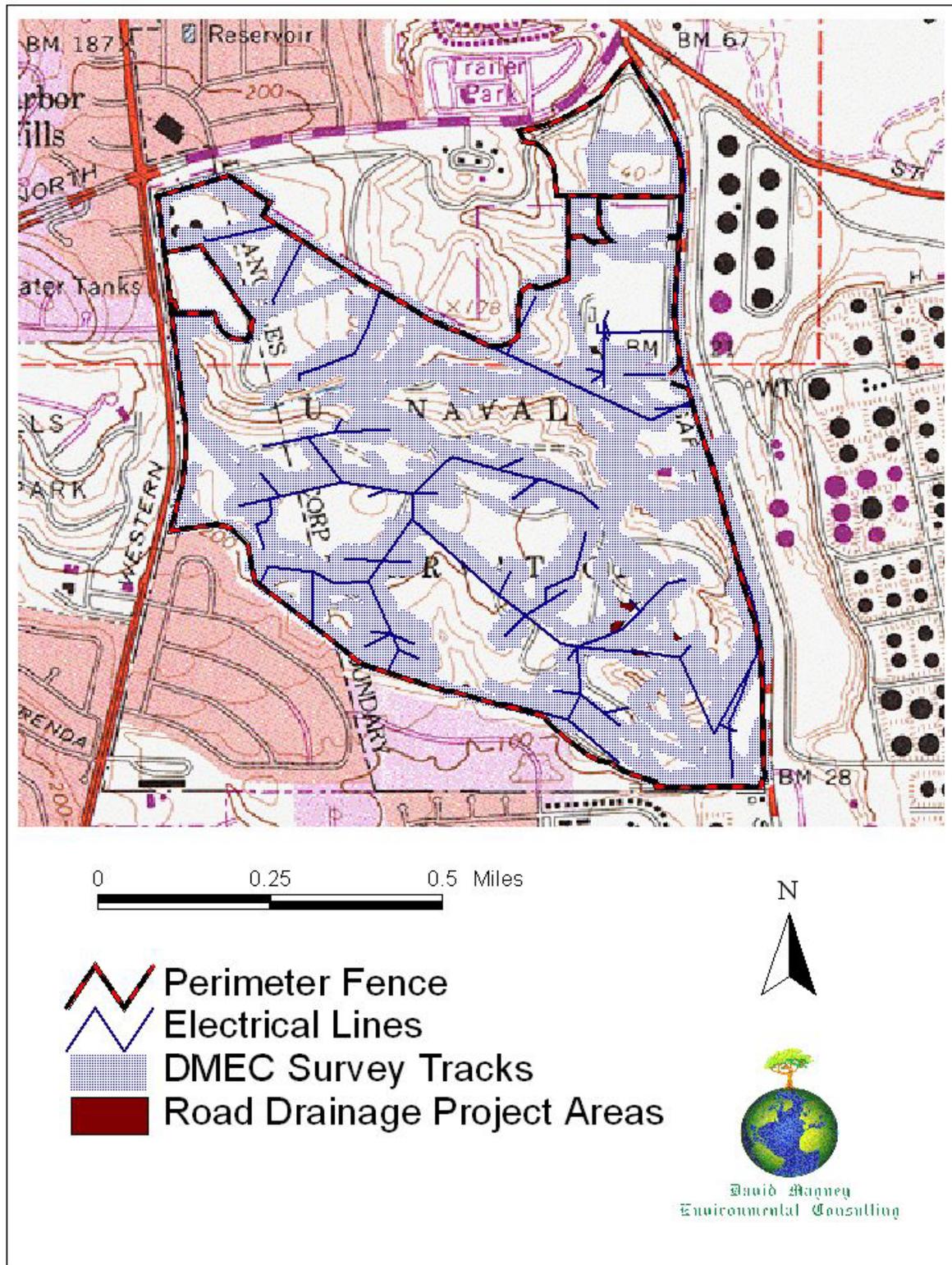
The predominant habitat types occupying the landscape onsite are Ruderal Grassland Series and California Sagebrush Series (a specific plant series of Coastal Sage Scrub). These habitats are discussed in detail in the following subsection.

Ruderal Grassland Series

Ruderal Grassland Series is a plant community that is typically in early successional stages as a result of a severe disturbance by natural or human causes, or because the land is subject to recurrent disturbance. This plant community is dominated by annual and perennial, nonnative, pioneering, herbaceous plants that readily colonize disturbed ground. Ruderal communities are a threat to the biodiversity of open areas such as DFSP San Pedro, since they continually distribute non-native propagules into native vegetation. These exotic species colonize natural and human-influenced disturbances and create a competitive environment for the more desirable natives; however, if Ruderal Grassland is left undisturbed, it generally undergoes succession towards more stable and less weedy plant communities, such as Coastal Sage Scrub. (Zedler et al. 1997.)

The Ruderal Grassland Series onsite is predominated by introduced annual grass species, including *Avena barbata* (Slender Wild Oat), *Bromus diandrus* (Ripgut Grass), *B. hordeaceus* (Soft Chess), *B. madritensis* ssp. *rubens* (Red Brome), and *Hordeum murinum* ssp. *glaucum* (Summer Barley). Several nonnative (often invasive) annual herbs are predominant as well, including: *Carduus pycnocephalus* (Italian Thistle), *Centaurea melitensis* (Tocalote), *Erodium* spp. (Broadleaf and Redstem Filaree), *Hedypnois cretica* (Hedypnois), *Hirschfeldia incana* (Summer Mustard), *Medicago polymorpha* (Bur Clover), *Melilotus* spp. (White Sweetclover and Sourclover), *Raphanus sativus* (Wild Radish), and *Silybum marianum* (Milk Thistle).

Figure 3. DMEC Survey Tracks at the DFSP San Pedro U. S. Naval Reserve



In addition to the predominant invasive exotics, several native species were observed competing against the nonnative, often invasive species in Ruderal Grassland Series, including: *Ambrosia* spp. (Beach Bur, Annual Bursage, and Western Ragweed), *Asclepias fascicularis* (Narrowleaf Milkweed), *Conyza canadensis* (Horseweed), *Deinandra fasciculata* (Fasciculed Tarplant), *Eremocarpus setigerus* (Dove Weed), *Heterotheca grandiflora* (Telegraph Weed), and *Lotus purshianus* var. *purshianus* (Pursh's Lotus). Deerweed (Palos Verdes Blue host plant) was commonly observed scattered throughout Ruderal Grassland Series, but was generally observed mowed back, while Three-Pod Milkvetch (host plant) was observed less frequently in the Ruderal Grassland Series.

Ruderal Grassland Series is more or less consistent where it occurs throughout most of the parcel; however, some minor differences were observed as patches throughout the Ruderal Grassland. For example, *Chrysanthemum* spp. (Chrysanthemum), *Raphanus sativus* (Wild Radish), and/or *Silybum marianum* (Milk Thistle) has colonized several areas onsite.

Ruderal Grassland Series habitat, inhabiting most areas with features proposed for maintenance, was thoroughly surveyed during the June survey. However, this habitat type was not surveyed during the July survey, since most of this habitat type is significantly disturbed due to constant negative human influences, such as seasonal mowing.



Tractor-mower at south side of DFSP San Pedro mowing Ruderal Grassland Series (view southeast).

Coastal Sage Scrub (California Sagebrush Series)

Coastal Sage Scrub forms various stands dominated by several drought-deciduous, low-growing, soft-leaved, grayish and green shrub and subshrub species. Coastal Sage Scrub is often considered as a collection of species-specific plant series (Sawyer and Keeler-Wolf 1995). Shrub plant size and species composition is relative to the available water supply present at each site; however, these woody and semi-woody plants are typically already low growing since drought seasons accompanied with high temperatures and drying winds cause severe moisture stress (Zedler et al. 1997). Coastal Sage Scrub species form various canopy densities; they occupy shallow or heavy soils of dry gentle to steep, moderately rocky, predominantly southern-facing slopes; and they generally occur at lower elevations. Emergent, large, evergreen shrubs, typically categorized as chaparral species, are often scattered within Coastal Sage Scrub plant communities.

The Coastal Sage Scrub type that was predominantly observed at DFSP San Pedro is California Sagebrush Series (Sawyer and Keeler-Wolf 1995), which is dominated by *Artemisia californica*. California Sagebrush is typical of scrub and chaparral vegetation types of dry foothills, especially near the coast (Hickman 1993). It is adapted to fire by resprouting from its base both after and between recurring fires, but short intervals (<5 years) between fires can eliminate this scrub type, leaving sites dominated by non-native grasses (Zedler et al. 1997).

California Sagebrush Series forms a continuous to intermittent canopy over a variable ground layer. California Sagebrush is the sole or dominant shrub in this plant community, while several typical Coastal Sage Scrub species may be important local associates. Perennial and annual grasses and forbs are common in canopy gaps. California Sagebrush Series typically occurs on steep, south-facing, upland slopes and in rarely flooded, low-gradient deposits along streams. It requires shallow alluvial- or colluvial-derived soils, and grows at elevations between sea level and 1,200 meters. (Sawyer and Keeler-Wolf 1995.)

Important shrub canopy associates of the California Sagebrush Series, observed throughout most of the scrub areas onsite, during the June and July botanical surveys include. *Baccharis pilularis* (Coyote Brush), *Encelia californica* (California Bush Sunflower), *Ericameria palmeri* var. *pachylepis* (Goldenbush), *Eriogonum* spp. (Ash Coast Buckwheat and Leafy California Buckwheat), *Galium angustifolium* ssp. *angustifolium* (Chaparral Bedstraw), *Salvia* spp. (Black Sage and Purple Sage), *Hazardia squarrosa* (Sawtooth Goldenbush), *Leymus condensatus* (Giant Wildrye [shrub-sized perennial grass]), Deerweed, *Mimulus aurantiacus* (Sticky Bush Monkeyflower), and *Opuntia* spp. (Round-Pad Prickly Pear and Cholla).

Common understory native annual and perennial herb and grass species observed onsite include *Croton californicus* var. *californicus* (California Croton), *Cucurbita foetidissima* (Coyote Melon), *Eriogonum elongatum* var. *elongatum* (Long-Stemmed Buckwheat), *Gnaphalium californicum* (Green Everlasting), *Lessingia filaginifolia* var. *filaginifolia* (Cudweed-Aster), and *Nassella* spp. (Foothill Needlegrass and Purple Needlegrass). Emergent, predominantly evergreen shrubs (sometimes small trees), such as *Heteromeles arbutifolia* (Toyon), *Malosma laurina* (Laurelleaf Sumac), *Rhus* spp. (Sugar Bush and Lemonade Berry), and *Sambucus mexicana* (Blue Elderberry [deciduous]), were observed scattered within the California Sagebrush Series onsite as well.

In addition to Deerweed, Three-Pod Milkvetch was also observed in this habitat type, but less frequently so. Escaped ornamental species were often observed invading the California Sagebrush

Series habitat. For example, *Carpobrotus* spp. (Sea Fig and Hottentot Fig) was observed as thick mats in the surveyed California Sagebrush Series (such as in Map 6 of the aerial photographs provided by TEC).

The areas inhabited by California Sagebrush Series were in general more intensively surveyed than the areas inhabited by Ruderal Grassland Series. Although much of the California Sagebrush Series observed onsite is successional from human disturbance, this plant community still provides moderate habitat for the establishment of predominantly native species, including the potential for establishment by special-status plant species. These areas are also important fragments of relatively functional habitat for several wildlife species. (See Figure 4, Locations of Host Plants, Special-Status Species, and Targeted Coastal Sage Scrub Habitat at the DFSP San Pedro U. S. Naval Reserve.)

Flora

At least 194 vascular plant taxa were observed by DMEC during the DFSP San Pedro botanical surveys. All vascular plant species identified and recorded during the field surveys are listed in Table 3, Vascular Plants Observed at the DFSP San Pedro Naval Reserve. Table 3 is alphabetized by the plant species' scientific (botanical) names, and provides common names, growth habits, and the family names for each plant species.

Table 3. Vascular Plants Observed at the DFSP San Pedro Naval Reserve

Scientific Name ¹	Common Name ²	Habit ³	Family
<i>Acacia longifolia</i> +	Sydney Golden Wattle	S/T	Leguminosae
<i>Agave</i> sp. +	Century Plant	S	Agavaceae
<i>Amaranthus albus</i> *	Tumbleweed	AH	Amaranthaceae
<i>Ambrosia acanthicarpa</i>	Annual Bursage	AH	Asteraceae
<i>Ambrosia chamissonis</i>	Beach Bur	PH	Asteraceae
<i>Ambrosia psilostachya</i> var. <i>californica</i>	Western Ragweed	BH	Asteraceae
<i>Anagallis arvensis</i> *	Scarlet Pimpernel	AH	Primulaceae
<i>Arecastrum australe</i> +	Queen Palm	T	Arecaceae
<i>Artemisia californica</i>	California Sagebrush	S	Asteraceae
<i>Artemisia douglasiana</i>	Mugwort	PH	Asteraceae
<i>Arundo donax</i> *	Giant Reed	PG	Poaceae
<i>Asclepias fascicularis</i>	Narrowleaf Milkweed	PH	Ascepiadaceae
<i>Asparagus sprengeri</i> *	Sprenger Asparagus	PH	Asparagaceae
<i>Astragalus trichopodus</i> var. <i>lonchus</i>	Three-Pod Milkvetch	PH	Fabaceae

¹ Scientific nomenclature follows Hickman (1993) and CNPS (2001).

“*” indicates nonnative species which have become naturalized or persist without cultivation.

“+” indicates planted or escaped introduced ornamental species.

² Common names follow Abrams and Ferris (1960), Neihaus and Ripper (1976), and DeGarmo (1980).

³ Habit definitions: AF = annual fern or fern ally; AG = annual grass; AH = annual herb; BH = biennial herb; PH = perennial fern or fern ally; PG = perennial grass; PH = perennial herb; PV = perennial vine; S = shrub; T = tree.

Scientific Name ¹	Common Name ²	Habit ³	Family
<i>Atriplex semibaccata</i> *	Australian Saltbush	PH	Chenopodiaceae
<i>Avena barbata</i> *	Slender Wild Oat	AG	Poaceae
<i>Baccharis emoryi</i>	Emory's Baccharis	S	Asteraceae
<i>Baccharis pilularis</i>	Coyote Brush	S	Asteraceae
<i>Baccharis salicifolia</i>	Mulefat	S	Asteraceae
<i>Brassica nigra</i> *	Black Mustard	AH	Brassicaceae
<i>Bromus carinatus</i> var. <i>carinatus</i>	California Brome	PG	Poaceae
<i>Bromus catharticus</i> *	Rescue Grass	AG	Poaceae
<i>Bromus diandrus</i> *	Ripgut Grass	AG	Poaceae
<i>Bromus hordeaceus</i> *	Soft Chess	AG	Poaceae
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	Red Brome	AG	Poaceae
<i>Camissonia</i> sp.	primrose	AH	Onagraceae
<i>Camissonia micrantha</i>	Tiny Primrose	AH	Onagraceae
<i>Carduus pycnocephalus</i> *	Italian Thistle	AH	Asteraceae
<i>Carpobrotus chilense</i> +	Sea Fig	PH/S	Aizoaceae
<i>Carpobrotus edulis</i> +	Hottentot Fig	PH/S	Aizoaceae
<i>Centaurea melitensis</i> *	Tocalote	AH	Asteraceae
<i>Ceratonia siligua</i> +	Carob	T	Leguminosae
<i>Chamaesyce albomarginata</i>	Rattlesnake Spurge	AH	Euphorbiaceae
<i>Chamaesyce serpyllifolia</i> ssp. <i>hirtula</i>	Hairy Thyme-Leaved Spurge	AH	Euphorbiaceae
<i>Chamomilla suaveolens</i> *	Pineapple Weed	AH	Asteraceae
<i>Chenopodium album</i> *	Lamb's Quarters	AH	Chenopodiaceae
<i>Chenopodium murale</i> *	Nettle-Leaved Goosefoot	AH	Chenopodiaceae
<i>Chrysanthemum coronarium</i> *	Garland Chrysanthemum	AH	Asteraceae
<i>Chrysanthemum parthenium</i> *	Chrysanthemum	PH	Asteraceae
<i>Cinnamomum camphora</i> +	Camphor Tree	T	Lauraceae
<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	Four-Spotted Purple Clarkia	AH	Onagraceae
<i>Claytonia perfoliata</i> ssp. <i>perfoliata</i>	Miner's Lettuce	AH	Portulacaceae
<i>Convolvulus arvensis</i> *	Bind Weed	PV	Convolvulaceae
<i>Conyza bonariensis</i> *	South American Horseweed	AH	Asteraceae
<i>Conyza canadensis</i>	Horseweed	AH	Asteraceae
<i>Cortedaria jubata</i> *	Andean Pampas Grass	PG	Poaceae
<i>Cortedaria selloana</i> *	Pampas Grass	PG	Poaceae
<i>Cotula coronopifolia</i> *	African Brass-Buttons	AH	Asteraceae
<i>Crassula</i> cf. <i>arborescens</i> +	Silver Jade Plant	S	Crassulaceae
<i>Croton californicus</i> var. <i>californicus</i>	California Croton	PH	Euphorbiaceae
<i>Cucurbita foetidissima</i>	Coyote Melon	PV	Cucurbitaceae

Scientific Name ¹	Common Name ²	Habit ³	Family
<i>Cynodon dactylon</i> *	Bermuda Grass	PG	Poaceae
<i>Cyperus eragrostis</i>	Umbrella-Sedge	PH	Cyperaceae
<i>Datura wrightii</i>	Jimson Weed	AH	Solanaceae
<i>Deinandra fasciculata</i>	Fasciculed Tarplant	AH	Asteraceae
<i>Distichlis spicata</i>	Saltgrass	PG	Poaceae
<i>Drosanthemum</i> sp. +	dewflower	PH	Aizoaceae
<i>Encelia californica</i>	California Bush Sunflower	S	Asteraceae
<i>Epilobium canum</i> ssp. <i>canum</i>	California Fuchsia	PH	Onagraceae
<i>Eremocarpus setigerus</i>	Dove Weed	AH	Euphorbiaceae
<i>Ericameria palmeri</i> var. <i>pachylepis</i>	Goldenbush	S	Asteraceae
<i>Eriogonum cinereum</i>	Ash Coast Buckwheat	S	Polygonaceae
<i>Eriogonum elongatum</i> var. <i>elongatum</i>	Long-Stemmed Buckwheat	PH	Polygonaceae
<i>Eriogonum fasciculatum</i> ssp. <i>foliolosum</i>	Leafy California Buckwheat	S	Polygonaceae
<i>Erodium botrys</i> *	Broadleaf Filaree	AH	Geraniaceae
<i>Erodium cicutarium</i> *	Redstem Filaree	AH	Geraniaceae
<i>Eschscholzia californica</i>	California Poppy	AH	Papaveraceae
<i>Eucalyptus globulus</i> +	Tasmanian Blue Gum	T	Myrtaceae
<i>Eucalyptus lehmannii</i> +	Lehmann's Gum	T	Myrtaceae
<i>Filago arizonica</i>	Arizona Filago	AH	Asteraceae
<i>Filago gallica</i> *	Woolly Filago	AH	Asteraceae
<i>Foeniculum vulgare</i> *	Sweet Fennel	PH	Apiaceae
<i>Frankenia salina</i>	Alkali Heath	PH	Frankeniaceae
<i>Fraxinus</i> sp. +	ash	T	Oleaceae
<i>Galium angustifolium</i> ssp. <i>angustifolium</i>	Chaparral Bedstraw	S	Rubiaceae
<i>Galium aparine</i> *	Catchweed Bedstraw	AH	Rubiaceae
<i>Gazania linearis</i> +	Gazania	PH	Asteraceae
<i>Gnaphalium bicolor</i>	Bicolored Everlasting	PH	Asteraceae
<i>Gnaphalium californicum</i>	Green Everlasting	A/BH	Asteraceae
<i>Gnaphalium canescens</i> ssp. <i>beneolens</i>	Coastal Everlasting	AH	Asteraceae
<i>Gnaphalium canescens</i> ssp. <i>microcephalum</i>	White Everlasting	AH	Asteraceae
<i>Gnaphalium leucocephalum</i>	White Everlasting	AH	Asteraceae
<i>Gnaphalium luteo-album</i> *	Cudweed Everlasting	BH	Asteraceae
<i>Gnaphalium palustre</i>	Lowland Cudweed	AH	Asteraceae
<i>Hazardia squarrosa</i>	Sawtooth Goldenbush	S	Asteraceae
<i>Hedera canariensis</i> +	Canary Ivy	PV	Araliaceae
<i>Hedypnois cretica</i> *	Hedypnois	AH	Asteraceae
<i>Helianthus annuus</i>	Common Sunflower	AH	Asteraceae

Scientific Name ¹	Common Name ²	Habit ³	Family
<i>Heliotropium curassavicum</i>	Alkali Heliotrope	PH	Boraginaceae
<i>Heteromeles arbutifolia</i>	Toyon	S	Rosaceae
<i>Heterotheca grandiflora</i>	Telegraph Weed	PH	Asteraceae
<i>Hirschfeldia incana</i> *	Summer Mustard	PH	Brassicaceae
<i>Hordeum murinum</i> ssp. <i>glaucum</i> *	Summer Barley	AG	Poaceae
<i>Horkelia cuneata</i> ssp. <i>sericea</i>	Kellogg's Horkelia	PH	Rosaceae
<i>Hypochaeris glabra</i> *	Smooth Cat's-Ear	AH	Asteraceae
<i>Isocoma menziesii</i> var. <i>vernonioides</i>	Coastal Goldenbush	S	Asteraceae
<i>Isomeris arborea</i>	Bladder Pod	S	Brassicaceae
<i>Juglans californica</i> var. <i>californica</i>	Southern California Black Walnut	T	Juglandaceae
<i>Juniperus</i> sp.+	juniper	S	Cupressaceae
<i>Keckiella cordifolia</i>	Heart-Leaved Bush Penstemon	S	Scrophulariaceae
<i>Lactuca serriola</i> *	Prickly Wild Lettuce	AH	Asteraceae
<i>Lamarckia aurea</i> *	Goldentop	AG	Poaceae
<i>Lessingia filaginifolia</i> var. <i>filaginifolia</i>	Cudweed-Aster	PH	Asteraceae
<i>Leymus condensatus</i>	Giant Wildrye	PG	Poaceae
<i>Limonium sinuatum</i> +	Sea Lavender	PH	Plumbaginaceae
<i>Liquidambar styraciflua</i> +	Sweet Gum	T	Hamamelidaceae
<i>Lobularia maritima</i> *	Sweet Alyssum	PH	Brassicaceae
<i>Lolium multiflorum</i> *	Italian Ryegrass	AG	Poaceae
<i>Lotus purshianus</i> var. <i>purshianus</i>	Pursh's Lotus	AH	Fabaceae
<i>Lotus salsuginosus</i> var. <i>salsuginosus</i>	Coastal Lotus	AH	Fabaceae
<i>Lotus scoparius</i> var. <i>scoparius</i>	Deerweed	PH	Fabaceae
<i>Lotus strigosus</i>	Strigose Lotus	AH	Fabaceae
<i>Lupinus albifrons</i> var. <i>albifrons</i>	Silver Bush Lupine	S	Fabaceae
<i>Lupinus bicolor</i>	Miniature Lupine	AH	Fabaceae
<i>Lupinus sparsiflorus</i> ssp. <i>sparsiflorus</i>	Few-Flowered Lupine	AH	Fabaceae
<i>Magnolia grandiflora</i> *	Southern Magnolia	T	Magnoliaceae
<i>Malacothrix saxatilis</i> var. <i>tenuifolia</i>	Tenuated Cliff-Aster	PH	Asteraceae
<i>Malosma laurina</i>	Laurelleaf Sumac	S	Anacardiaceae
<i>Malva parviflora</i> *	Cheeseweed	AH	Malvaceae
<i>Malva silvestris</i> *	High Mallow	B/PH	Malvaceae
<i>Marrubium vulgare</i> *	White Horehound	S	Lamiaceae
<i>Medicago polymorpha</i> *	Bur Clover	AH	Fabaceae
<i>Melilotus alba</i> *	White Sweetclover	A/BH	Fabaceae
<i>Melilotus indica</i> *	Sourclover	AH	Fabaceae
<i>Mimulus aurantiacus</i>	Sticky Bush Monkeyflower	S	Scrophulariaceae

Scientific Name ¹	Common Name ²	Habit ³	Family
<i>Myoporum laetum</i> *	Sandalwood	S	Myoporaceae
<i>Nassella lepida</i>	Foothill Needlegrass	PG	Poaceae
<i>Nassella pulchra</i>	Purple Needlegrass	PG	Poaceae
<i>Nerium oleander</i> +	Oleander	S	Apocynaceae
<i>Nicotiana glauca</i> *	Tree Tobacco	S	Solanaceae
<i>Oenothera laciniata</i> *	Evening Primrose	PH	Onagraceae
<i>Olea europea</i> +	European Olive	T	Oleaceae
<i>Opuntia littoralis</i> var. <i>littoralis</i>	Coastal Prickly Pear	S	Cactaceae
<i>Opuntia oricola</i>	Round-Pad Prickly Pear	S	Cactaceae
<i>Opuntia prolifera</i>	Cholla	S	Cactaceae
<i>Oxalis pes-caprae</i> *	Bermuda Buttercup	PH	Oxalidaceae
<i>Pandanus</i> sp.+	Screw Pine	T	Pandanaceae
<i>Pelargonium hortorum</i> +	Household Geranium	PH	Geraniaceae
<i>Pennisetum clandestinum</i> *	Kikuyu Grass	PG	Poaceae
<i>Pennisetum setaceum</i> *	African Fountain Grass	PG	Poaceae
<i>Phacelia cicutaria</i> var. <i>hubbyi</i>	Hubby's Caterpillar Phacelia	AH	Hydrophyllaceae
<i>Phacelia ramosissima</i>	Branching Phacelia	PH	Hydrophyllaceae
<i>Phalaris paradoxa</i> *	Hood Canary Grass	AG	Poaceae
<i>Phoenix canariensis</i> +	Canary Island Date Palm	T	Arecaceae
<i>Picris echioides</i> *	Bristly Ox-Tongue	AH	Asteraceae
<i>Pinus radiata</i>	Monterrey Pine	T	Pinaceae
<i>Piptatherum miliaceum</i> *	Smilo Grass	PG	Poaceae
<i>Plantago lanceolata</i> *	English Plantain	PH	Plantaginaceae
<i>Platanus racemosa</i> var. <i>racemosa</i>	Western Sycamore	T	Platanaceae
<i>Polygonum arenastrum</i> *	Common Knotweed	AH	Polygonaceae
<i>Polypogon monspeliensis</i> *	Rabbitsfoot Grass	AG	Poaceae
<i>Prunus persica</i> +	Peach	T	Rosaceae
<i>Quercus agrifolia</i> var. <i>agrifolia</i>	Coast Live Oak	T	Fagaceae
<i>Raphanus sativus</i> *	Wild Radish	AH	Brassicaceae
<i>Raphiolepis indica</i> +	Indian Hawthorn	S	Rosaceae
<i>Rhus integrifolia</i>	Lemonade Berry	S	Anacardiaceae
<i>Rhus ovata</i>	Sugar Bush	S	Anacardiaceae
<i>Ricinus communis</i> *	Castor Bean	S	Euphorbiaceae
<i>Rubus ursinus</i>	California Blackberry	PV	Rosaceae
<i>Rumex crispus</i> *	Curly Dock	PH	Polygonaceae
<i>Rumex hymenosepalus</i>	Wild Rhubarb	PH	Polygonaceae
<i>Rumex salicifolius</i> var. <i>salicifolius</i>	Willow Dock	PH	Polygonaceae

Scientific Name ¹	Common Name ²	Habit ³	Family
<i>Salix exigua</i>	Narrow-Leaved Willow	S	Salicaceae
<i>Salix gooddingii</i>	Goodding's Black Willow	T	Salicaceae
<i>Salix laevigata</i>	Red Willow	T	Salicaceae
<i>Salix lasiolepis</i>	Arroyo Willow	T	Salicaceae
<i>Salsola tragus</i> *	Tumbleweed	AH	Chenopodiaceae
<i>Salvia leucophylla</i>	Purple Sage	S	Lamiaceae
<i>Salvia mellifera</i>	Black Sage	S	Lamiaceae
<i>Sambucus mexicana</i>	Blue Elderberry	T/S	Caprifoliaceae
<i>Schinus molle</i> +	Peruvian Pepper Tree	T	Anacardiaceae
<i>Schinus terebinthifolius</i> +	Brazilian Pepper Tree	T	Anacardiaceae
<i>Silybum marianum</i> *	Milk Thistle	AH	Asteraceae
<i>Sisymbrium altissimum</i> *	Tumble Mustard	AH	Brassicaceae
<i>Sisymbrium irio</i> *	London Rocket	AH	Brassicaceae
<i>Solanum douglasii</i>	Douglas' Nightshade	S	Solanaceae
<i>Solanum lanceolatum</i> *	Lanceleaf Nightshade	S	Solanaceae
<i>Spergularia atrosperma</i>	Sand-Spurrey	AH	Caryophyllaceae
<i>Stephanomeria virgata</i> ssp. <i>virgata</i>	Twiggy Wreath-Plant	AH	Asteraceae
<i>Tetragonia tetragonoides</i> +	New Zealand Spinach	PH	Aizoaceae
<i>Toxicodendron diversilobum</i>	Poison Oak	S/PV	Anacardiaceae
<i>Trichostema lanceolatum</i>	Vinegar Plant	AH	Lamiaceae
<i>Trifolium hirtum</i> *	Rose Clover	AH	Fabaceae
<i>Tropaeolum majus</i> +	Garden Nasturtium	AH	Tropaeolaceae
<i>Ulmus</i> sp. +	elm	T	Ulmaceae
<i>Urtica dioica</i> ssp. <i>holosericea</i>	Hoary Creek Nettle	PH	Urticaceae
<i>Verbena lasiostachys</i> var. <i>lasiostachys</i>	Western Verbena	AH	Verbenaceae
<i>Vicia sativa</i> ssp. <i>sativa</i> *	Common Vetch	AV	Fabaceae
<i>Vicia villosa</i> ssp. <i>villosa</i> *	Hairy Vetch	AV	Fabaceae
<i>Vitis</i> sp. +	grape	PV	Violaceae
<i>Vulpia myuros</i> var. <i>myuros</i> *	Rattail Fescue	AG	Poaceae
<i>Washingtonia robusta</i> +	Mexican Fan Palm	T	Arecaceae
<i>Xanthium strumarium</i>	Cocklebur	AH	Asteraceae
<i>Yucca baccata</i> +	Blue Yucca	S	Agavaceae

Of the 194 plant species observed onsite, 93 (48%) plant species are native to California, and 101 species are introduced to California, including 69 (36%) species that are nonnative/naturalized, and 32 (16%) species that are planted and/or escaped ornamentals. Although many native taxa were observed onsite, the native taxa are widely scattered compared to the often invasive introduced species that colonize over much larger areas onsite than the native species.



Special-Status Plants

A literature review of the facility's Integrated Natural Resources Management Plan, a literature review of CNPS's *Inventory of Rare and Endangered Plants of California* (CNPS 2001), and a search of CNDDDB (2002) RareFind2, found 20 special-status plant species with the potential to occur at DFSP San Pedro. Fourteen (14) of those 20 were tracked by CNDDDB. The results of the RareFind2 search for the Torrance, Long Beach, San Pedro, Redondo Beach, and Los Alamitos, California Quadrangles (USGS 7.5-minute Series Topographic Map) are provided as Appendix B at the end of this report. The rare plants observed during DMEC's botanical surveys, and rare plants with potential to occur onsite, are listed below in Table 4, Special-Status Plant Species with Potential to Occur at DFSP San Pedro. Table 4 provides the scientific and common name, species status, habitat requirements, and likelihood of occurrence for each rare plant species.

Table 4. Special-Status Plant Species with Potential to Occur at DFSP San Pedro

Scientific Name	Common Name	Status: Fed./State/CDFG/CNPS ¹	Preferred Habitat (CNPS 2001)	Likelihood of Occurrence ²
<i>Aphanisma blitoides</i>	Aphanisma	-/-G2, S1.1/1B	Coastal bluff scrub, coastal dunes, coastal scrub; sandy; 1 to 305 meters in elevation.	Moderate
<i>Atriplex pacifica</i>	South Coast Saltscale	-/-G3G4, S2.2/1B	Coastal bluff scrub, coastal dunes, coastal scrub, playas; 0 to 100 meters in elevation.	Moderate
<i>Atriplex parishii</i>	Parish's Brittle-scale	-/-G1G2, S1.1/1B	Chenopod scrub; playas, vernal pools; 25 to 1,900 meters in elev.	Low
<i>Atriplex serenana</i> var. <i> davidsonii</i>	Davidson's Saltscale	-/-G5T2?, S2?/1B	Coastal bluff scrub, coastal scrub; alkaline; 10 to 200 meters in elev.	Moderate
<i>Calochortus catalinae</i>	Catalina Mariposa Lily	-/-/-4	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; 15 to 700 meters in elev.	High
<i>Calystegia peirsonii</i>	Peirson's Morning-Glory	-/-/-4	Chaparral, cismontane woodland, coastal scrub, chenopod scrub, lower montane coniferous forest, valley and foothill grassland; 425 to 1130 meters in elevation.	Observed (This exists onsite, but was not observed by DMEC.)

¹ Special-status species definitions:

FEDERAL: "--" = no designation of status; FE=Federally listed as Endangered; FT=Federally listed as Threatened; FPE=Federally proposed as Endangered; FPT=Federally proposed as Threatened; FC=Federal Candidate Species; FSC=U.S. Fish and Wildlife Service designated "Species of Concern" (CNDDDB 2002).

STATE: "--" = no designation of status; SE=State listed as Endangered; ST=State listed as Threatened; SR=State designated as Rare, CFP=CDFG designated "Fully Protected"; CSC=CDFG designated "Species of Special Concern" (CNDDDB 2002).

CDFG: See Table 2 for Global-Rank (G) and State-Rank (S) definitions; "--" = not found on RareFind2 search (CNDDDB 2002).

CNPS: See Table 1 for CNPS List definitions.

² Likelihood of occurrence is based on CNDDDB search, regional occurrences not tracked by CNDDDB, and best professional judgment.

Observed = Species observed within or immediately adjacent to the project site during the June and July 2003 surveys.

High = Species previously documented within the project site.

Moderate = Species likely to occur onsite since suitable habitat (Coastal Sage Scrub) exists, however limited/degraded it may be.

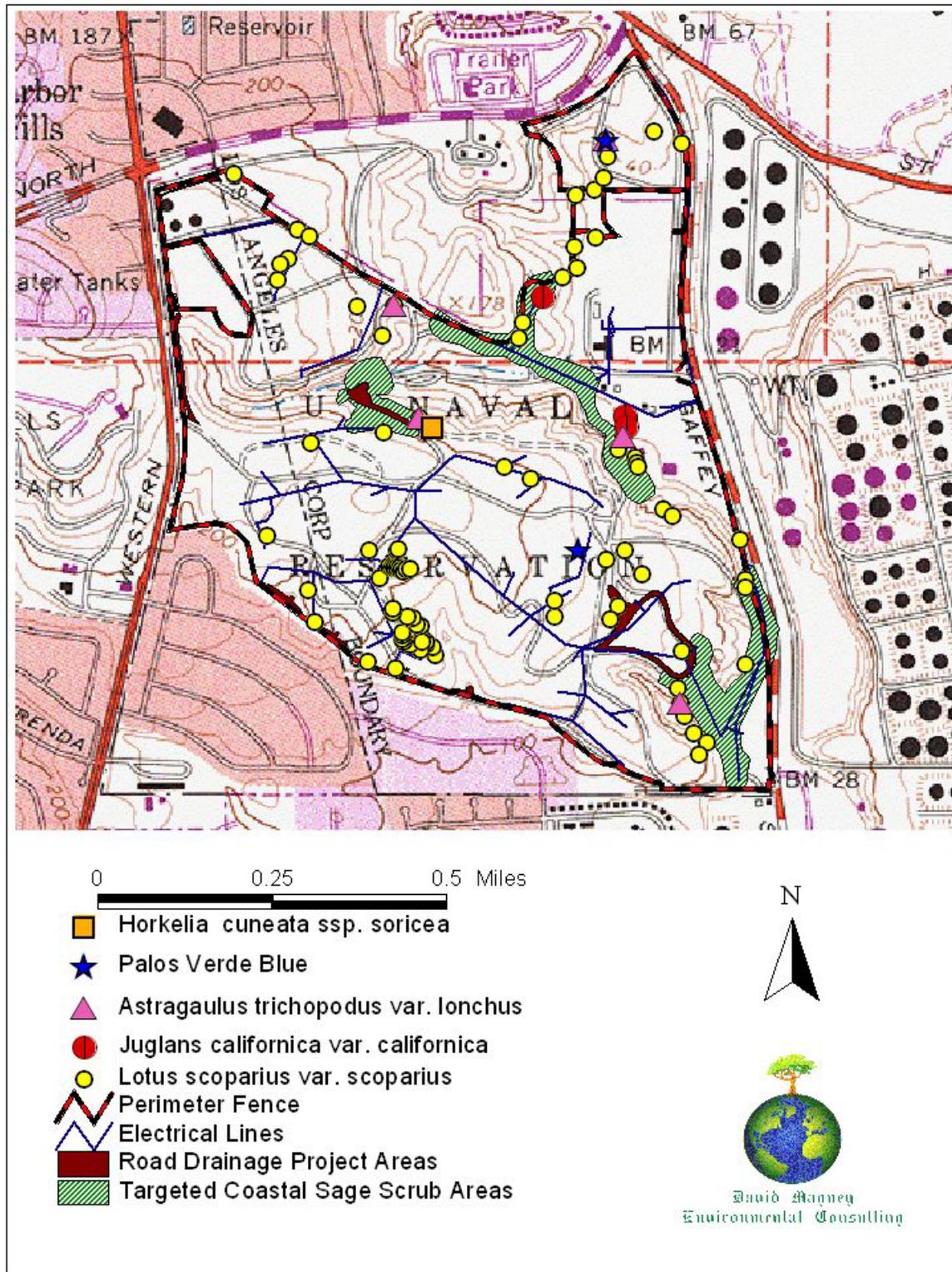
Low = Species is not likely to occur onsite since no suitable habitat for the species exists onsite.

Scientific Name	Common Name	Status: Fed./State/CDFG/CNPS ¹	Preferred Habitat (CNPS 2001)	Likelihood of Occurrence ²
<i>Centromadia parryi</i> ssp. <i>australis</i>	Southern Tarplant	-/-/G4?T2, S2.1/1B	Valley and foothill grassland, marshes, swamps, and vernal pools; below 420 meters in elev.	Low
<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>	Salt Marsh Bird's-Beak	FE/SE/ G4?T2, S2.1/1B	Coastal dunes, coastal salt marshes, and swamps; 0 to 30 meters in elev.	Low
<i>Crossosoma californicum</i>	California Crossosoma	-/-/-1B	Chaparral, coastal scrub; rocky areas; 0 to 500 meters in elevation.	High
<i>Dichondra occidentalis</i>	Western Dichondra	-/-/-/4	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland; 50 to 500 meters in elev.	High
<i>Dudleya virens</i> ssp. <i>insularis</i>	Island Green Dudleya	-/-/G2T2, S2.2/1B	Coastal bluff scrub, coastal scrub; rocky; 5 to 300 meters in elevation.	Moderate
<i>Fremontodendron mexicanum</i>	Mexican Flannelbush	E/R/G2, S2.1/1B	Closed-cone coniferous forest, chaparral, cismontane woodland; gabbroic, metavolcanic, or serpentine; 10 to 490 meters in elevation.	Low
<i>Horkelia cuneata</i> ssp. <i>sericea</i>	Kellogg's Horkelia	-/-/-1B	Closed-cone coniferous forest, chaparral (maritime), coastal scrub (sandy or gravelly openings); 10-200 meters in elevation.	Observed
<i>Juglans californica</i> var. <i>californica</i>	Southern California Black Walnut	-/-/-/4	Chaparral, cismontane woodland, coastal scrub; alluvial; 50 to 900 meters in elevation.	Observed
<i>Navarretia prostrata</i>	Prostrate Navarretia	FSC/-/G2?, S2.1?/1B	Coastal scrub, valley and foothill grassland (alkaline), vernal pools; mesic; 15-700 meters in elevation.	Moderate
<i>Nemacaulis denudata</i> var. <i>denudata</i>	Coast Woolly-Heads	-/-/G3G4T3, S2.2/1B	Coastal dunes; 0 to 100 meters in elevation.	Low
<i>Orcuttia californica</i>	California Orcutt Grass	E/E/G2, S2.1/1B	Vernal pools; 15 to 660 meters in elevation.	Low
<i>Pentachaeta lyonii</i>	Lyon Pentachaeta	E/E/G1, S1.1/1B	Chaparral, coastal scrub, valley and foothill grassland; 30 to 630 meters in elevation.	High
<i>Phacelia stellaris</i>	Brand's Phacelia	-/-/G1G2, S1.1/1B	Coastal dunes, coastal scrub; 5 to 400 meters in elevation.	Moderate
<i>Suaeda esteroa</i>	Estuary Seablite	-/-/G4, S3.2/1B	Marshes and swamps (coastal salt); 0 to 5 meters in elevation.	Low

Special-Status Species Observed/Known at DFSP San Pedro

Botanists marked waypoints for special-status species observed onsite. In addition to surveying for rare plants, DMEC also indicated all observed locations of the two subject host plants for the Palos Verdes Blue butterfly, including Deerweed and Three-Pod Milkvetch. All observed specimens of the host plants were flagged to support host plant mapping efforts conducted by TEC. Figure 4, Locations of Host Plants, Special-Status Species, and Targeted Coastal Sage Scrub Habitat at the DFSP San Pedro U. S. Naval Reserve, shows the locations of observed rare plants (Southern California Black Walnut and Kellogg's Horkelia), Palos Verdes Blue butterflies, and host plants. Figure 4 also indicates the Coastal Sage Scrub habitat targeted for the second special-status plant survey conducted in July 2003.

Figure 4. Locations of Host Plants, Special-Status Species, and Targeted Coastal Sage Scrub Habitat at the DFSP San Pedro U. S. Naval Reserve



DMEC observed Southern California Black Walnut and Kellogg's Horkelia onsite during the June botanical survey. Peirson's Morning-Glory is presently existing onsite; however, DMEC did not observe this species during the June and July botanical surveys. In addition to these three special-status plant species, the Palos Verdes Blue butterfly was also observed during the June botanical survey. These four special-status species are discussed in detail below.

Southern California Black Walnut

Southern California Black Walnut (*Juglans californica* var. *californica*) was observed by Mr. Magney and Ms. Batchelor on 3 June 2003 (33.77644°N, 118.29974°W) and on 5 June 2003 (33.77375°N, 118.29765°W). (See Figure 4 for general location of the species.) This species is not documented as existing onsite prior to these surveys, and it was not tracked in the CNDDDB (2002) RareFind2 search; however, Southern California Black Walnut exists at two locations onsite. It was observed growing with associate species including California Sagebrush, Deerweed, Three-Pod Milkvetch, Black Sage, and California Buckwheat.

Southern California Black Walnut is a small, broad-leaved, monoecious, winter-deciduous tree (to 15 meters tall) with one to five trunks. It has pinnately divided leaves with lanceolate toothed leaflets. The wind pollinated, greenish flowers, blooming between March and May, have four-lobed sepals arranged in pendulous clusters before emerging leaves. This species produces spheric, leathery-husked, strong-smelling fruit (walnuts). Southern California Black Walnut is listed with an FAC wetland indicator status in the National Inventory of Wetland Plants (Reed 1988). This facultative species is equally likely to occur in wetlands and non-wetlands, and it is a member of the walnut family (Juglandaceae). (Hickman 1993.)



Three plants of Southern California Black Walnut with California Sagebrush as understory, view northwest.



Southern California Black Walnut leaves.



Southern California Black Walnut fruit.

Southern California Black Walnut is CNPS List 4. Walnut forest is a much fragmented, declining natural plant community, and is rare in Orange, Riverside, San Bernardino, and San Diego Counties. This species/plant community is threatened by urbanization and grazing, and possibly by the lack of natural reproduction.

Southern California Black Walnut is uncommon, but can be found on slopes and canyons at elevations between 50 and 900 m, and it is often associated with riparian habitats (Hickman 1993). More specifically, it occurs in Chaparral, cismontane woodland, and coastal scrub habitats, in alluvial soils. This species ranges from the Santa Lucia Mountains (where they were once cultivated), Santa Barbara County, and along the coastal portions of the Transverse Ranges, south to the northern Peninsular Ranges in northern San Diego County. (CNPS 2001.)

Kellogg's Horkelia

Kellogg's Horkelia (*Horkelia cuneata* ssp. *sericea*) was observed by Mr. Magney on 3 June 2003 (33.77375°N, 118.30244°W). (See Figure 4 for general location of the species.) Based on the facility's Integrated Natural Resources Management Plan, this species was recorded onsite prior to the DMEC surveys; however, it was not identified to the subspecies. Kellogg's Horkelia was not tracked by the CNDDDB (2002) RareFind2 search. DMEC believes this species was planted onsite, as it occurs in a revegetation area that was planted with several Coastal Sage Scrub plant species, and this species is only known to occur on the Central Coast (Hickman 1993). Kellogg's Horkelia was observed growing with California Sagebrush, California Bush Sunflower, Bladder Pod, Sticky Bush Monkeyflower, and Chaparral Bedstraw.

Kellogg's Horkelia is a matted, hairy, perennial herb with toothed leaflets, clustered flowers, white petals, and a hairy hypanthium inner rim. It is a member of the rose family (Rosaceae) and blooms April to September. Kellogg's Horkelia occurs in closed-cone coniferous forest, chaparral, and coastal scrub habitats in sandy or gravelly openings, between 10 and 200 meters in elevation. This species is CNPS List 1B and is threatened by coastal development. The occurrence from the Crocker Hills is probably the last remaining historical location in San Francisco Bay. Remaining plants are less distinct from ssp. *cuneata* than those formerly occurring near San Francisco. This species is now in cultivation. (Hickman 1993; CNPS 2001.)



Peirson's Morning-Glory

Peirson's Morning-Glory (*Calystegia peirsonii*) exists onsite; however, the location of this species was not required for botanical surveys, and DMEC did not observe Peirson's Morning-Glory onsite. This species was not tracked by the CNDDDB (2002) RareFind2 search.

Peirson's Morning-Glory is a glabrous, glaucous, climbing, perennial vine with narrowly-triangular leaves. It has a white corolla and elliptic, entire, flat bractlets attached below the calyx. This species belongs to the morning-glory family (Convolvulaceae) and blooms May to June. Peirson's Morning-Glory occurs in chaparral, cismontane woodland, coastal scrub, chenopod scrub, lower montane coniferous forest, and valley and foothill grassland habitats, between 425 and 1,130 meters in elevation. This species is CNPS List 4 and is threatened by grazing. (Hickman 1993; CNPS 2001.)

Palos Verdes Blue

Palos Verdes Blue (*Glaucopsyche lygdamus* ssp. *palosverdesensis*) butterfly was observed by Mr. Magney and Ms. Batchelor on 3 June 2003 (33.77970°N, 118.29816°W) and 4 June 2003 (33.77121°N, 118.29882°W). This species is Federally listed as Endangered and is restricted to the cool, fog-shrouded, seaward side of the Palos Verdes Hills in Los Angeles County. (See Figure 4 for general location of the species.) This butterfly was observed on its host-plants, Deerweed and Three-Pod Milkvetch.

SECTION 7. ACKNOWLEDGEMENTS

This report was written by Cher Batchelor. David Magney, Ms. Batchelor, and Rita DuPuydt conducted the field surveys. Ken Niessen and Ms. Batchelor prepared the graphics for this report. The GIS database for this project was prepared by Mr. Magney and Mr. Niessen.

Glenn Metzler provided guidance on areas to be surveyed and data on previously known occurrences of special-status plant species.

SECTION 8. CITATIONS

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APPENDICES

**APPENDIX A.
COMPLETED CALIFORNIA NATIVE SPECIES FIELD SURVEY FORMS**

**APPENDIX B.
CALIFORNIA NATURAL DIVERSITY DATABASE RAREFIND2 SEARCH
RESULTS FOR TORRANCE, REDONDO BEACH, LONG BEACH,
SAN PEDRO, AND LOS ALAMITOS CALIFORNIA QUADRANGLES**

Botanical Survey Results for Defense Fuel Support Point, San Pedro, California
Project No. 03-0120
August 2003



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