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BIOLOGICAL RESOURCES REPORT

Franklin Canyon
Contra Costa County, California

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1.0 INTRODUCTION

This report describes the baseline physical and biological resources on the Franklin Canyon property, a 483-acre open space preserve located just east of the City of Hercules in northern Contra Costa County, California (**Figures 1 and 2**). The property was recently acquired by Muir Heritage Land Trust (MHLT), a non-profit land conservation organization based in Martinez, California. The purpose of this report is to provide MHLT with baseline information to inform on-going site management regarding multi-use trail design, habitat protection and enhancement, staging area development, grazing management, invasive species control and other land use issues. Information from this report may be used for environmental permitting, long-term management plans and future restoration work.

The map figures in this report also depict biological resources and planning features pertaining to Fernandez Ranch, a preserve adjacent to the Franklin Canyon site that is likewise owned and managed by the MHLT. Many of the biological resources and planning features on Franklin Canyon are contiguous with Fernandez Ranch and the two properties will essentially be managed as a single preserve. While proposed trails depicted on maps for both sites in this report represent current planning data, biological resources on Fernandez Ranch were mapped during surveys conducted in 2006 as part of the preparation of a biological resources report as well as a management plan for that property. The Fernandez Ranch reports were completed in 2006 and are available upon request.

2.0 PROPERTY LOCATION, HISTORY AND BACKGROUND

The Franklin Canyon property (project site) is located just east of the City of Hercules and south of the Franklin Canyon Golf Course in northern Contra Costa County, California (**Figure 1**). It occurs on the Benicia and Briones Valley USGS 7.5-minute topographic quadrangles, within the Pinole/Martinez land grant. The approximate center of the site is located at 122°13'21.5" W, 38°0'2.2" N.

The project site is located within the Franklin Ridge of the East Bay Hills and is bordered by the Franklin Canyon Golf Course to the north, suburban development and open space to the east, and the MHLT Fernandez Ranch Preserve to the south and east. Together, these preserves are located within a greater 60,000-acre Briones Hills Agricultural Preserve, which includes East Bay Municipal Utility District lands and Briones Regional Park. The project site includes portions of the Rodeo and Refugio Creek watersheds.

In June 2010, MHLT completed the purchase of the project site from a group of overseas investors following years of controversy regarding its proposed development. Voters from the City of Hercules approved Measure M in 2004, stopping the proposed 'Green Park Development' with more than 500 planned residences, a hotel and shopping center. In 2009, MHLT secured a purchase agreement due to the slowing economy and zoning changes, and worked to raise $3.3 million to purchase the site. MHLT collected donations from private individuals, public agencies and private foundations including East Bay Regional Parks District, California Coastal Conservancy, Caltrans and the Hercules Measure WW fund (Jones 2010). The Franklin Canyon property is contiguous with the Fernandez Ranch Preserve, also owned and managed by the MHLT (**Figure 2**). The two properties together serve as a single 1,185-acre public open space preserve.

Franklin Canyon and Fernandez Ranch were originally part of a larger Spanish land grant held by the Martinez family until 9,000 acres was sold to Bernardo Fernandez in the 1850s. The Fernandez Ranch was held by six generations of the Fernandez family, primarily as rangeland for cattle ranching, until financial changes forced the family to part with portions of the property in the 1990s and 2000s. The project site has maintained a high level of ecological value, consisting of a matrix of oak woodlands,

FIGURE 1
Regional Vicinity

Franklin Canyon/Fernandez Ranch
Muir Heritage Land Trust
Contra Costa County, California

Legend

- Bay Area Ridge Trail
- Other Existing Trail
- Existing Fire Road/Private Ranch Road
- Franklin Canyon Boundary
- Fernandez Ranch Boundary

Reference Features

- Highway
- Road
- Railroad
- Creek

Elevation Range (NGVD Meters)

High : 583.4

Low : 0

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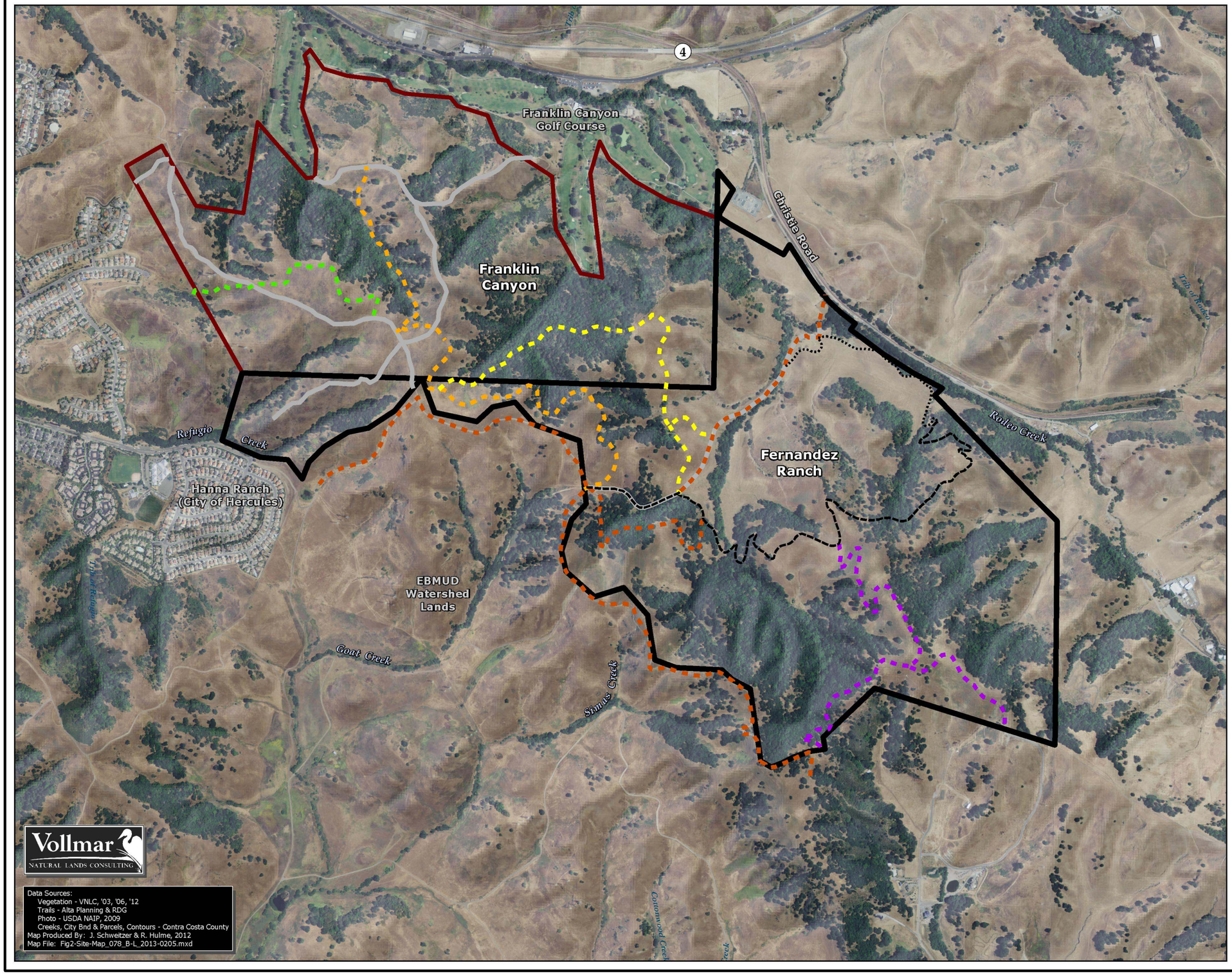
Data Sources: VNLC, 2013, RDG, 2012
Alta Planning, 2005
USGS, 1998; TIGER, 2010
County of Contra Costa, 2005
GIS/Cartography by: Jake Schweitzer, Feb. 2013
Map File: RegionalVicinity_078_D-L_2013-0208.mxd

1:48,000 (at tabloid layout)

0 1 2 Kilometers

0 1 2 Miles

FIGURE 2
Site Map
Franklin Canyon/Fernandez Ranch
Muir Heritage Land Trust
Contra Costa County, California



Legend

- Proposed Woodland Trail
- Proposed Summit Trail
- Proposed West Trail
- Proposed Pinole Peak Trail
- Existing Bay Area Ridge Trail*
- Existing Trail: Fernandez Ranch (2010)
- Existing ADA Trail: Fernandez Ranch (2010)
- Existing Fire Road/Private Ranch Road
- Fernandez Ranch Boundary
- Franklin Canyon Boundary

* Map depicts only portions on or adjacent to site
Note: See Restoration Design Group report for final trail alignments

N
W E
S

1:15,300
(1 inch = 1,275 feet at tabloid layout)

0 125 250 500 Meters

0 250 500 1,000 1,500 2,000 Feet

scrub, annual and perennial grasslands, coastal prairie remnants, and creek and intermittent drainage corridors characteristic of northern Contra Costa County's open space lands.

The acquisition of this property by MHLT ensures that these habitats, and the special-status plant and wildlife species they support, will be preserved in perpetuity. Special-status wildlife species known or assumed to occur on the project site include California red-legged frog (*Rana draytonii*), Alameda whipsnake (*Masticophis lateralis euryxanthus*), western pond turtle (E*mys marmorata*), American badger (*Taxidea taxus*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) and various raptor species. The various habitats support many native plant species of interest, including the special-status Diablo helianthella (*Helianthella castanea*) (CNPS List 1B.2), and multiple regionally unique species, including sticky navarretia (*Navarretia viscidula*) (Local CNPS Rank A1).

3.0 METHODS

This report is based on a review of existing information; compilation of data from previous VNLC surveys of the project site conducted in 2003 and 2004; comprehensive surveys conducted by VNLC on the adjacent Fernandez Ranch in 2006; additional reconnaissance surveys of the site conducted by VNLC in 2012; development and analysis of regional and site geologic and geomorphic data using Geographic Information Systems (GIS); and analyses of data collected through the various years of surveys. The methods used for these efforts are summarized below.

3.1 Review of Existing Information

A variety of existing information was gathered and reviewed as part of the development of this report. Sources of information included:

- Soil Survey of Contra Costa County, California (SCS 1977)
- Hydric Soils List of California (SCS 1993);
- Site and Regional Aerial Photographs obtained from the U.S. Geologic Survey (USGS 2010)
- 7-minute topographical quadrangle maps (USGS, various years);
- RareFind, Version 3.1.0, database of special-status species maintained by California Department of Fish and Game (CDFG 2012);
- On-line Inventory of Rare and Endangered Vascular Plants of California, maintained by California Native Plant Society (CNPS 2012);
- Special Animals List, maintained by California Department of Fish and Game (CDFG 2011);
- Results of 2003 and 2004 field surveys conducted on Franklin Canyon by VNLC;
- Fernandez Ranch Property Management Plan, 2006-2011 (VNLC 2006);
- Franklin Canyon Project Draft Environmental Impact Report (Mills Associates 2002).

3.2 Field Surveys

The VNLC field surveys conducted on the site included initial surveys in 2003 and 2004 for the previous owners of the Franklin Canyon property with additional follow-up surveys conducted in 2012 as part of the preparation of this report. **Table 1** summarizes the specific survey dates, personnel involved and the survey purpose.

Table 1. Schedule and Description of Surveys Conducted at Franklin Canyon, Contra Costa County, California. Compiled by VNLC, 2012.

Date	Personnel[1]	Survey Type/Purpose
05/21/2003	JV	- Initial Site Walk, Visit Known Locations of Special-Status Species
05/19 to 05/23/2003	JV, JH	- Peak Spring Special-Status Plant Surveys and Floristic Inventory - Habitat Mapping
07/17- to 07/18/2003	JV, JH	- Summer Season Special-Status Plant Surveys and Floristic Inventory - Habitat Mapping
10/24/2003 10/30/2003 11/04/2003	JV, JH	- Late Season Special-Status Plant Surveys and Floristic Inventory - Habitat Mapping - Native Grassland and Coastal Prairie Mapping
05-06/2004	JV, CP, JS, JP	- Peak Spring Special-Status Plant Surveys and Floristic Inventory - Habitat Mapping
11/26/2012 11/27/2012 12/4/2012	JV, RH, GL	-Habitat Mapping and Refinement -Special-Status Wildlife Habitat Assessment and Incidental Wildlife Survey -Noxious Weed Mapping

1. Personnel: VNLC Staff- JV=John Vollmar, Lead Botanist/ Ecologist; JH=John Hale, Lead Botanist; CP=Cassie Pinnell, Senior Biologist; JS=Jake Schweitzer, Senior Biologist; RH=Roxy Hulme, Staff Biologist.
Other Surveyors- JP=Josh Phillips, Biologist, Pacific Biology; GL=Glen Lewis, Open Space Ranger, MHLT.

3.2.1 2003-2004 FLORISTIC SURVEYS

The 2003 and 2004 surveys included an initial reconnaissance survey, peak spring, late spring and late season floristic inventories and rare plant surveys, and native grass stand and remnant coastal prairie habitat mapping. Mr. John Vollmar conducted the initial reconnaissance survey to become familiar with the local topography and associated plant communities, conceptualize the distribution of the previously-documented occurrences of Diablo helianthella, and to assess the site's overall potential to host other special-status species known from the area.

The floristic inventories and rare plant surveys were conducted on foot over the entire Franklin Canyon Property during peak spring, late spring and late season bloom periods to ensure that the full suite of plant species present on the site would be detected. The surveys were conducted by VNLC senior botanists John Vollmar and John Hale with assistance from VNLC staff biologists. Botanists prepared a list of target special-status plants with potential to occur on the site prior to conducting floristic surveys in order to assess overall site conditions and visit known locations of target special-status species to evaluate associated microhabitat conditions. Sources used to develop this list included California Native Plant Society's (CNPS) On-line Inventory of Rare and Endangered Vascular Plants of California (CNPS 2012), CNPS Alameda and Contra Costa Counties Local Chapters List of Rare, Unusual and Significant Plants (CNPS 2010), and CDFG's California Natural Diversity Data Base (CDFG 2012).

For the purposes of this report, special-status plant species include:

- Species listed or proposed for listing by the federal government as threatened or endangered under the Federal Endangered Species Act (ESA) (50 CFR 17.12) and federal species of concern
- Species listed or proposed for listing by the State of California as rare, threatened, or endangered under the California Endangered Species Act (CESA) (14 Cal. Adm. Code 670.5) and state species of special concern
- Species identified in California Native Plant Society's Online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2006) as rare, threatened, or endangered in California (Lists 1 and 2), or on the review or watch lists (Lists 3 and 4, respectively)
- Species that meet the definition of rare, threatened, or endangered under CEQA.

Surveys focused on regions and habitats on the site identified as providing potential habitat for targeted special-status species such as rock outcrops, scrublands, woodland and forest margins, forest openings on steep slopes, and seasonal wetlands. Locations of all special-status plant species identified during the surveys were recorded using a professional sub-meter accurate GPS unit. Botanists also noted the occurrence and distribution of any potential habitat for target special-status plants. All plant taxa encountered were identified to the lowest justifiable level (species, subspecies, or variety) and recorded. Most taxa were identified in the field. Those that could not be readily identified were bagged or pressed and brought back to the office for identification. All identified taxa were entered into a master list. The correct scientific and common names were identified with the Jepson Manual (Baldwin et al. 2012) and verified through the Jepson Online Interchange (UC Berkeley 2012) and the CNPS Online Inventory. This process ensured that all taxonomic and status updates were noted and incorporated. Basic habitat mapping of dominant plant communities was done during all surveys, but was refined during the 2012 surveys, as described below.

During the course of the floristic inventories, locations of larger stands of native grasses and remnant coastal prairie were noted. Mr. Vollmar returned to the site in November 2003 to map and inventory these stands.

3.2.2 2006 Fernandez Ranch Oak Morphology Assessment

In 2006, VNLC conducted a comprehensive biological site assessment of the adjacent Fernandez Ranch property also owned by MHLT. During these surveys, VNLC biologists identified numerous examples of apparent hybrids between different deciduous oaks including valley oak-Oregon oak hybrids. Similar to Franklin Canyon, many of the valley oaks (*Quercus lobata*) on the site had an unusual distribution, occurring near the tops of ridges bordering mixed oak woodlands and forests. Occasional Oregon white oaks (*Quercus garryana* var. *garryana*) were found scattered among these valley oaks and many of the valley oaks had leaf and acorn cup characteristics that tended toward Oregon white oak morphology, suggesting hybridization between the two species. Valley oaks typically occur in deeper alluvial soils on valley bottoms and terraces (hence 'valley' oak) and not on ridgelines. The occurrence of valley oaks on ridge lines on the site may be due to local climate or, perhaps, genetic mixing with Oregon oak that allows it to grow in this unusual setting.

To clarify the issue of valley oak-Oregon oak hybridization on the site, leaves and acorn cups were collected from multiple trees on Fernandez Ranch, representing the range of observed morphology. These specimens were sent to oak experts Dr. John Tucker, professor emeritus at U.C. Davis, and Dr. Bruce Pavlik of Mills College. It is assumed that similar hybridization occurs on Franklin Canyon, due to the similar plant communities, distribution of valley and Oregon white oaks and variation in leaf, acorn and cup phenology on individual oaks.

3.2.3 2012 Field Surveys

On November 26, Mr. John Vollmar, VNLC Lead Botanist/Ecologist, Ms. Hulme, VNLC Staff Biologist and Mr. Glen Lewis, MHLT Open Space Ranger, visited the project site to refine the 2003 plant community mapping; locate noxious weed stands; survey for invasive wildlife species; assess special-status wildlife habitat potential; and identify and characterize wetlands on the site. Ms. Hulme returned on November 27 for further habitat and plant community mapping throughout the eastern portion of the project site. Ms. Hulme and Mr. Lewis returned to the site on December 4 to conduct additional habitat mapping and assess a proposed trail alignment.

Habitat Mapping

Biologists categorized plant community habitat mapping based on the dominant and subdominant plants observed according to the current CDFG Wildlife Habitat Relationships System (CDFG 1988), CNPS (Sawyer et al. 2009) and Holland (1986). Plant communities were further analyzed and classified according to the topographic situation, underlying soil types and potential for hosting special-status plant or animal species. Additionally, rock outcrops, wetlands and other habitat features of interest were mapped and described in terms of potential habitat for special-status species or other wildlife or plants of interest. Wetlands were mapped and characterized but not officially delineated. Wetlands were described by the dominant plant communities, any erosion present, potential effects of cattle use and visible hydrological features.

Major categorization of plant communities and wetlands was initially done remotely using available geo-referenced descriptive map layers, VNLC 2003-4 plant community mapping and aerial photography before biologists field-checked the polygons with a sub-meter-accurate GeoXT Trimble unit for accuracy and further refined them according to the species observed. Additional wetlands and small habitat areas were mapped in the field. Careful attention was given to sensitive plant communities, including oak woodlands, scrublands, wetlands, native grass stands and coastal prairie remnants.

Wildlife Surveys

Prior to conducting site visits, biologists reviewed available information and compiled a list of special-status wildlife species with potential to occur on the project site. For the purpose of this report, special-status wildlife species include:

- Species listed or proposed for listing by the federal government as threatened or endangered under the Federal Endangered Species Act (ESA) (50 CFR 17.12) and federal species of concern
- Species listed or proposed for listing by the State of California as rare, threatened, or endangered under the California Endangered Species Act (CESA) (14 Cal. Adm. Code 670.5), state fully protected species, and state species of special concern
- Species that meet the definition of rare, threatened, or endangered under the California Environmental Quality Act (CEQA)
- Birds designated as birds of conservation concern by U.S. Fish and Wildlife Service (USFWS)

Biologists conducted basic reconnaissance-level visual daytime surveys for California red-legged frog, California tiger salamander (*Ambystoma californiense*) and western pond turtle within all observed wetlands. Daytime visual surveys were conducted on all wetlands identified on site during the November 2012 visits. No aquatic wildlife surveys were conducted within the Rodeo Creek channel on Franklin Canyon, as there is assumed presence of western pond turtle and California red-legged frog from occurrences on adjacent properties. A representative number of the numerous San Francisco dusky-footed woodrat nests were mapped when observed during other surveys. Although no targeted surveys were conducted for special-status bird species, biologists noted all wildlife species observed during the November 2012 surveys.

Invasive Wildlife Species Surveys

The primary invasive wildlife species identified as having potential to occur and are of management concern on the site include bullfrogs (*Lithobates catesbeianus*), feral pigs (*Sus scrofa*), and feral cats (*Felis catus*). Surveys for bullfrogs were conducted concurrently with the reconnaissance-level aquatic wildlife surveys. Any incidental sightings of feral pigs and cats, as well as soil disturbance by feral pigs, were noted during the 2012 site visit.

Noxious Weed Mapping

Plants on the California Invasive Plant Council's (Cal-IPC) Invasive Plant Inventory as 'Moderate' or 'High' level invasive plants that are not considered a typical component of local annual grasslands were considered noxious weeds. Complete mapping of all noxious weed occurrences was not endeavored due to the extensive distribution of a few species, including yellow star-thistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*) and poison hemlock (*Conium maculatum*). Only large, dense populations of these species were mapped to inform potential management actions.

4.0 RESULTS

4.1 Summary of Key Findings

4.1.1 Overview of Plant Communities

Eighteen different plant communities were identified and mapped on the site, including two forests, four woodlands, four scrublands, four grassland, two herbland and two riparian communities (**Figure 3**). These communities are: California Bay Forest, Coast Live Oak/California Bay Forest, California Buckeye Woodland, Coast live Oak Woodland, Mixed Oak Woodland, Valley Oak Woodland, California Sagebrush Scrub, Coyote Brush Scrub, Coyote Brush/Poison Oak Scrub, Poison Oak Scrub, Coastal Prairie (Remnant), Creeping Wildrye Grassland, Non-Native Annual Grassland, Purple Needlegrass Grassland, Bracken Fern Stand, Mixed Riparian Forest and Mixed Riparian Scrub. These communities are described based on dominant plant species. Small areas with some wetland vegetation were observed, but the cover of unique wetland vegetation in these areas was not enough to constitute a community type.

4.1.2 Sensitive Plant Communities

Franklin Canyon hosts multiple sensitive plant communities: oak woodlands, riparian habitats, multiple seasonal creek corridors, one spring, native perennial grasslands, remnant stands of coastal prairie and scrublands. These communities are mapped on **Figure 3**.

All of the oak woodlands and oak-dominated forests on site are protected under provisions of the State Woodlands Preservation Act (Senate Bill 1334, Section 21083.4) and are considered sensitive plant communities in this report. The widespread mature oak woodlands on the site consist of coast live oak/California bay forest, coast live oak (*Quercus agrifolia*), mixed oak (coast live oak, valley oak, California black oak (*Quercus kelloggii*) and Oregon white oak) and valley oak woodlands.

All riparian habitats and their associated stream corridors are considered 'sensitive' habitats and are regulated as streambeds under Section 1602 of the State Fish and Game Code. They are also regulated as CDFG-designated sensitive habitats and by a Contra Costa County riparian protection ordinance. All of these wetlands will most likely be considered jurisdictional, subject to regulation under Section 404 of the Clean Water Act. Many of the deeply shaded creeks within the coast live oak/California bay forest had minimal herbaceous wetland vegetation and would be considered 'other waters' rather than wetlands under Section 404.

Since the introduction of non-native annual grasses, perennial grasses and native coastal prairie species have been outcompeted and populations have been dramatically reduced. Large stands of creeping wildrye (*Elymus triticoides*) were mapped on the project site, while smaller stands of purple needlegrass (*Stipa pulchra*) were observed scattered across the site (**Figure 3**). Large stands of both of these native grasses are considered 'sensitive' habitats by CDFG.

VNLC botanists identified four areas supporting species that are typical in coastal prairie stands, such as California oatgrass (*Danthonia californica*) and western rush (*Juncus occidentalis*). The representative

species were sparsely distributed within the larger annual grassland dominated by Italian ryegrass (*Festuca perennis*). These stands represent some of the easternmost known stands of coastal prairie-like habitat and therefore are important from a regional botanical standpoint.

Although scrublands are not generally considered a sensitive community, this report treats them as such due to their strong association with the federally and state threatened Alameda whipsnake. Scrub communities that occur on the site include coyote brush scrub, poison oak scrub, coyote brush/poison oak scrub and California sagebrush scrub.

4.1.3 Special-status Species

Plants

Diablo helianthella was the only special-status plant species identified on the project site. Although this species has no state or federal status, it is considered to be rare and endangered by the California Native Plant Society (CNPS) (List 1B.2). Eighteen locally rare species were also observed and are described in **Section 4.4**. The site occurrences of Diablo helianthella were observed along steep slopes and ridgelines at oak woodland gaps or edges and on Millsholm loam soils. Robust monardella (*Monardella villosa* ssp. *villosa*) was mapped during 2003 surveys, but is no longer listed by the CNPS as List 1B due to recent taxonomic research grouping that subspecies with a more common one. Multiple regionally unique species were found on the site, some of which were mapped in **Figure 4**.

Wildlife

No special-status amphibians or reptiles were observed during the VNLC surveys of Franklin Canyon. However, previous surveys have documented three species on or adjacent to the site (**Figure 4**). California red-legged frog and western pond turtle are assumed to occur within the section of Rodeo Creek in the northeastern corner of the project site since adjacent properties have documented occurrences in both up- and downstream sections of Rodeo Creek. The major tributary to Rodeo Creek in the western portion of the site may serve as foraging and movement habitat for the frog, but does not pond enough to support western pond turtle. The single spring on the site may provide habitat to California red-legged frog individuals from the occupied pond south of the site. These two habitats are separated by an open annual grassland and ridgeline, which decreases the habitat potential of the spring. Alameda whipsnake was documented on the site by Swaim Consulting in 2002 in the eastern scrub communities at transitional zones with oak woodlands and annual grasslands (**Figure 4**). The snake is presumed to occur throughout the site within the widespread scrub communities and their transitional zones.

Two special-status bird species, white-tailed kite (*Elanus leucurus*) and northern harrier (*Circus cyaneus*), were observed foraging during the 2012 surveys. One Cooper's hawk (*Accipiter cooperi*) nest was identified on CNDDB records in the western portion of the site, but no individuals were observed in 2012. Other species that were not observed but have potential to occur include golden eagle (*Aquila chrysaetos*), loggerhead shrike (*Lanius ludovicianus*) and yellow warbler (*Dendroica petechia brewsteri*).

Woodrat nests were observed frequently throughout the understory of the California bay forest and coast-live oak/California bay forest communities. These are assumed to be created by the San Francisco dusky-footed woodrat due to the regional distribution of the subspecies. The American badger is presumed to be on the site, as it was observed on Fernandez Ranch during the 2006 surveys and the assortment of plant communities on the two adjacent properties are very similar. The pallid bat (*Antrozous pallidus*) was not observed, but may occur on the site within the oak woodlands and forests with ideal roosting trees.

4.1.4 Invasive Species

No invasive wildlife was observed on the project site, although there is potential for bullfrog from golf course ponds, feral domestic cat from Hercules neighborhoods and feral pig from open space lands.

Many of the plant species present on the site that are listed by the California Invasive Plant Council as invasive occur as typical dominants of non-native annual grasslands. However, some of the invasive species are not typical grassland species and are considered noxious weeds, including yellow star-thistle, poison hemlock, bull thistle (*Cirsium vulgare*), blessed milkthistle (*Silybum marianum*) and Italian thistle. Only large, dense stands of noxious weeds were mapped on the site (**Figure 3** and **Appendix A-2**).

4.2 Environmental Setting

This section of the report summarizes the environmental characteristics of the site as they relate to the occurrence and distribution of plant communities and their associated wildlife and plant species on the site. The most important physical factors appear to be topography, geology/soils, and local climate.

4.2.1 Regional Geographic Overview

Franklin Canyon is situated within the Franklin Ridge region of the East Bay Hills, in the heart of the 600-mile long Coast Range Geomorphic Province (Coast Range) of California. This province has been one of the most dynamic physiographic regions in North America due to the high occurrence of peripheral faults surrounding the transverse Hayward fault and the proximity to the Pacific oceanic subduction zone along the California coast. The subduction zone and associated pressure forces have been responsible for the uplift and folding of the depositional sedimentary and underlying metamorphic rock of the region. These hills continue to rise at a rate of approximately 1-2 millimeters per year (Sloan 2006). Right-lateral strike-slip forces have also shifted these blocks of rock, grinding along the edges and helping to create natural valleys and expose weaker soil types to erosion. The carved ridgelines and deep valleys of the Coast Range have been accentuated and smoothed by erosive forces acting on the uplifted, faulted and folded geologic layers.

4.2.2 Topography

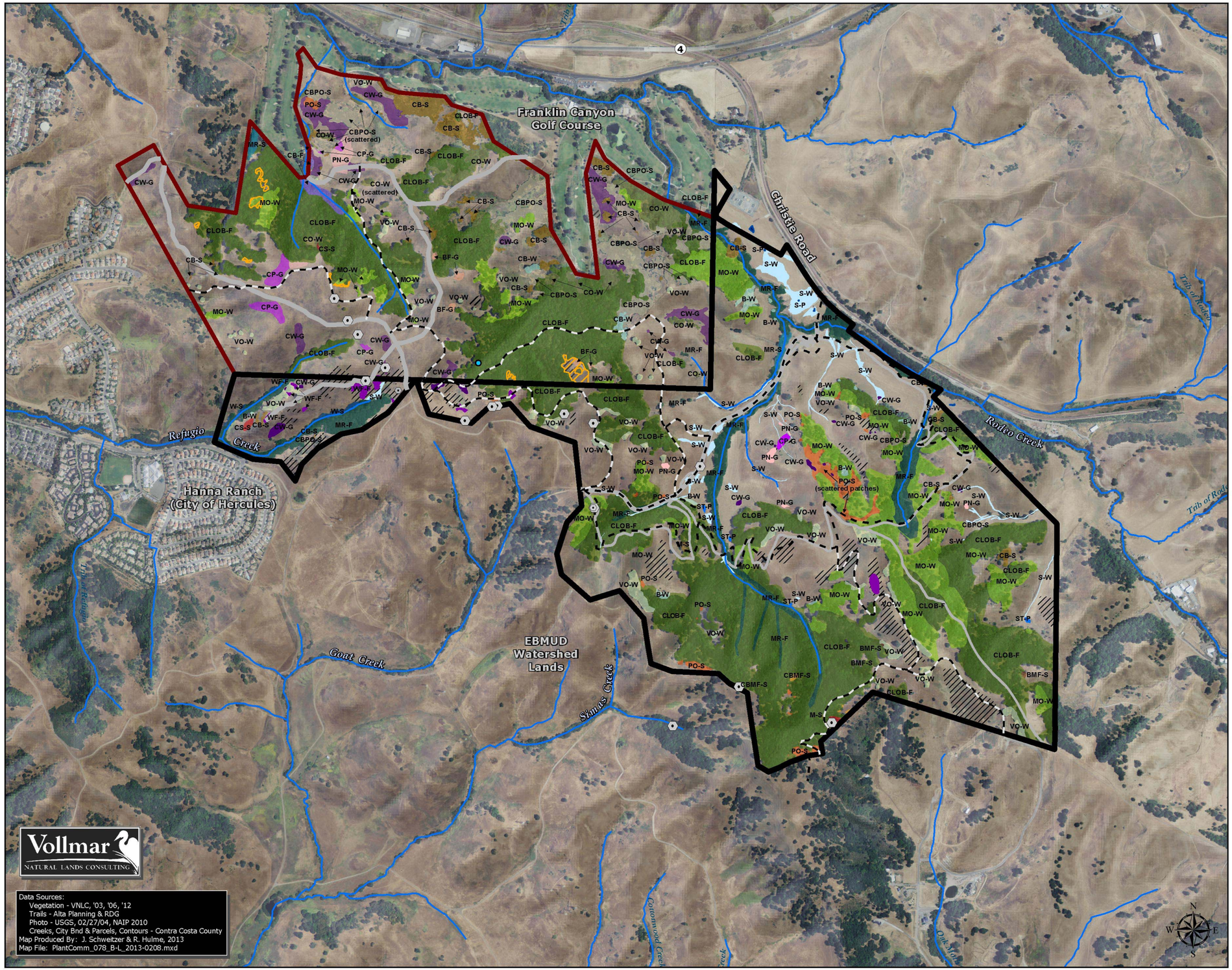
Topography within and around the project site is dominated by the steep northwest-trending Franklin Hills, which are typical of the East Bay Hills. Pinole Peak lies southeast of the adjacent Fernandez Ranch property, and at 323 meters (1,059-ft), it is the highest point in northwestern Contra Costa County. Fern Peak (250 meters, 820 feet), just south of the Franklin Canyon project site, has multiple ridgeline fingers that run northward into the project site and define the higher elevation areas in the site. **Figures 5 and Figure 6** depict topography and slope, respectively, in and around the project site. These maps present processed versions of the USGS 10 meter grids. The site ranges from approximately 44 meters (144 feet) in the northern Rodeo Creek floodplain, to 237 meters (777 feet) along the ridgeline in the center of the site. The slopes on the site range from nearly level at the northern Rodeo Creek floodplain, to 50% on the hillside above the eastern tributary to Rodeo Creek. The steepest slopes generally occur along the cut sides of current and historic drainages.

Tributaries of Rodeo and Refugio Creek have cut into this topography to create steeper cut valleys at the higher elevations that lead to the low elevation alluvial fans and floodplains. Much of the site is dominated by the rounded secondary ridges of Fern Peak as the Franklin Canyon Golf Course to the north occupies the majority of the Rodeo Creek floodplain area (**Figure 5**).

Steep cliffs occur in the western-central part of the project site, at the boundary of Millsholm Loam, of the upper Briones Sandstone formation, and Tierra Loam and Gaviota Sandy loam, both part of the Neroly Sandstone. These two distinct geologic formations were created during the Miocene Epoch, when the coastal mountain range was a series of islands that were part of a previously larger mountain chain (Sloan

FIGURE 3
Plant Communities

Franklin Canyon/Fernandez Ranch
Muir Heritage Land Trust
Contra Costa County, California



Legend

- Rock Outcrop
- Spring
- Existing Trail*
- Proposed Trail
- Existing Fire Road/Private Ranch Road
- Creek (primary creeks only)
- Franklin Canyon Boundary
- Fernandez Ranch Boundary
- Diablo helianthella suitable habitat

Forest and Woodland Communities

- Coast Live Oak/Bay Forest (CLOB-F)
- Valley Oak Woodland (VO-W)
- Buckeye Woodland (B-W)
- Mixed Oak/Bay Woodland (MO-W)
- Mixed Riparian Forest (MR-F)
- California Bay Forest (CB-F)
- Coast Live Oak Woodland (CO-W)
- Mixed Oak Woodland (MO-W)

Riparian Scrub Communities

- Willow Scrub (W-S)
- Mixed Riparian Scrub (MR-S)

Scrub Communities

- Coyote Brush Scrub (CB-S)
- Coyote Brush-Poison Oak Scrub (CBPO-S)
- Poison Oak Scrub (PO-S)
- Chamise/Bush Monkey Flower Scrub (CBMF-S)
- Bush Monkey Flower Scrub (BMF-S)
- California Sagebrush Scrub (CS-S)
- Mixed Scrub (M-S)

Seasonal Wetlands, Pools and Stock Ponds

- Seasonal Wetland (S-W) (includes SFEI data)
- Seasonal Stock Pond (ST-P)
- Seasonal Pool (S-P)

Grassland and Herbland Communities

- Coastal Prairie Grassland (CP-G)
- Creeping Wildrye Grassland (CW-G)
- Purple Needlegrass Grassland (PN-G)
- Wildflower Field (WF-F)
- Bracken Fern Stand (nl)
- Noxious Weed Stand

* Map depicts only trails within preserve boundaries
Note: unlabeled areas are annual grassland

1:15,300
(1 inch = 1,275 feet at tabloid layout)

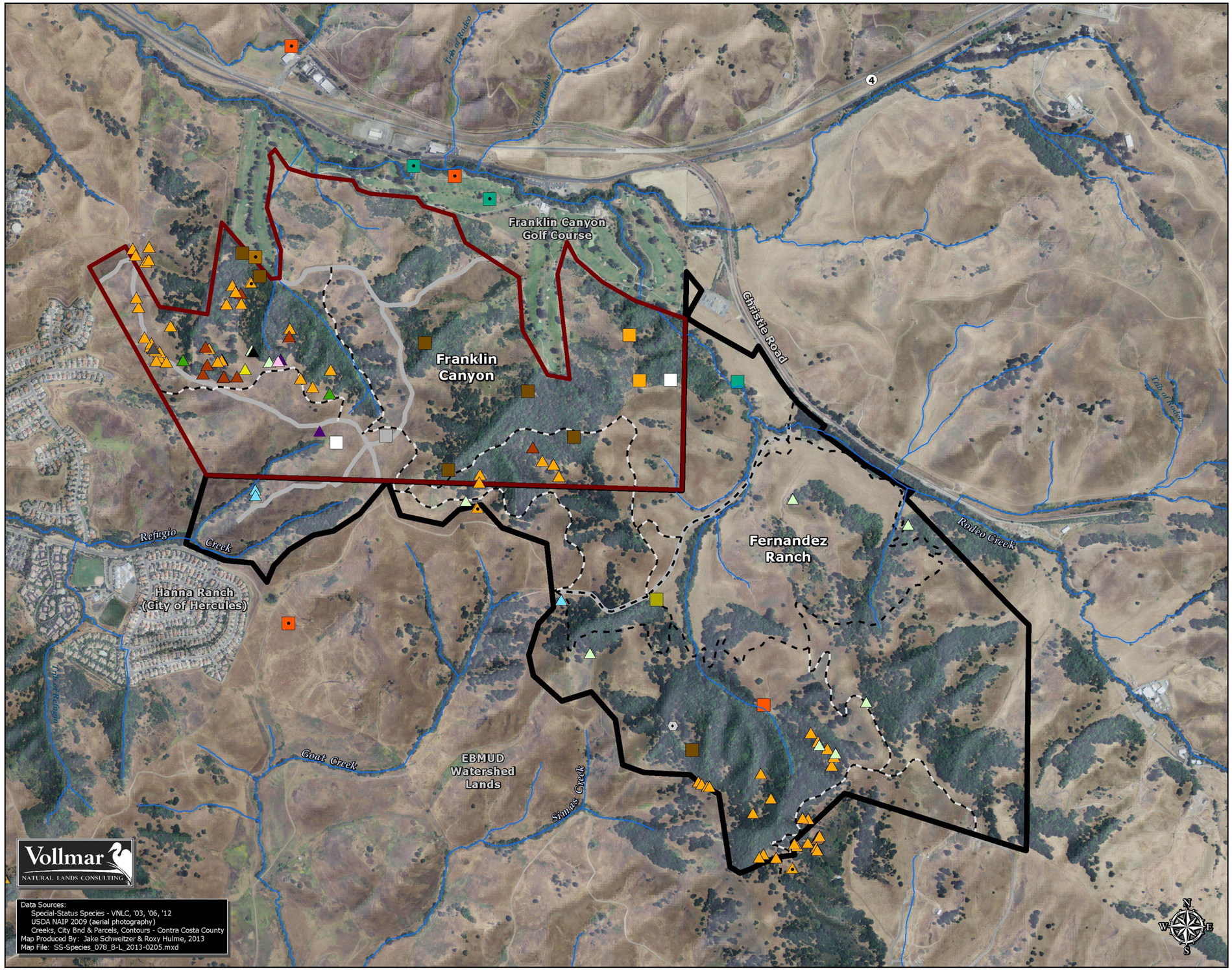
0 125 250 500 Meters

0 250 500 1,000 1,500 2,000 Feet

Vollmar NATURAL LANDS CONSULTING

Data Sources:
Vegetation - VNLC, '03, '06, '12
Trails - Alta Planning & RDG
Photo - USGS, 02/27/04, NAIP 2010
Creeks, City Bnd & Parcels, Contours - Contra Costa County
Map Produced By: J. Schweitzer & R. Hulme, 2013
Map File: PlantComm_078_B-L_2013-0208.mxd

FIGURE 4
Special-Status Species
Franklin Canyon/Fernandez Ranch
Muir Heritage Land Trust
Contra Costa County, California



Legend

CNDDB Wildlife Occurrence
- California red-legged frog
- Cooper's hawk
- western pond turtle

Observed Special-Status Wildlife Species
- American badger
- Alameda whipsnake
- California red-legged frog
- northern harrier
- San Francisco dusky-footed woodrat nest
- white-tailed kite
- western pond turtle

CNDDB Plant Occurrence
- Diablo helianthella

Special-status plant
- Diablo helianthella

Regionally Rare or Unique Species
- robust monardella
- fragrant pearly everlasting
- viscid navarretia
- Bolander's woodland star
- California pipevine
- California oat grass
- purple needle grass
- California hop tree
- typical dwarf checker-bloom

Reference Features
- Creek (primary creeks only)
- Proposed Trail
- Existing Trail
- Existing Fire Road/Private Ranch Road
- Franklin Canyon Boundary
- Fernandez Ranch Boundary

1:15,300
(1 inch = 1,275 feet at tabloid layout)

0 125 250 500 Meters

0 250 500 1,000 1,500 2,000 Feet

2006). The Miocene coastline reached into the Sacramento and San Joaquin valleys, where rivers deposited sediments from the eroding volcanic Sierra Nevada mountains, as well as marine deposits that later condensed to form various layers of sedimentary rock. The upper Neroly Sandstone was formed in the late Miocene and consists of volcanic marine sandstone and shale, siltstone, tuff and andesitic sedimentary rock. The lower Briones Sandstone was created in the mid to late Miocene epoch and consists of sandstone, siltstone, conglomerate and shell breccias, and includes a tuffaceous layer (Graymer 2000). With the assistance of erosion from tributary drainages, the boundary between these two layers has been dramatically defined on Franklin Canyon. The cliffs are well vegetated with scrub species on the dry slopes and coast live oak/California bay forest species on the north-facing slopes.

4.2.3 Geology

The complex geologic formations of the Coastal Range of the Bay Area can be categorized into three broad units based on their basement rock content and faulting: the Great Valley sequence along the eastern edge of the Range, the Salinian block west of the San Andreas Fault, and the Franciscan assemblage, or mélange, underlies the area between (Irwin 1990). The project site lies within the Franciscan assemblage, which is the most complex of the units, consisting of accreted island arcs, isolated portions of oceanic crust, sedimentary depositions from the prehistoric continental shelf, mafic volcanic wedges, metamorphic rocks and other seemingly disjunct geologic layers (Harden 1998). In the project vicinity, uplands within the Franciscan assemblage are predominantly made up of sedimentary rocks, but also include some metamorphic and basic igneous rocks.

Five geologic formations are mapped within the project boundary; their stratigraphic relationships and age are further described in **Table 2** and shown in **Figure 7** (from USGS 1998). Four of these formations, Lower Part of Briones Sandstone, Hercules Shale Member of the Briones Sandstone, Upper Part of the Briones Sandstone, and Neroly Sandstone, were formed from Miocene alluvial and marine depositional sediments which were later concreted. The other formation, Late Pleistocene Alluvium, is a more recent formation composed of young alluvial deposits and sediments along present stream courses (Greymer et al. 1994).

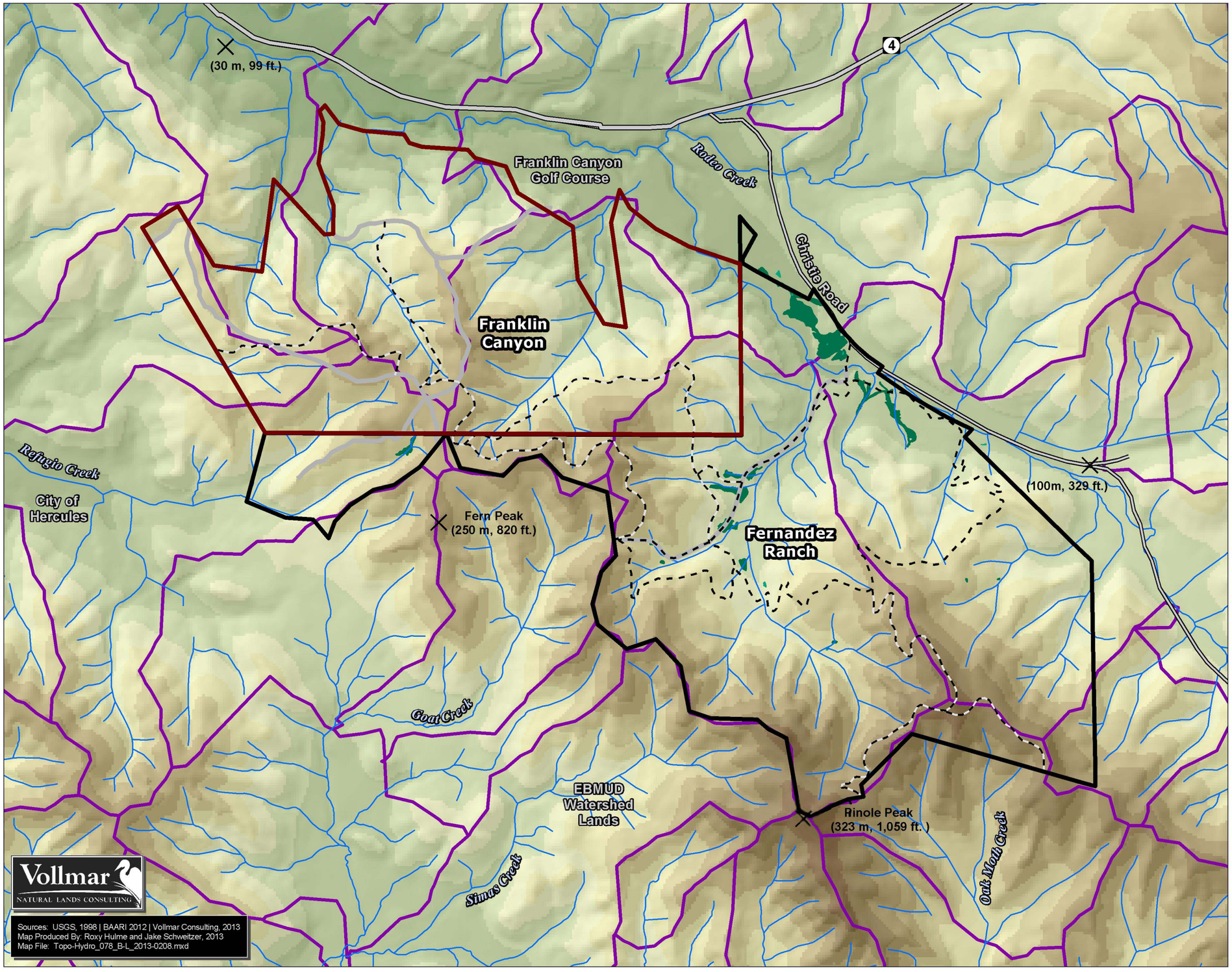
4.2.4 Soils

Table 3 summarizes the soils mapped on the site. **Figure 7** shows the distribution of these soils on the site. The project site is dominated by moderately steep, well-drained soils derived from sedimentary rocks, with small areas of relatively flat alluvial deposits found along the northern boundaries closer to the main Rodeo Creek floodplain. The upland soils are generally used for range and livestock grazing and are not considered productive soils for agriculture. Millsholm loam and Los Gatos loam are by far the most prevalent soil types across the site, excluding the high ridgeline to the southwest and the lower elevation drainages. These two soil types are approximately 12 to 27 inches deep over sandstone parent material and have low to moderate shear strength and permeability (SCS 1977). These well-drained soils present on the moderate to steep slopes of the upland hills of the project site are generally erosive and prone to major landmoving processes, such as slumping and landslides, if unvegetated.

A very minor amount of the site is characterized by Botella and Conejo Clay Loams, both of which have greater levels of clay than the upslope loam soils. The fine particles have been accumulated over years of flooding from the multiple drainages on site. These soils also have low to moderate shear strength and may prove erosive under certain conditions (SCS 1977). Restoration of such erosion was undertaken at the adjacent Fernandez Ranch project site.

FIGURE 5
Project Site Topography and Hydrography

Franklin Canyon/Fernandez Ranch
Muir Heritage Land Trust
Contra Costa County, CA



Legend

- Proposed Trail
- Existing Trail
- Existing Fire Road/Private Ranch Road
- Minor Road
- Highway
- Stream Network
- Seasonal Wetland
- Watershed Sub-basin Boundary
- Franklin Canyon Boundary
- Fernandez Ranch Boundary

Elevation Range (NGVD Meters)

- 275 - 300
- 250 - 275
- 225 - 250
- 200 - 225
- 175 - 200
- 150 - 175
- 125 - 150
- 100 - 125
- 75 - 100
- 50 - 75
- 25 - 50
- 0 - 25

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1:15,300
(1in = 1,275 ft at tabloid layout)

0 250 500 Meters

0 500 1,000 2,000 Feet

Vollmar NATURAL LANDS CONSULTING

Sources: USGS, 1998 | BAARI 2012 | Vollmar Consulting, 2013
Map Produced By: Roxy Hulme and Jake Schweitzer, 2013
Map File: Topo-Hydro_078_B-L_2013-0208.mxd

FIGURE 6
Project Site Slope Classification

Franklin Canyon/Fernandez Ranch
Muir Heritage Land Trust
Contra Costa County, California

(45m, 147ft)
(152m, 499ft)
Franklin Canyon
(237m, 778ft)
(164m, 538ft)
Rodeo Creek
Christie Road
(92m, 302ft)
Refugio Creek
(102m, 335ft)
Fern Peak
(250m, 820ft)
(157m, 515ft)
Fernandez Ranch
Rodeo Creek
(190m, 623ft)
Goat Creek
Simas Creek
(298m, 978ft)
Pinole Peak
(323m, 1059ft)

Legend

Project Site Features
- Stream Network
- Franklin Canyon Boundary
- Fernandez Ranch Boundary

Reference Features
- Highway
- Minor Road
- Proposed Trail
- Existing Trail
- Existing Fire Road/Private Ranch Road

Percent Slope
- 45 - 50%
- 40 - 45%
- 35 - 40%
- 30 - 35%
- 25 - 30%
- 20 - 25%
- 15 - 20%
- 10 - 15%
- 5 - 10%
- 0 - 5%

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1:15,300
(1 inch = 1,275 feet at tabloid layout)

0 125 250 500 Meters

0 250 500 1,000 1,500 2,000 Feet

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Data Sources:
Slope - USGS, 10m Grid Resampled
Parcels & Roads - Contra Costa County
Streams - USGS DEM
Map Produced By: J. Schweitzer and R. Hulme, 2013
Map File: Slope_078_B-L_2013-0208.mxd

Table 2. Geologic Formations on the Franklin Canyon Project Site, Contra Costa County, California. Compiled by VNLC, 2012.

Geologic Formation	Rock Type	Geologic Era	Period/ Epoch	Notes
Lower Briones Sandstone	Marine Sandstone (Sedimentary)	Cenozoic	Tertiary/ Miocene	Sandy claystone, mudstone, and siltstone, interbedded with fine-grained to very fine grained sandstone. Some hard calcite-cemented beds in sandstone. Occurs on lower slopes in the northeast, adjacent to a major tributary of Rodeo Creek. Oldest formation on the site, stratigraphically below the Hercules Shale Member of the Briones Sandstone.
Hercules Shale Member of Briones Sandstone	Mudstone (Sedimentary)	Cenozoic	Tertiary/ Miocene	Mostly mudstone and firm subporcelaneous mudstone, some siltstone and very fine grained clayey sandstone in places. Occurs on lower slopes, within a linear strip crossing from the north to southeast of the site. Stratigraphically between the Lower and Upper Parts of the Briones Sandstone.
Upper Briones Sandstone	Marine Sandstone (Sedimentary)	Cenozoic	Tertiary/ Miocene	Resistant intervals of very fine grained to medium-grained sandstone and some finer grained rock between nonresistant intervals of interbedded siltstone, mudstone, very fine grained clayey sandstone, shale, and minor clean or silty sandstone beds. Occurs on mid to upper slopes across the site. Stratigraphically between the Hercules Shale below and Neroly Sandstone above.
Neroly Sandstone	Marine Sandstone (Sedimentary)	Cenozoic	Tertiary/ Miocene	Medium- to coarse-grained sandstone interbedded with fine clayey sandstone and intervals of mudstone, siltstone, and shale. Occurs along the highest ridgeline in the southwest of the site. Stratigraphically on top of Lower Briones Sandstone.
Late Pleistocene Alluvium	Unconsolidated gravels, sands, and silts	Cenozoic	Quaternary/ Recent	Unconsolidated alluvium (mostly granite) recently deposited along present stream courses. Occurs along the floodplain terrace in the low-elevation areas adjacent to Rodeo Creek and the lower portions of some major tributaries.

Source: USGS 1998.

FIGURE 7
Soils and Geology

Franklin Canyon/Fernandez Ranch
Muir Heritage Land Trust
Contra Costa County, CA

Symbol	Definition
AbE	Altamont Clay, 15 to 30 percent slopes
AcF	Altamont-Fontana Complex, 30 to 50 percent slopes
BaC	Botella Clay Loam, 2 to 9 percent slopes
BdE	Briones Loamy Sand, 5 to 30 percent slopes
Cc	Clear Lake Clay
CeA	Conejo Clay Loam, 0 to 2 percent slopes
ChA	Conejo Clay Loam, Clay Substratum, 0 to 2 percent slopes
CkB	Cropley Clay, 2 to 5 percent slopes
GaB	Garretson Loam, 2 to 5 percent slopes
GbF	Gaviota Sandy Loam, 30 to 50 percent slopes
GbG	Gaviota Sandy Loam, 50 to 75 percent slopes
LcF	Lodo Clay Loam, 30 to 50 percent slopes
LeE	Los Gatos Loam, 15 to 30 percent slopes
LeF	Los Gatos Loam, 30 to 50 percent slopes
LeG	Los Gatos Loam, 50 to 75 percent slopes
LhE	Los Osos Clay Loam, 15 to 30 percent slopes
LhF	Los Osos Clay Loam, 30 to 50 percent slopes
MeE	Millsholm Loam, 15 to 30 percent slopes
MeF	Millsholm Loam, 30 to 50 percent slopes
MeG	Millsholm Loam, 50 to 75 percent slopes
RbC	Rincon Clay Loam, 2 to 9 percent slopes
SdE	Sehorn Clay, 15 to 30 percent slopes
SdF	Sehorn Clay, 30 to 50 percent slopes
SdG	Sehorn Clay, 50 to 75 percent slopes
TaC	Tierra Loam, 2 to 9 percent slopes
TaD	Tierra Loam, 9 to 15 percent slopes
TaE	Tierra Loam, 15 to 30 percent slopes
W	Water

Legend

- Proposed Trail
- Existing Trail
- Existing Fire Road/Private Ranch Road
- Highway
- Minor Road
- Soil Type
- Franklin Canyon Boundary
- Fernandez Ranch Boundary

Geologic Formations

Tertiary

- Oursan Sandstone
- Neroly Sandstone
- Upper Part of Briones Sandstone
- Lower Part of Briones Sandstone
- Hambre Sandstone of Monterey Group
- Rodeo Shale of Monterey Group
- Tice Shale of Monterey Group
- Hercules Shale Member of Briones Sandstone

Quaternary

- Late Pleistocene Alluvium
- Undifferentiated, Upper Quaternary Deposits

Sources: USGS, 1998 | USDA, 1956
Map Produced By: Jake Schweitzer, 02/2013
Map File: Geol-Soils_078_B-L_2013-0208.mxd

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N W E S

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(1 inch = 1,000 feet at tabloid layout)

0 250 500 Meters

0 500 1,000 2,000 Feet

Table 3. Soil Types Found on the Franklin Canyon Project Site, Contra Costa County, California. Compiled by VNLC, 2012.

Soil Code	Soil Name	Parent Material	Landscape Position	Hydrology	Location on Project Site	Associated Vegetation on Project Site
BaC	Botella clay loam, 2-9% slopes	Sedimentary rock alluvium	Alluvial fans, floodplains	Moderately well-drained to well-drained	Small area of the low-lying valley south of the golf course club house.	Annual grasslands, riparian woodland, (golf course fairway)
CeA	Conejo clay loam, 0-2% slopes	Sedimentary rock alluvium	Valleys, floodplains	Well-drained	Small area along northern boundary with golf course	Oak and riparian woodland, (golf course fairway)
ChA	Conejo clay loam, clay substratum, 0-2% slopes	Sedimentary rock alluvium (clay substratum at 40-60 inches)	Floodplains	Well-drained	Small area in northeast corner	Riparian woodland, Oak woodland (golf course fairway), scattered grasslands
GbF	Gaviota sandy loam, 30-50% slopes	Weathered sandstone (underlying bedrock at about 17 inches)	Steep upland slopes	Well-drained to excessively drained	South- and west-facing slopes along southwest hills at the edge of site.	Annual and perennial grasslands, oak/bay forest along drainages
GbG	Gaviota sandy loam, 50-75%	Weathered sandstone (underlying bedrock at about 17 inches)	Steep upland slopes	Excessively drained	Small area in the southwest corner	Annual grasslands
LeE	Los Gatos loam, 15-30%	Weathered interbedded sedimentary rock (underlying bedrock at a about 27 inches)	Upland slopes	Well-drained	Small area in northwest corner by golf course	Oak and riparian woodland, annual grasslands (golf course fairway)
LeF	Los Gatos loam, 30-50% slopes	Weathered interbedded sedimentary rock (underlying bedrock at a about 27 inches)	Steep north-facing upland slopes	Well-drained	North-facing slopes in northern half of site.	Variety of communities, including: annual grasslands, oak woodlands, some coyote brush scrub, scattered perennial grasslands

Soil Code	Soil Name	Parent Material	Landscape Position	Hydrology	Location on Project Site	Associated Vegetation on Project Site
MeF	Millsholm loam, 30-50% slopes	Weathered interbedded shale and fine sandstone (underlying bedrock at about 12 inches)	Steep upland slopes	Well-drained	South- and east-facing slopes in southeastern and northwestern corners of site.	Mostly annual grasslands with scattered oak woodlands and perennial grasses
MeG	Millsholm loam, 50-75% slopes	Weathered interbedded shale and fine sandstone (underlying bedrock at about 12 inches)	Very steep upland slopes	Well-drained	High ridges, hilltops, and slopes in southern half of site.	Oak woodlands with some annual grasslands and scrubland
TaC	Tierra loam, 2-9% slopes	Sedimentary terrace deposits	Gently sloped upland terraces	Moderately well-drained	Sloped valley near center of site, adjoining BaC soil.	Annual grasslands, coyote brush scrub
TaD	Tierra loam, 9-15% slopes	Sedimentary terrace deposits	Sloped upland terraces	Moderately well-drained	Sloped terrace in southwestern portion of site.	Annual grasslands, scattered perennial grasslands
TaE	Tierra loam, 15-30% slopes	Sedimentary terrace deposits	Sloped upland terraces	Moderately well-drained	Sloped terraces in southwestern portion of site.	Annual and perennial grasslands

Source: USDA Soil Survey of Contra Costa County (1977)

4.2.5 Climate

The climate in the local project region is strongly influenced by the topography of the East Bay Hills. The increase in elevation causes the moist air from the coast to rise, cool and condense as precipitation over the East Bay Hills. This creates the rain shadow effect, where the more inland hills and valleys receive less annual rain. A similar blocking effect occurs with the fog typical of the coastal climate. While the high moisture of the San Francisco Bay and ocean can create a blanket of fog during spring and summer months within the immediate Bay Area, the tule fog of the inland valley characterizes many winter days. The project site is situated within a transitional zone between the bay and inland climatic regimes, although it is on the western edge of the East Bay Hills. Therefore, it receives fog from the coast during spring and summer months, and later is at the edge of the tule fog zone that moves in along the Carquinez Strait from the dry inland valley.

In general, there is a marked difference in temperature and precipitation between the bay floodplain to the west of the project site (Richmond area) and the inner East Bay Hills and valleys (Martinez to Antioch). The floodplain and area west of the East Bay Hills generally experience warmer winters and cooler summers due to the moderating influence of the bay and ocean. The moderating influence of the maritime air is reflected in the July average temperature of 62°F in Richmond on the bay shore, compared

to 74° in Antioch to the east of the hills (USDA 1977). Average annual precipitation ranges from 22.28 in Richmond to 13.34 inches in Antioch. The nearest weather station to the project site, in Martinez, records temperature and precipitation averages that fall almost exactly in the middle of those for Richmond and Antioch. Because Martinez is east of the project site and thus more sheltered from maritime influences, the project site lies somewhere between the coastal climatic regime and that of Martinez.

4.2.6 Surface Hydrology

The majority of the project site falls within the Rodeo Creek watershed, with portions in the southwest that lie at the headwaters of the Refugio watershed. The Rodeo Creek watershed is the largest in northwestern Contra Costa County, draining 10 square miles of the Franklin and Pinole area (RDG 2006). The Refugio Creek watershed drains 4.87 square miles of northwestern Contra Costa County (RDG 2009). Both creek systems flow to the San Pablo Bay, east and northeast of the project area.

A small portion of Rodeo Creek runs through the far northeast corner of the project site and multiple tributaries, generally seasonal drainages, run throughout the project site. As **Figure 5** shows, prominent ridges divide these creeks into a number of small watershed sub-basins within the project site. Few wetlands occur on the site, and are generally associated with the lowest elevations of the drainages on site. These wetlands and their associated plant and wildlife species are discussed in depth in Section 5.0 below.

4.2.7 Land Use

Livestock grazing has been the predominant land use on the site and on the adjacent open space lands since the mid 1800s and earlier (Jones 2010). Livestock grazing has been absent on the project site in the most recent years, due to the change in ownership and previous potential for development. Livestock grazing is a part of the cultural agricultural history and can prove beneficial when used as a management tool for enhancing specific habitat values or maintaining certain levels of Residual Dry Matter, according to management goals. Challenges may arise in determining stocking levels within the drainages and other wetland areas that are more sensitive to erosive forces during wet season months. Recreational public access may also be a factor in livestock management. A separate grazing plan independent of this report may be helpful to address the myriad of potential grazing regimes.

The nearest development is the Franklin Canyon Golf Course located directly north of the site. Residential neighborhoods of Hercules occur in the valleys to the west of the project site. There is some open space between the residential homes and the site that is currently undeveloped. **Figure 8** presents land use classification in the vicinity of the project site and provides a general picture of land use in the region.

4.3 Plant Communities

4.3.1 Plant Communities within the Project Site

Table 4 provides a list of the eighteen plant communities mapped on the site, their dominant plant species, and their relationships to three different California plant community classification systems widely used (CDFG 1988, Sawyer et al. 2009, and Holland 1986). **Table 5** provides summary descriptions of these communities, associated special-status species, associated noxious weeds, and the distribution of the communities on the project site. **Figure 3** shows the mapped distribution of these communities on the site and **Appendix B** presents representative photographs of many of these community types.

FIGURE 8
Regional Land Use

Franklin Canyon/Fernandez Ranch
Muir Heritage Land Trust
Contra Costa County, California

San Pablo Bay
Carquinez Strait
City of Crockett
City of Benicia
Carquinez Strait Drainages Watershed
Rodeo
Refugio
Creek
80
Rodeo Creek Watershed
Franklin Canyon
4
City of Martinez
Creek
City of Hercules
Refugio Creek Watershed
Garrity Creek Watershed
Rodeo
Franklin
Creek
Fernandez Ranch
Creek
City of Pinole
Pinole
City of El Sobrante
Creek
Pinole Creek Watershed
City of San Pablo
Alhambra Creek Watershed
City of Richmond
Wildcat Creek Watershed
San Pablo Reservoir
San Pablo Reservoir Watershed
Briones Reservoir

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Data Sources: VNLC, 2013
Alta Planning, 2005 | GAP 1998
USGS, 1998; TIGER, 2000
County of Contra Costa, 2005
CERES (General Plan Data)
GIS/Cartography by: Jake Schweitzer, Feb. 2013
Map File: Regional-Landuse_078_B-L_2013-0205.mxd

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Legend

Land Use General Plans

- Industrial
- Commercial
- Residential
- Urban Reserve
- Mixed Use
- Agriculture
- Open Space
- Water

Reference Features

- Highway
- Road
- Creek
- Railroad
- Watershed Boundary
- Franklin Canyon Boundary
- Fernandez Ranch Boundary

1:63,360
(1 inch = 1 mile at tabloid layout)

0 1 2 Kilometers

0 0.5 1 1.5 2 Miles

All of the north-facing slopes are dominated by coast live oak, California bay (*Umbellularia californica*) and poison oak (*Toxicodendron diversilobum*) with a variable cast of subdominant species in the overstory and understory that integrate with the dominants. Other species occur along topographical and hydrological gradients as minor components of the plant community. Black oak and valley oak occur just below the ridgelines and at the open edges of the coast live oak/California bay forest boundary, often part of a mixed oak woodland with a more open understory dominated by annual grasses. The valley oaks on the site are likely crossed with the regionally rare Oregon white oak, which explains the ridgeline distribution of individuals that is contrary to the more common location of the species along floodplains in valleys. The one definitively identified Oregon white oak was observed within a mixed oak community with annual grass understory at the edge of the coast live oak/California bay forest. The individual is on a north-facing slope, close to the ridge. Cavities, dead branches and broken limbs on these oaks at the forest edge are often used by Cooper's hawks and other raptors for nesting. The oak acorns and bay nuts are important food sources for Columbian black-tailed deer, woodpeckers and other wildlife.

California buckeye (*Aesculus californica*) occurs sporadically midslope above the drainages, singly or in groups of individuals. Occasionally, the valley oak and buckeye communities are exclusive enough to be considered an independent plant community, distinct from the surrounding coast-live oak/California bay community. A higher density of California bay with occasional bigleaf maple (*Acer macrophyllum*) and an understory of California blackberry (*Rubus ursinus*) and a variety of fern species occurs within the seasonal drainage corridors. The dense forest community provides habitat to the San Francisco dusky-footed woodrat; the nests of this species were observed often throughout the forested portion of the site.

Coast live oak, rather than California bay, dominates the overstory at the transition to scrubland in the north and east of the project site, with a variable scrub understory of coyote brush (*Baccharis pilularis*), coast bush monkeyflower (*Mimulus aurantiacus*) and poison oak. There is minimal herbaceous vegetation in the scrubland or forest community, although creeping wildrye and California figwort (*Scrophularia californica*) may associate along the scrubland edge. The scrubland communities on the site are generally dominated by coyote brush and poison oak with some coast bush monkeyflower, California sagebrush (*Artemisia californica*) and poison hemlock species mixed into the community. A bare ground buffer area is often visible between the established scrub habitat and adjacent grassland.

Scrub communities in general are not static and change according to grazing pressure, fire intervals and interactions with other plant communities. Coyote brush scrub appears to be expanding along the grassland edge of many scrub populations in areas that have not been grazed in multiple years. The abrupt termination of coyote brush communities at the fenced boundaries shared with cattle-grazed areas demonstrates the negative impact of grazing on coyote brush regeneration. Coast live oak regeneration responds negatively to the same pressure and is more likely to be successful if protected from grazers by germinating within the shrub communities (Sawyer et al. 2009). Many of the coyote shrub populations on the site host occasional coast live oaks, which increase in frequency until the transition with the coast live oak/California bay community. The coyote brush scrub on site is generally mature with senescing and dead individuals common within the community. The scrub communities and their transition zones are important habitat to the Alameda whipsnake, which is known to occur on the site.

Non-native annual grassland dominates the ridges and south-facing slopes of the project site, with occasional perennial grasses, coastal prairie remnant and bracken fern stands. The annual grassland species, typical of the East Bay Hills (e.g., oats [*Avena* spp.], bromes [*Bromus* spp.] and barley [*Hordeum* spp.]), were introduced early during western grazing activities and have since dramatically out-competed the native grasses and forbs across the state. Multiple noxious weeds, including yellow star-thistle, poison hemlock and Italian thistle occur within the annual grasslands and are generally associated with cattle grazing. Native grass stands and coastal prairie remnant communities on the site are all considered to be sensitive communities in this report. Creeping wildrye stands are common throughout the

grasslands on the project site. Many of the stands occur on open slopes and are associated with annual grassland species, Italian thistle, poison hemlock and coyote brush. Only dense stands were mapped, although the species is more widely distributed. The native grasslands on the site may have increased in size due to exclusion of grazing, since they were described as "several small stands" in the 2003 Draft EIR and are currently large stands in multiple areas across the site. Fewer and less dense populations of purple needlegrass were mapped on the project site. These were generally on north to west-facing slopes and within the larger non-native annual grassland. The coastal prairie remnants were mapped within annual grasslands that featured low densities of California oatgrass and western rush. The bracken fern communities occur within annual grasslands in patchy populations on generally north-facing slopes at the edge of coast live oak/California bay forest (**Figure 3**). Diablo helianthella, a CNPS 1B.2 special-status plant, is also associated with the annual grassland edge on ridgelines near coast live oak/California bay forest. The grasslands provide habitat for a number of small mammals, reptiles and passerine birds, all of which are important prey species to coyote (*Canis latrans*), grey fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*) and various raptors, such as Cooper's hawk and white-tailed kite.

Table 4. Plant Communities Identified on the Franklin Canyon Project Site, Contra Costa County, California. Communities correlate with plant community classifications by California Department of Fish and Game (CDFG) (1988), Holland (1986), and Sawyer et al. (2009). Compiled by VNLC, 2012.

Plant Community Types Mapped on Franklin Canyon	CDFG (WHR)	Holland	CNPS 2009	Dominant/Subdominant Species
FOREST COMMUNITIES				
California Bay Forest	Coastal Oak Woodland	California Bay Forest	California bay; California bay/ western poison-oak	California bay, western poison-oak, bigleaf maple, California blackberry, ferns
Coast Live Oak/California Bay Forest*	Coastal Oak Woodland	Coast Live Oak Forest/ Coast Live Oak Woodland	coast live oak-California bay/western poison-oak; coast live oak-California bay;	coast live oak, California bay, western poison-oak, California buckeye, California black oak
WOODLAND COMMUNITIES				
California Buckeye Woodland	Montane Hardwood Forest	Mixed North Slope Forest	California buckeye; California buckeye-California bay/coast bush monkeyflower	California buckeye, California bay, coast live oak
Coast Live Oak Woodland*	Coastal Oak Woodland	Coast Live Oak Forest/ Coast Live Oak Woodland	coast live oak-valley oak/western poison-oak; coast live oak-grass; coast live oak- California buckeye; coast live oak/ western poison-oak	coast live oak, valley oak, western poison-oak, coyote brush, California buckeye, coast bush monkeyflower, annual grasses
Mixed Oak Woodland*	Coastal Oak Woodland/ Montane Hardwood	Broadleaved Upland Forests/ Cismontane Woodlands	mixed oak-coast live oak/western poison-oak; mixed oak/grass; valley oak-coast live oak/grass; valley oak-coast live oak/western poison-oak;	coast live oak, valley oak, California black oak, western poison-oak, annual grasses
Valley Oak Woodland*	Valley Oak Woodland	Valley Oak Woodland	valley oak/grass	valley oak, coast live oak, annual grasses

Plant Community Types Mapped on Franklin Canyon	CDFG (WHR)	Holland	CNPS 2009	Dominant/Subdominant Species
SCRUB COMMUNITIES				
California Sagebrush Scrub*	Coastal Scrub	Diablan Sage Scrub	California sagebrush-coast bush monkeyflower	California sagebrush, coast bush monkeyflower
Coyote Brush Scrub*	Coastal Scrub	Northern Coyote Brush Scrub	coyote brush; coyote brush-creeping wildrye; coyote brush/annual grass-herb; coast live oak/chaparral	coyote brush, creeping wildrye, coast live oak, western poison-oak
Coyote Brush/Poison Oak Scrub*	Mixed Chaparral	Northern Coyote Brush Scrub	coyote brush-western poison-oak	coyote brush, western poison-oak, coast live oak
Poison Oak Scrub*	Mixed Chaparral	Coastal Sage-Chaparral Scrub	western poison-oak coyote brush	western poison-oak, coyote brush, coast live oak
GRASSLAND COMMUNTIES				
Coastal Prairie* (Remnant)	Perennial Grassland	Coastal Terrace Prairie	California oatgrass	California oatgrass; annual grasses; western rush; perennial ryegrass
Creeping Wildrye Grassland*	Perennial Grassland	Valley Wildrye Grassland	creeping wildrye-bromes- oats	creeping wildrye, annual grasses
Non-Native Annual Grassland	Annual grassland	Valley and Foothill Grasslands	bromes-oats	Annual grasses
Purple Needlegrass Grassland*	Perennial Grassland	Valley Needlegrass Grassland	purple needlegrass-bromes-oats	purple needlegrass, annual grasses
HERBLAND COMMUNTIES				
Bracken Fern Stand	Bracken Fern-Pale Hedge Nettle	Dry Montane Meadow	N/A	Bracken fern, annual grasses

Plant Community Types Mapped on Franklin Canyon	CDFG (WHR)	Holland	CNPS 2009	Dominant/Subdominant Species
RIPARIAN COMMUNITIES				
Mixed Riparian Forest*	Coastal Oak Woodland	Central Coast Live Oak Riparian Forest	coast live oak-arroyo willow	California bay, coast live oak, arroyo willow, California buckeye, bigleaf maple
Mixed Riparian Scrub*	Fresh Emergent Wetland	North Coast Riparian Scrub	arroyo willow/coyote brush-pacific blackberry	arroyo willow, coyote brush, California blackberry

"*" denotes a "sensitive" plant community as defined in this report

Table 5. Descriptions of Plant Communities Identified on the Franklin Canyon Project Site, Contra Costa County, California. Compiled by VNLC, 2012.

Plant Community	Description	On site Distribution	Assoc. Special-Status Species	Assoc. Noxious Weeds
FOREST COMMUNITIES				
California Bay Forest	Dense forest dominated by California bay trees with few other trees such as bigleaf maple, California buckeye and coast live oak; understory consists of poison oak and ferns with minimal vegetation	On steep to moderate slopes, generally in moister areas closer to drainage basins	SF dusky-footed woodrat	N/A
Coast Live Oak/ California Bay Forest	Dense forest dominated by coast live oak and California bay trees creating an shaded understory of poison oak, snowberry and occasionally sticky monkey flower with minimal herbaceous vegetation	Steep to moderate slopes surrounding north-flowing drainages	SF dusky-footed woodrat; Cooper's hawk (edges); Diablo helianthella	Italian thistle
WOODLAND COMMUNITIES				
California Buckeye Woodland	Moderately dense woodland dominated by California buckeye trees, generally within Coast Live Oak/California Bay Forest with sparse understory of poison oak	Occasional, upslope from creek drainages	Alameda whipsnake; Cooper's hawk	N/A
Coast Live Oak Woodland	Moderately dense to open woodland dominated by coast live oak with a variety of scrub and annual grassland species in the understory	On transition zones between Coast Live Oak/California Bay Forest and scrublands or annual grasslands	Alameda whipsnake; Cooper's hawk; Diablo helianthella	Poison hemlock; Italian thistle
Mixed Oak Woodland	Open woodland of valley oak, black oak, coast live oak, and California bay with an open understory of annual grasses	Moderately steep hillslopes at upper edge of Coast Live Oak/California Bay Forest, ending at annual grassland edge	Alameda whipsnake; SF dusky-footed woodrat; Cooper's hawk; Diablo helianthella	Italian thistle; yellow star-thistle
Valley Oak Woodland	Open woodland to savannah of valley oaks with few other oaks or California bay as subdominants; includes an understory of non-native and native grasses	Edge of Coast Live Oak/California Bay Forest on slopes near ridges surrounded by non-native annual grassland	Alameda whipsnake; Cooper's hawk; white-tailed kite	N/A

Plant Community	Description	On site Distribution	Assoc. Special-Status Species	Assoc. Noxious Weeds
SCRUB COMMUNITIES				
California Sagebrush Scrub	Scrub community dominated by California sagebrush and bush monkeyflower, bordering annual grassland	Dry, steep slopes with thin soil near cliffs in west	Alameda whipsnake, Diablo helianthella; robust coyote mint	N/A
Coyote Brush Scrub	Scrub community dominated by tall, dense stands of mature coyote brush, occasionally with a grassy and herbaceous understory of creeping wild-rye or annual grasses	Hillslopes, hilltops, forest edges, woodland edges, grassland edges	Alameda whipsnake; Diablo helianthella	artichoke thistle; poison hemlock
Coyote Brush/ Poison Oak Scrub	Scrub community with coyote brush and poison oak as co-dominants, generally at the edge of Coast Live Oak/California Bay communities; sparse herbaceous understory	Hillslopes, forest edges, woodland edges	Alameda whipsnake; Diablo helianthella	artichoke thistle; poison hemlock
Poison Oak Scrub	Scrub community dominated by tall, dense stands of poison oak, often part of the more continuous Coyote Brush Scrub community or at edge of Coast Live Oak/California Bay community	Hillslopes, forest edges, woodland edges, grassland edges	Alameda whipsnake	poison hemlock
GRASSLAND COMMUNITIES				
Coastal Prairie (Remnant)	Sparse scattered stands of native grasses and rushes including California oatgrass and western rush; associated with Italian ryegrass (representing remnant stands of coastal prairie)	Lower portions of north-facing hillslopes	N/A	N/A
Creeping Wildrye Grassland	Dense to sparse stands of creeping wildrye generally surrounded by annual grasslands	Hillslopes, grassland edges, scrub edges	N/A	Poison hemlock
Non-Native Annual Grassland	Contiguous grassland dominated by non-native annual grasses including many species of brome, barley, and oats. Sections of grassland also include wildflower fields, native grass stands and patches of noxious weeds.	Open hilltops, hillslopes, and terraces, often occur as the understory in open woodlands	Alameda whipsnake; northern harrier; white-tailed kite; loggerhead shrike; golden eagle	Yellow star-thistle; Italian thistle; poison hemlock; artichoke thistle

Plant Community	Description	On site Distribution	Assoc. Special-Status Species	Assoc. Noxious Weeds
Purple Needlegrass Grassland	Stands of purple needlegrass often associated with non-native annual grassland	Open hillslopes	N/A	N/A
HERBLAND COMMUNITIES				
Bracken Fern Stand	Dense stands of short bracken fern within open grasslands, often on north-facing slopes	Upper hillslopes, woodland edges, forest edges	N/A	N/A
RIPARIAN COMMUNITIES				
Mixed Riparian Forest	Mixed forest dominated by California bay and coast live oak with scattered California buckeye , arroyo willow and big-leaf maple creating a dense, overlapping canopy and a moist, shaded understory often dominated by ferns and California blackberry species.	Drainage banks on Rodeo Creek	California red-legged frog; SF dusky-footed woodrat; western pond turtle; Cooper's hawk	N/A
Mixed Riparian Scrub	Dense scrub community generally dominated by arroyo willow with coast live oak and coyote brush along low elevation stream channels; herbaceous understory includes nettles and poison hemlock	Within the larger drainage along portions with dense to open scrub	California red-legged frog; SF dusky-footed woodrat; western pond turtle; Cooper's hawk	Blessed milk-thistle; poison hemlock; bull thistle

4.3.2 Sensitive Plant Communities

For the purposes of this report, sensitive plant communities include:

- Plant communities identified as "high priority for inventory" in the *List of California Natural Plant Communities Recognized by the California Natural Diversity Database* (CDFG 2012).
- Oak woodlands protected by the State Woodlands Preservation Act (Senate Bill 1334, Section 21083.4).
- Streambeds and riparian habitats subject to the jurisdiction of the CDFG (pursuant to Section 1602 of the California Fish and Game Code) and the ACOE (pursuant to Section 404 of the Clean Water Act), including seasonal wetlands, streambeds and riparian habitats.
- Other locally rare or significant communities

Several of the plant communities on the site are considered 'sensitive' habitats, including the oak woodlands, remnant coastal prairie, perennial grasslands, stream corridors, riparian habitats, and a single spring. These sensitive habitats are discussed below.

Oak Woodlands

Oak woodlands on the site include coast live oak, valley oak and mixed oak (coast live oak, valley oak, California black oak and Oregon white oak). Coast live oak, the only evergreen oak on the site, is a dominant species in most of the woodland and forest communities on the site, and also associates with scrub. Only a few blue oaks were found on the site, representing some of the westernmost known occurrences as this species is typically associated with drier, inland valleys and foothill regions. California black oaks were uncommon within the coast live oak/California bay forest on the site, often at the grassland edge (**Figure 3**).

There are numerous valley oaks on the project site along ridgelines and upper slopes, which is very unusual for the species. Valley oaks typically occur on deeper alluvial soils in valley bottoms, as described by the common name. The species' unusual distribution on the site may be explained by local climatic conditions or, likely, hybridization with Oregon white oak. One Oregon white oak, a regionally unique species according to the local chapter of the California Native Plant Society (CNPS), was identified on a hillslope associated with coast live oaks, California black oak and valley oaks. Valley oaks are distinguished from Oregon white oaks by having smaller leaves and petioles, more truncate leaf lobes, less shiny, leathery leaf surfaces, acorn cups with tubercles rather than scales, and stellate hairs on the underside of the leaves with many as opposed to just a few rays. Many of the oak leaves and cups collected from oaks on the site had qualities representing both valley and Oregon white oaks. It is presumed that there is frequent hybridization between the two species, although this report and associated figures treats the crosses as valley oaks for simplicity.

The mature oak woodlands on the site have an open canopy and subsequently a higher density of understory plants, generally annual grasses and scrub species. The coast live oak woodlands generally occur at the transitions from coast live oak/California bay forest community to a drier community such as annual grassland or scrub. Mixed oak woodlands consisted of a mixed overstory of oak species with annual grasses, and generally occurred on the ridgelines of the site. Similarly, the valley oak woodlands occur on the ridgelines, but are often scattered farther into the annual grassland edge. Together, these oaks and their woodland communities are a major component of the site's plant biomass, creating microhabitats, providing an important food source for wildlife and stabilizing slopes.

Native Perennial Grass and Coastal Prairie Stands

Native perennial grasses and coastal prairie species have been outcompeted by non-native annual grass and noxious weed species since their introduction with cattle grazing in the west. Many of the introduced species have faster germination times, greater rates of seed dispersal and can alter the local conditions to their own habitat needs. The level of perennial grasses observed on the site is impressive given all of these factors. Large stands of creeping wildrye were mapped on the project site on north-facing or somewhat mesic slopes surrounding drainages (**Figure 3**). Smaller stands of purple needlegrass were observed scattered across the site in association with annual grasses, with three distinct populations. The first, covering roughly five acres, is on moderate to steep east- and north-facing slopes near the center of the project site. The second, covering roughly five acres, is on a moderately steep north-facing slope in the northwest portion of the site. This stand is visible from Highway 4. The third, covering roughly two acres, is on a gentle, west-facing slope in the southwest portion of the site.

Diane Lake, a botanist with the local chapter of CNPS, conducted previous surveys on the site and identified stands of coastal prairie. Species characteristic of this habitat type on the project site included California oatgrass, western rush, and coast suncup (*Camissonia ovata*). During the 2003 surveys, VNLC botanists identified four areas supporting stands of California oatgrass and western rush. One of these stands also supported coast suncup. The soils at each site consisted of grey, friable clay loam. At all sites, the occurrence of these species was sparse (less than 2% relative cover per species) and intermixed with a dominant cover of Italian ryegrass. Nonetheless, these stands do represent some of the easternmost known stands of coastal prairie-like habitat and therefore may be regarded as important from a regional botanical standpoint.

Riparian Habitats

Riparian habitats on the site include mixed riparian forest along Rodeo Creek and mixed riparian scrub along the largest tributary to Rodeo Creek (**Figure 3**). The 800-foot reach of Rodeo Creek on the project site has steep banks with a moderate cover of herbaceous vegetation and is characterized by scattered arroyo willow (*Salix lasiolepis*) and California buckeye trees within a larger coast live oak/California bay forest. Minimal riparian vegetation was observed in the incised floodplain of the creek. The slopes appeared somewhat erosive, although most of the cut slopes were stabilized with some vegetation. Water perennially flows through this creek from Fernandez Ranch in the southeast to Franklin Canyon Golf Course in the northwest. This riparian area is presumed to provide foraging, sheltering and movement habitat for western pond turtle and California red-legged frog, both of which have been identified within the creek on adjacent properties.

The mixed riparian scrub along the larger tributary drainage in the far west of the project site dominated by arroyo willow, common perennial stinging nettle (*Urtica dioica* ssp. *holosericea*), poison hemlock, California blackberry, and floating water primrose (*Ludwigia peploides*). The edges of the wetland were characterized by coyote brush shrubs and a variety of escaped horticultural species on the golf course property to the north. This habitat quickly disappears as the drainage increases in slope toward the headwaters and becomes dominated by the coast live oak/California bay forest community. This tributary may serve as migration and estivating habitat for the California red-legged frog populations that inhabit the golf course ponds and Rodeo Creek.

Stream Corridors

Along the seasonal creek drainages, occasional bigleaf maple, California blackberry and ferns integrate subtly with the more dominant coast live oak/California bay forest and were not distinct enough to be mapped as a separate plant community. Little to no vegetation occurred within the drainage proper, and debris flow was evident along the channel from high rain events. Some ponding water was observed in the lowest portions of the major tributaries to Rodeo Creek during the November 2012 site visit. The

majority of these drainages are seasonal, excluding the main stem of the spring-fed drainage in the southeast. The spring-fed drainage flows into a culvert at the golf course boundary; an associated berm has caused increased local soil moisture, seasonal ponding and the growth of seasonal wetland vegetation. This seasonal wetland area is just outside the project site boundary, within the golf course and consists of weedy herbaceous forbs including common perennial stinging nettle, common horsetail (*Equisetum arvense*), poison hemlock, and bristly ox tongue (*Helminthotheca echioides*).

Seeps and Spring

The few seeps on the site generally occurred at headcuts or slumps and were only recognizable by occasional stands of rush within a greater annual grassland community. These were noted but not mapped as a unique plant community as they were not large enough nor had high enough cover of distinctly wetland species.

One historically used spring occurs in the southeast of the project site, below the ridgeline within the coast live oak/California bay forest and constitutes the headwaters of this tributary to Rodeo Creek. The spring was flowing during the November visit and is assumed to be perennial. The localized vegetation included California bay, California buckeye and bigleaf maple with scattered poison oak brambles dominating the sparse understory. This spring provides perennial water for multiple wildlife species through the dry summer. It may provide habitat for California red-legged frog during frog dispersal in winter months, although this spring occurs at high elevation and is separated by a dry annual grassland ridge from nearby California red-legged frog occurrences.

4.4 Special-Status Species

Tables 6 and 7 are lists of special-status wildlife and plant species known or with potential to occur on the site based on regional occurrence, site surveys and habitat assessments. Sources used to develop this list include the CDFG's California Natural Diversity Data Base (2012), CNPS's Online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2012), and information provided by regional expert biologists. These tables include listing status and preferred habitat. The right-hand column indicates those species that have been observed, those that have not been observed but have potential to occur, and those that are not expected to occur. **Figure 4** shows mapped occurrences of special-status wildlife and plant species from various sources. **Appendix A** provides lists of all wildlife and plant species observed on the site during the 2012 and 2003-4 field surveys, respectively.

4.4.1 Special-Status Wildlife

Table 6 identifies 16 locally occurring special-status wildlife species and assesses the preferred habitat of each and the likelihood of each to occur on the site. Three of these species, the San Francisco dusky-footed woodrat, northern harrier and white-tailed kite, were observed on the site during the 2012 surveys; two additional species, Alameda whipsnake and Cooper's hawk, have been previously documented on the site. The California red-legged frog and western pond turtle are assumed to be present on the site as individuals have been observed on adjacent properties within the Rodeo Creek. The American badger is also assumed to be present on the site, as it was observed on Fernandez Ranch to the southeast during 2006 VNLC surveys, and similar habitat exists on Franklin Canyon (**Figure 3** and **4**).

Though not observed during field surveys, four species were determined to have potential to occur on the site based on the presence of suitable habitat. These include golden eagle, loggerhead shrike, yellow warbler, and pallid pat. The remaining four species in **Table 6** are not expected to occur due to a lack of suitable habitat. These include vernal pool fairy shrimp (*Branchinecta lynchi*), California tiger salamander, tricolored blackbird (*Agelaius tricolor*) and western burrowing owl (*Athene cunicularia*). All of the species known or with potential to occur on the site are discussed individually below as described in the CNDDB (CDFG 2012). Species not expected to occur are not further discussed in this document.

California Red-Legged Frog (*Rana draytonii*)

Federally Threatened, California Species of Special Concern

Background

The California red-legged frog (CRLF) is a medium-sized native frog, typically 4-5 inches in length when mature. As indicated by its name, the hind legs as well as the abdomen of adults are reddish in color. CRLF is federally-listed as threatened and is a state species of special concern, due to its ongoing extirpation throughout most of its historic range. Franklin Canyon is at the northwestern edge of USFWS designated critical habitat, within the Berkeley Hills unit (CCS-1) (USFWS 2010). USFWS has completed a recovery plan for the species (USFWS 2002b).

CRLF historically ranged from Marin County along the coast and from Shasta County inland south to Baja California, Mexico (Hayes and Jennings 1994). Within this region, it occurred throughout the Coast Ranges, Central Valley, and western Sierra Nevada foothills up to about 1,500 meters (5,200 feet) in elevation. Over the past 200 years, CRLF's range has been greatly reduced (and continues to be reduced), with most remaining populations occurring in the Coast Ranges from Marin to Ventura County. The loss of range is due to a combination of initial harvesting of the species for food, loss and degradation of breeding habitat, and competition/predation by introduced predatory species such as the bullfrog (Hayes and Jennings 1986).

CRLF breed in streams, deep pools, backwaters within streams and creeks, ponds, marshes, sag ponds, dune ponds, lagoons, and stock ponds. Breeding adults are often associated with deep (greater than 0.7 meter [2 feet]), stagnant or slow moving water, as well as with dense, shrubby riparian or emergent vegetation (Hayes and Jennings 1988). CRLF utilize non-aquatic habitats for refuge, dispersal and foraging. The species is known to rest and feed in riparian vegetation, and it is believed that the moisture and cover of the riparian zone provides foraging habitat and facilitates dispersal. Accessibility to sheltering habitat is essential for CRLF survival within a watershed, and can be a factor limiting frog population numbers. Sheltering habitat includes mammal burrows, damp leaf litter, downed wood, riparian vegetation, and dense shrubbery within several hundred meters of aquatic sites. CRLF may shelter further than 100 m (328 ft) from water for weeks at a time in any season (USFWS 2002b).

Occurrence On and Adjacent to the Site

Multiple occurrences are known in the immediate vicinity from CNDDB records and previous VNLC surveys on Fernandez Ranch (**Figure 4**). One CNDDB occurrence lies 0.08 mile to the north of the site in an artificial golf course pond and associated Rodeo Creek habitat. The segment of Rodeo Creek that flows through the northeast corner of the Property is considered breeding habitat and the adjacent riparian woodlands and other major Rodeo Creek tributaries are considered potential forage and dispersal habitat. The CNDDB also contains a record of CRLF from a stock pond located approximately 0.35 mile south of the project boundary. This pond, which is located on East Bay Municipal Utility District (EBMUD) property, is located between Refugio Creek and Goat Creek. It is less likely that the project site serves as foraging habitat for these species because the pond is separated by hillslopes and ridgelines of dry annual grasslands, although there is potential for dispersal of the species through the area.

In 2006, VNLC biologists observed three adults CRLFs within the largest stock pond on the Fernandez Ranch, approximately 0.56 mile southeast of the project site (**Figure 4**). The pond is located adjacent to a tributary and associated riparian corridor of Rodeo Creek. It is watered by runoff from a small seasonal

Table 6. Special-Status Wildlife Species Known or with Potential to Occur on the Franklin Canyon Project Site, Contra Costa County, California. Compiled by VNLC, 2012

Common/Scientific Name[1]	Status[1]	Preferred Habitat(s)[2]	Occurrence On site
INVERTEBRATES			
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Vernal pools and other seasonal pools with sparse vegetation	Not Expected: No seasonal pools on site
AMPHIBIANS			
California tiger salamander (*Ambystoma californiense*)	FT CT CSC	Grasslands and lowest foothill regions; breeds in long-lasting rain pools.	Not Expected: The site is outside of the known range of the species (USFWS 2005); no seasonal pools or stock ponds on site.
California red-legged frog (*Rana draytonii*)	FT CSC	Still or slow-moving water sources such as ponds, lakes, reservoirs and streams with emergent vegetation and adjacent riparian woodlands.	***Presumed to Occur****:* The species has been documented along Rodeo and Refugio Creeks, a pond in the Franklin Canyon Golf Course and within a stock pond in the south-central portion of Fernandez Ranch.
REPTILES			
Western pond turtle (*Emys marmorata*)	CSC	Slack or slow-moving water (ponds, streams, ditches) with basking sites and nesting areas of open unshaded slopes in the vicinity	***Presumed to Occur:*** The species is known to occur within Rodeo Creek and in a pond in the Franklin Canyon Golf Course
Alameda whipsnake (Masticophis lateralis euryxanthus)	FT CT	*Chaparral, scrub, grassland, and oak woodland habitats.*	**Presumed to Occur**: *Observed in eastern scrub habitat during 2002 surveys by Karen Swaim.*
BIRDS			
Cooper's hawk (*Accipiter cooperi*)	CWL	Nests in conifer and deciduous riparian forests near open woodland and habitat edges for hunting	***Presumed to Occur****:* Record of nest on site, as well as suitable nesting and foraging habitat present
Tricolored blackbird (*Agelaius tricolor*)	BCC CSC	Nests in freshwater marshes, thistle fields and riparian scrub near open water	Not Expected: Marginal habitat present due to limited extent of riparian scrub and emergent vegetation.
Western burrowing owl (*Athene cunicularia*)	BCC CSC	Forages and nests in grasslands and open scrub with mammal burrows.	Not Expected: Potential burrow sites are limited as no ground squirrel burrows were observed.

Common/Scientific Name[1]	Status[1]	Preferred Habitat(s)[2]	Occurrence On site
Golden eagle (*Aquila chrysaetos*)	BCC CFP	Nests on cliffs and large trees in a variety of habitats with nearby open terrain for hunting.	*Potential*: Suitable foraging habitat present; cliffs not suitable for nesting site.
Northern harrier (*Circus cyaneus)*	CSC CFP	Forages in open grasslands, marsh, and emergent wetlands; nests on the ground in shrubby vegetation.	***Observed****:* Individuals observed foraging on open grasslands during 2012VNLC surveys; limited nesting habitat present.
Yellow warbler (*Dendroica petechia brewsteri*)	CSC FSC	Nests in riparian vegetation and wet meadows.	*Potential:* Suitable nesting and foraging habitat present; not observed on the site but known to nest in the area.
White-tailed kite (*Elanus leucurus*)	CFP	Nests in oak woodlands or trees along marsh with open foraging habitat.	***Observed***: One individual observed foraging in open grasslands of southwest; another observed perched in coast live oak tree at scrub/grassland ecotone.
Loggerhead shrike (*Lanius ludovicianus*)	BCC CSC	Found in open canopy hardwood, conifer or riparian forests. Prefers perches within open grassland for hunting.	*Potential*: Suitable nesting and foraging habitat present; not observed on the site but known to nest in the area.
MAMMALS			
Pallid bat (*Antrozous pallidus*)	CSC	Associated with grasslands, shrublands, woodland and forests. Roosts in tree cavities, rock crevices and man-made structures.	*Potential*: Suitable roosting and foraging habitat present; not observed on site but known to nest in the area.
San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)	CSC	Builds nest within moderate-canopy forest with brushy understory at the base of a tree, shrub or hill.	***Observed*:** Many nests found in the shaded, open understory woodlands and forests.
American badger *(Taxidea taxus*)	CSC	Burrows within grassland and savannah with friable soils and burrowing rodents in vicinity.	***Presumed to Occur****:* An individual badger was observed on Fernandez Ranch in 2006 VNLC surveys.

1. Nomenclature and status from DFG 2011; 2. CDFG 2012 and VNLC experience

FE: Federally Endangered
FT: Federally Threatened
BCC: Bird of Conservation Concern
CE: California Endangered
CT: California Threatened
CFP: California Fully Protected
CSC: California Species of Special Concern
CWL: California Watch List Species

creek and seep and thus remains inundated well into summer. CRLF is assumed to occur on the site, given the occurrences in the immediate vicinity and the quality breeding, foraging and dispersal habitat of Rodeo Creek and its major tributaries on the site.

Alameda Whipsnake (*Masticophis lateralis euryxanthus*)

Federally Threatened, California Threatened

Background

Alameda whipsnake (AWS) is a slender, fast moving, diurnal snake with a narrow neck and relatively broad head. The dorsal color is sooty-black with yellow-orange dorso-lateral stripes. The anterior portion of the stripes and ventral surface of the snake are heavily pigmented with orange-rufous coloration (Riemer 1954). Adults reach up to five feet in length (Swaim 1994). The snake has a very narrow range, restricted to the inner Coast Ranges in western and central Contra Costa and Alameda counties, within the broader range of the more common California striped racer (*M. l. lateralis*). Alameda whipsnake is federally and state listed as threatened due to its highly restricted range and the continuing loss of its habitat to development. A Draft Recovery Plan for AWS and other chaparral and scrub dependent species was created in 2002 (USFWS 2002a); critical habitat was designated for the species in 2006. The Franklin Canyon site occurs on the northwest boundary of USFWS-designated critical habitat (USFWS 2006), within Recovery Unit 1: Tilden-Briones.

The Alameda whipsnake has commonly been reported to have a specific association with chaparral and scrub plant communities (Swaim 1994, USFWS 1997). However, recent telemetry data indicate that, although home ranges of Alameda whipsnakes may center on shrub communities, the subspecies ventures into adjacent habitats, including grassland, oak savanna, and occasionally oak-bay woodland. Therefore, habitat associations for this subspecies should include those that co-occur in the general chaparral/scrub habitat mosaic (Alvarez 2006). In particular, annual grassland, oak woodland and riparian habitats, as well as non-natural and disturbed open habitats associated with chaparral/scrub plant communities, are also considered potential habitat for the Alameda whipsnakes (Alvarez 2006). Rock outcrops are considered an important feature of Alameda whipsnake habitat because they provide retreat opportunities for whipsnakes and also promote lizard populations. Lizards, especially the western fence lizard (*Sceloporus occidentalis*), appear to be the most important prey item, although other prey items are taken, including skinks, frogs, snakes and birds (USFWS 2005).

Occurrence On and Adjacent to the Site

One AWS individual was captured twice in the eastern portion of the site in a 2002 survey (Swaim 2003) (**Figure 4**). The dense, mature coyote brush scrub lands on the project site are not associated with dense burrow complexes or rock outcrops, which would increase the habitat value for the whipsnake. The distribution and density of scrub habitat on the site is related to climate, grazing and geomorphic characteristics. All of the scrub communities with associated grassland and woodland habitats, along with the presence of rock outcrops, provide good quality habitat for the snake. Since all of the habitats on the site have potential to be used as foraging or sheltering habitat or for movement, the entire site should be regarded as providing potential habitat for the snake.

Western Pond Turtle (*Emys marmorata*)

California Species of Special Concern

Background

Western pond turtle is a small to medium sized drab brown to tan turtle. It is the only turtle native to

California. Current taxonomy recognizes two subspecies, the northwestern pond turtle (*Emys marmorata marmorata*) and the southwestern pond turtle (*Emys marmorata pallida*), and these hybridize through a broad portion of the species' range. Western pond turtle is considered a state species of special concern due to the historic and continuing loss of habitat (CDFG 2011).

Western pond turtle primarily inhabits perennial aquatic habitats, including ponds, slow moving streams, lakes, marshes and canals. The species frequently basks on logs or other objects out of the water. Turtles use upland habitats, usually grasslands, in the vicinity of aquatic habitats for egg-laying, hibernation, and aestivation. Egg-laying sites are typically within 200 meters, but as far as 400 meters from their primary habitat. Grassy, south-facing slopes are preferred for egg-laying. Mating typically occurs in late April or early May and most egg-laying occurs during May and June, although sometimes as late as early August. Hatchlings emerge after approximately three months and require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage (CDFG 2000).

Occurrence On and Adjacent to the Site

The CNDDB contains records for western pond turtle along Rodeo Creek and in artificial ponds within Franklin Canyon Golf Course, each less than 0.1 mile north of the project site boundary. VNLC biologists observed a single adult western pond turtle crawling up a grassy swale on the banks of Rodeo Creek at Fernandez Ranch in 2006 surveys (**Figure 4**). Although no suitable aquatic habitat occurs on the site (no perennial ponds or slow-moving creeks), it is assumed that the species can move throughout Rodeo Creek and the larger tributary of Rodeo Creek on the site. Upland habitat adjacent to the creek and tributaries should be regarded as potential nesting habitat, especially annual grasslands, within 400 meters of the creek zone.

Cooper's Hawk (*Accipiter cooperi*)

California Watch List

Cooper's hawk is a medium-sized raptor that preys on a variety of bird species, small mammals, and reptiles. Breeding pairs generally select nest sites within dense stands of coast live oak woodland, riparian habitats, or other wooded areas. Nesting also occasionally occurs in sparsely wooded areas, including suburban areas and parks. The CNDDB contains a nesting record on the project site from earlier surveys (**Figure 4**). Given the presence of suitable nesting habitat and documented nesting, Cooper's hawk is presumed to nest and forage throughout the site.

Golden Eagle (*Aquila chrysaetos*)

Federal Bird of Conservation Concern, California Species of Special Concern, California Fully Protected Species

Golden eagles nest on cliff-walled canyons and large trees in open areas. The species generally occurs in lightly forested areas or in forests with open areas nearby, foraging in open grasslands. The cliffs on the project site are all well vegetated and do not provide ideal nesting habitat for the species. While this species has not been observed on the site, the presence of suitable tree nesting habitat and known nesting occurrences in the area imply that the species could potentially nest and/or forage on the site.

Northern Harrier (*Circus cyanus*)

California Species of Special Concern

Northern harrier inhabits open grasslands, agricultural areas, and marshes. Nests are constructed on the ground, generally in areas where tall grasses provide cover. Individuals are commonly seen foraging close to the ground in open grasslands, marshes, and agricultural fields. This species was observed foraging over the annual grasslands of the project site and has some potential to nest within the tall grasses on the site (**Figure 4**).

Yellow Warbler (*Dendroica petechia brewsteri*)

California Species of Special Concern

Yellow warbler nests in dense riparian habitats dominated by willows, alders, or cottonwoods. Areas along Refugio Creek and Rodeo Creek that are dominated by willows provide suitable nesting habitat for the species. Although there is minimal dense riparian habitat on the site, this species could occur on Rodeo Creek or in the low elevations of the largest tributary drainages. There are no CNDDB records or other documentation indicating the presence of this species in the project site vicinity.

White-tailed Kite (*Elanus leucurus*)

California Fully Protected Species

White-tailed kites typically nest in trees, often in isolated stands surrounded by open foraging habitat. Nests are built on top of oaks, willows, or other dense broad-leafed deciduous trees within partially cleared or cultivated fields, grasslands, marsh, riparian, woodland, and savannah habitats. Two individuals were observed foraging on the annual grasslands of the project site, and likely nest within Franklin Canyon.

Loggerhead Shrike (*Lanius ludovicianus*)

Federal Bird of Conservation Concern, California Species of Special Concern

Loggerhead shrike is a predatory passerine that generally forages in grasslands with scattered shrubs, trees, fences or other perches. Nesting habitat includes coastal scrub, other shrubby vegetation, and small trees. Given the presence of suitable nesting and foraging habitat, this species could occur on the site. There are no CNDDB records or other documentation indicating the presence of this species in the project site vicinity.

San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*)

California Species of Special Concern

The dusky-footed woodrat is a medium-sized native rodent that inhabits dense forest and riparian habitats. The San Francisco dusky-footed woodrat is a locally endemic subspecies restricted to the greater San Francisco Bay region. Evergreen or live oaks and other thick-leaved trees, and shrubs are important habitat components for this species (Kelly 1990). They are highly arboreal (Kelly 1990). Woodrats build nests (i.e., stickhouses), often over the period of several generations, by piling up sticks, rocks, and other available material.

Many woodrat nests were observed within the understory of shaded, mesic coast live oak/California bay forest, often near a riparian corridor. Nests should be considered to be a major constituent of the coast live oak/California bay forest throughout the site, and only a representative few were mapped due to large number of nests (**Figure 4**). As the project site is within the known range of the *annectens* subspecies (Hall 1959), these nests are believed to be those of the San Francisco dusky-footed woodrat. There are no CNDDB records or other documentation indicating the presence of this species in the project site vicinity.

American Badger (*Taxidea taxus*)

California Species of Special Concern

The American badger is generally associated with drier open stages of shrub, forest, and herbaceous habitats. While badgers prefer areas with friable soils, they will also occupy areas with denser soils when prey is available. In June 2006, Cassie Pinnell, VNLC Lead Biologist, observed an individual badger in the central portion of Fernandez Ranch (**Figure 4**). A few suspected badger dens were also observed on the adjacent property. There are no CNDDB records for this species in the project vicinity.

Pallid Bat (*Antrozous pallidus*)

California Species of Special Concern

Pallid bats generally occur in arid habitats, including grasslands, shrublands, woodlands and forests. The preferred roost sites for the species include rocky outcrops, cliffs, crevices, and oak woodlands with access to open habitats for foraging. This species is often associated with oak woodlands (Pierson 2005). Given the presence of mature oak woodlands and its known occurrence in the general project region, this species could roost and forage on the site. There are no CNDDB records for this species in the project vicinity.

4.4.2 Special-Status Plants

Table 7 identifies special-status plant species with potential to occur on the project site. This list includes special-status plants occurring within the nine topographic quadrangles surrounding the site that have some to all preferred habitat present. Only the Diablo helianthella was observed on the site during field surveys conducted for this project. Robust monardella was previously listed as 1B by the CNPS but due to new taxonomic research, the two monardella subspecies are no longer considered distinct subspecies. The two occurrences of robust monardella (as well as many occurrences of the more common *Monardella villosa* ssp. *villosa*) were found along the edge of coast live oak woodland in the southwest portion of the site.

Six species were identified as having high potential to occur on the project site, including big-scale balsamroot (*Balsamorhiza macrolepis*), Mt. Diablo cottonweed (*Micropus amphibolus*), chaparral ragwort (*Senecio aphanactis*), bent-flowered fiddleneck (*Amsinckia lunaris*), Mt. Diablo fairy-lantern (*Calochortus pulchellus*) and western leatherwood (*Dirca occidentalis*). Some or all of the habitat conditions preferred by these species is present on the site. The remaining species identified in the region do not have as high a potential or are not expected to occur on the site due to a lack of some or all major habitat preferences.

Species present on the project site that were identified as rare according to the local chapter of CNPS are noted on the species list in **Appendix A-2** and described further in **Table 8**. This chapter's listing identifies species with the highest level of local conservation concern as A, those on a high-priority watch list as B, and those known from 10 or more local regions but which could become threatened as C. Some of these individuals are shown on **Figure 4**. Not all individuals were mapped during the 2003-2004 surveys due to relatively common occurrences or a more recent rank change of the species. Also note that the occurrences of all species represent only those occurrences documented during general site surveys and do not represent the full distribution of these species on the site. Rank A species identified on the site were Diablo helianthella and sticky navarretia. The distribution and habitat preferences of Diablo helianthella are discussed below. Rank B species observed on site include Lobb's tarplant (*Deinandra lobbii*), dwarf checker mallow (*Sidalcea malviflora* ssp. *malviflora*), Sacramento Valley buttercup (*Ranunculus canus*), California hop tree (*Ptelea crenulata*), Oregon white oak, and small-flowered

woodland star (*Lithophragma parviflorum* var. *parviflorum*). Rank C species include California pipevine (*Aristolochia californica*), fragrant pearly everlasting (*Pseudognaphalium beneolens*), purple needlegrass (*Stipa pulchra*), small-flowered nemophila (*Nemophila parviflora* var. *parviflora*), short-spiked hedge-nettle (*Stachys pycnantha*), yellow mariposa lily (*Calochortus luteus*), laciniate checker mallow (*Sidalcea malviflora* ssp. *laciniata*), coast suncup (*Taraxia ovata*), American brook lime (*Veronica americana*), California oatgrass, big squirreltail (*Elymus multisetus*) and prairie junegrass (*Koeleria macrantha*).

Table 7. Potential Special-status Plant Species on Franklin Canyon Project Site, Contra Costa County, California. Compiled by VNLC, 2012

Common/Scientific Name	Status	Preferred Habitat	Potential for Occurrence
MUSKROOT FAMILY/ ADOXACEAE			
Oval-leaved viburnum/ *Viburnum ellipticum*	CNPS 2.3	Chaparral, *Cismontane woodland*, Lower montane coniferous forest; 215-1400 m (705-4590 ft)	Moderate: Only highest elevations are within range; some of habitat present
CARROT FAMILY/ APIACEAE			
Bolander's water-hemlock/ *Cicuta maculata var. bolanderi* (*Lithophragma bolanderi*)	CNPS 2.1	Marshes and swamps, Coastal, fresh or brackish water 0-200 m (0-655 ft)	Low: Observed on Fernandez Ranch; limited wetland habitat on site
SUNFLOWER FAMILY/ ASTERACEAE			
Big-scale balsamroot/ *Balsamorhiza macrolepis*	CNPS 1B.2	Chaparral, *Cismontane woodland*, *Valley and foothill grassland*/sometimes serpentinite; 90-1555 m (295-5100 ft)	High: abundant grassland habitat
Big tarplant/ *Blepharizonia plumosa*	CNPS 1B.1	*Valley and foothill grassland*/Usually clay; 30-505 m (100-1655 ft)	Moderate: No preferred substrate; abundant grassland habitat
Congdon's tarplant/ *Centromadia parryi ssp. congdonii*	CNPS 1B.2	Valley and foothill grassland (alkaline); 0-230 m (0-755 ft)	Moderate: No alkali substrate; abundant grassland habitat
Franciscan thistle/ *Cirsium andrewsii*	CNPS 1B.2	Broadleaf upland forest, Coastal bluff scrub, *Coastal prairie*, *Coastal scrub*/*mesic*, sometimes serpentinite; 0-150 m (0-490 ft)	Moderate: abundant coastal scrub, small area with remnant coastal prairie
Diablo helianthella/ *Helianthella castanea*	CNPS 1B.2	Broadleaf upland forest, Chaparral, *Cismontane woodland*, *Coastal scrub*, Riparian woodland, *Valley and foothill grassland*; 60 to 1300 m (195-4265 ft)	**Observed**. Abundant grassland and oak woodland habitat

Common/Scientific Name	Status	Preferred Habitat	Potential for Occurrence
Santa Cruz tarplant/ *Holocarpha macradenia*	CNPS 1B.1, CE, FT	*Coastal prairie, Coastal scrub, Valley and foothill grassland*/often clay, *sandy*; 10-220 m (30-720 ft)	Moderate: Small area with remnant coastal prairie vegetation; abundant grassland and scrub; some sandy areas
Contra Costa goldfields/ *Lasthenia conjugens*	CNPS 1B.1, CE, FE	*Cismontane woodland*, Playas (alkaline), *Valley and foothill grassland*, Vernal pools/*mesic*; 0-470 m (0-1540 ft)	Low: Abundant grassland and woodland present; limited wetlands on site.
Mt. Diablo cottonweed/ *Micropus amphibolus*	CNPS 3.2	Broadleaf upland forest, Chaparral, *Cismontane woodland, Valley and foothill grassland*/rocky; 45-825 m (145-2705 ft)	High: Forest, coastal scrub and grassland habitat present; few sandy rock outcrops
Chaparral ragwort/ *Senecio aphanactis*	CNPS 2.2	Chaparral, *Cismontane woodland, Coastal scrub*/sometimes alkaline; 15-800 m (50-2625 ft)	High: Coastal scrub and woodland habitat present; no alkaline areas
BORAGE FAMILY/ BORAGINACEAE			
Bent-flowered fiddleneck/ *Amsinckia lunaris*	CNPS 1B.2	Coastal bluff scrub, *Cismontane woodland, Valley and foothill grassland*; 3-500 m (10-1640 ft)	High: Woodland and grassland habitat present
Choris' popcorn-flower/ *Plagiobothrys chorisianus var. chorisianus*	CNPS 1B.2	Chaparral, *Coastal prairie, Coastal scrub/mesic*; 15-160 m (50-525 ft)	Low: Coastal scrub present; small area with remnant coastal prairie
San Francisco popcorn-flower/ *Plagiobothrys diffusus*	CNPS 1B.1, CE	*Coastal prairie, Valley and foothill grassland*; 60-360 m (195-1180 ft)	Moderate: Abundant grassland present; small area with remnant coastal prairie
HEATH FAMILY/ ERICACEAE			
Pallid manzanita/ *Arctostaphylos pallida*	CNPS 1B.1, CE, FT	Broadleaf upland forest, Closed-cone coniferous forest, Chaparral, *Cismontane woodland, Coastal scrub*/siliceous shale, sandy or gravelly; 185-465 m (605-1525 ft)	Low: Oak forest and woodland, coastal scrub present; some sandy areas

Common/Scientific Name	Status	Preferred Habitat	Potential for Occurrence
PEA FAMILY/ FABACEAE			
Loma Prieta hoita/ *Hoita strobilina*	CNPS 1B.1	Chaparral, *Cismontane woodland*, Riparian woodland/usually serpentinite, *mesic*; 30-860 m (100-2820 ft)	Moderate: Oak woodlands present
GERANIUM FAMILY/ GERANIACEAE			
Round-leaved filaree/ *California macrophylla*	CNPS 1B.1	*Cismontane woodland, Valley and foothill grassland*/clay; 15-1200 m (50-3935 ft)	Low: Woodland and grassland present; no preferred substrate
LILY FAMILY/ LILIACEAE			
Mt. Diablo fairy-lantern/ *Calochortus pulchellus*	CNPS 1B.2	Chaparral, *Cismontane woodland*, Riparian woodland, *Valley and foothill grassland*; 30-840 m (100-2755 ft)	High: Woodland and grassland habitat present
fragrant fritillary/ *Fritillaria liliacea*	CNPS 1B.2	*Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland*/Often serpentinite; 3-410 m (10-1345 ft)	Moderate: Abundant woodland, scrub and grassland; small area with remnant coastal prairie vegetation; no preferred substrate
EVENING PRIMROSE FAMILY/ ONAGRACEAE			
Presidio clarkia/ *Clarkia franciscana*	CNPS 1B.1, CE, FT	*Coastal scrub, Valley and foothill grassland* (serpentinite); 25-335 m (80-1100 ft)	Moderate: Abundant scrub and grassland present
POPPY FAMILY/ PAPAVERACEAE			
Oregon meconella/ *Meconella oregana*	CNPS 1B.1	*Coastal prairie, Coastal scrub*; 250-620 m (820-2035 ft)	Low: Site is lower than elevation range; small area with remnant coastal prairie
PHLOX FAMILY/ POLEMONIACEAE			
Lime Ridge navarretia/ *Navarretia gowenii*	CNPS 1B.1	Chaparral; 180-305 m (590-1000 ft)	Low: No habitat present
BUCKWHEAT FAMILY/ POLYGONACEAE			
San Francisco Bay spineflower/ *Chorizanthe cuspidata var. cuspidata*	CNPS 1B.2	Coastal bluff scrub, Coastal dunes, *Coastal prairie, Coastal scrub/sandy*; 3-215 m (10-705 ft)	Low: Scrub habitat present, small area with remnant coastal prairie; minor sandy areas on site

Common/Scientific Name	Status	Preferred Habitat	Potential for Occurrence
Robust spineflower/ *Chorizanthe robusta var. robusta*	CNPS 1B.1, FE	Chaparral (maritime), *Cismontane woodland (openings),* Coastal dunes, *Coastal scrub/sandy* or gravelly; 3-300 m (10-985 ft)	Low: Woodland and scrub present; minor sandy areas on site, no gravelly areas
DAPHNE FAMILY/ THYMELAEACEAE			
Western leatherwood/ *Dirca occidentalis*	CNPS 1B.2	Broadleaf upland forest, Closed-cone coniferous forest, Chaparral, *Cismontane woodland,* North Coast coniferous forest, *Riparian forest,* Riparian woodland*/mesic*; 25-425 m (80-1395 ft)	High: Oak forest and woodland and riparian habitat; limited mesic areas on site

Source: CNPS 2012
Note:; "0.2"= Fairly threatened in CA; 0.3"= not very threatened in CA
STATUS KEY:
FE: Federally Endangered
FT: Federally Threatened
CT: California Threatened
CE: California Endangered

CNPS List 1B: Rare and endangered in California and elsewhere
CNPS List 2: Rare in California, more common elsewhere
CNPS List 3: Species about which More Information is needed
CNPS List 4: Watch List
CNPS Rank 0.1 Seriously threatened in California
CNPS Rank 0.2 Fairly threatened in California
CNPS Rank 0.3 Not very threatened in California

Table 8. Regionally Rare Plants in Occurring on Franklin Canyon Project Site, Contra Costa County, California. Compiled by VNLC, 2012

Common/Scientific Name	Status[1]	Preferred Habitat[2]	Habitat on Site
PIPEVINE FAMILY/ ARISTOLOCHIACEAE			
California pipevine/ *Aristolochia californica*	C	Foothill woodland, chaparral, mixed evergreen forest; 0-455 m (0-1500 ft)	Grassland openings of woodlands and forests on north- and west-facing slopes
SUNFLOWER FAMILY/ ASTERACEAE			
Lobb's tarplant/ *Deinandra lobbii* (*Hemizonia lobbii*)	B	Foothill woodland, valley grassland; 0-1800 m (0-5905 ft)	On southwest-facing slope with thin soils near sandstone outcrop in annual grassland
Diablo helianthella/ *Helianthella castanea*	A2, CNPS 1B.2	Foothill woodland, chaparral, northern coastal scrub, valley grassland; occurs almost always under natural conditions in non wetlands; 60 to 1300 m (195-4265 ft)	Openings or edges of oak woodlands and forests with annual grasses on steep hillslopes and ridgelines
Fragrant pearly everlasting/ *Pseudognaphalium beneolens* (*Gnaphalium canescens* ssp. *beneolens*)	C	Chaparral, coastal sage scrub, valley grassland; 0-1525 m (0-5000 ft)	Edge of coast live oak/California bay forest within annual grassland near cliffs associated with California sage scrub
BORAGE FAMILY/ BORAGINACEAE			
Small-flowered nemophila/ *Nemophila parviflora* var. *parviflora*	C	Meadows, forests, woodlands, roadsides, slopes; 0-2300 m (0-7545 ft)	Coast live oak/California bay forest; many moderate to steep hillslopes
OAK FAMILY/ FAGACEAE			
Oregon white oak/ *Quercus garryana* var. *garryana*	B	Forest, woodland; 300-1800 m (985-5905 ft)	Mixed oak woodland edge with annual grass understory
MINT FAMILY/ LAMIACEAE			
Short-spiked hedge-nettle/ *Stachys pycnantha*	C	Foothill woodland, mixed evergreen forest, closed-cone pine forest, yellow pine forest, wetland-riparian; usually occurs in wetlands, but occasionally found in non wetlands; 0-1100 m (0-3610 ft)	Oak woodlands, limited riparian scrub and forest habitat

Common/Scientific Name	Status[1]	Preferred Habitat[2]	Habitat on Site
LILY FAMILY/ LILIACEAE			
Yellow mariposa lily/ *Calochortus luteus*	C	Foothill and valley grassland, woodland, mixed evergreen forest; 0-700 m (0-2295 ft)	Various oak woodlands and annual grassland
MALLOW FAMILY/ MALVACEAE			
Laciniate checker mallow/ *Sidalcea malviflora* ssp. *laciniata*	C	Foothill grassland, woodland; 0-700 m (0-2295 ft)	Annual grassland and various oak woodlands
Dwarf checker mallow/ *Sidalcea malviflora* ssp. *malviflora*	B	Foothill grassland; 0-2300m (0-7545 ft)	Annual grasslands
EVENING PRIMROSE FAMILY/ ONAGRACEAE			
Coast suncup/ *Taraxia ovata* (*Camissonia ovata)*	C	Northern coastal scrub, Coastal prairie, mixed evergreen forest; 0-500 m (0-1640 ft)	Within coastal prairie populations
GRASS FAMILY/ POACEAE			
California oatgrass/ *Danthonia californica*	C	Meadows, forest; 0-2200 m (0-7215 ft)	Within coastal prairie populations on ridgelines
Big squirreltail/ *Elymus multisetus*	C	Foothill woodland, forest, chaparral, valley grassland; 0-3200 m (0-10500 ft)	Oak woodland and forest, scrublands and annual grasslands
Prairie junegrass/ *Koeleria macrantha*	C	Foothill woodland, forest, chaparral, valley grassland, alpine fell-fields; 0-3500 m (0-11480 ft)	Woodland and forest, coyote brush and poison oak scrub and annual grasslands
Purple needlegrass/ *Stipa pulchra*	C	Chaparral, Coastal Sage Scrub, Foothill Woodland; Slopes; 0-1524 m (0-5000 ft)	Woodland edge and annual grasslands on west-facing slopes
PLANTAIN FAMILY/ PLANTAGINACEAE			
American brook lime/ *Veronica americana*	C	Freshwater wetlands, riparian streambanks 0-3200 m (0-10500 ft)	Small area of wetland habitat on site
PHLOX FAMILY/ POLEMONIACEAE			
Sticky navarretia/ *Navarretia viscidula*	A1	Mixed evergreen forest, northern oak woodland, foothill woodland; almost always under natural conditions in non wetlands in California; 100-800 m (330-2625 ft)	Annual grassland on southwest facing slope near fire road

Common/Scientific Name	Status[1]	Preferred Habitat[2]	Habitat on Site
BUTTERCUP FAMILY/ RANUNCULACEAE			
Sacramento Valley buttercup/ *Ranunculus canus*	B	Foothill woodland, valley grassland, yellow pine forest, wetland-riparian; equally likely to occur in wetlands or non wetlands; 0-2300 m (0-7545 ft)	Oak woodland, annual grasslands and limited wetland on site
RUE FAMILY/RUTACEAE			
California hop tree/ *Ptelea crenulata*	B	Foothill woodland, yellow pine forest, canyons; 0-609m (0-2000 ft)	On steep north-facing slopes at the oak woodland/grassland edge with variety of shrub species
SAXIFRAGE FAMILY/ SAXIFRAGACEAE			
Small-flowered woodland star/ *Lithophragma parviflorum* var. *parviflorum*	B	Open areas; 0-3000 m (0-9840 ft)	Annual grasslands

1. CNPS 2010; 2.Calflora 2012

Diablo Helianthella (*Helianthella castanea*)

CNPS List 1B.2

Diablo helianthella is a fairly large herbaceous plant with showy, sunflower-like flowers. Except for an unusual occurrence in San Diego County, it is locally endemic to the central Coast Ranges of California. The large majority of documented occurrences are within Alameda and Contra Costa counties in the general vicinity of Mt. Diablo (hence the common name). Diablo helianthella occurs on grassy and scrubby slopes, often along forest and woodland margins and openings. It can also occur in the understory of these habitats.

Previous surveys conducted by Diane Lake identified several occurrences of Diablo helianthella on the project site. This species has no state or federal status but is considered rare and endangered by the California Native Plant Society (CNPS) (List 1B.2). All occurrences were located along the higher ridges and hills in the southern half of the site, around the perimeter or along the edges of openings within coast live oak woodland.

A few new occurrences of Diablo helianthella were identified during 2003 surveys occurrences by VNLC botanists in the general vicinity of Lake's occurrences, but clearly distinct from previously mapped occurrences. As before, the new occurrences were found along the edge of coast live oak woodland. All known occurrences are within Millsholm loam (MeG) soil type or at transition zones with this soil type. Given this apparent relationship, primary potential habitat for the species on site is along the edge of coast live oak woodland in areas with Millsholm loam soils.

4.5 Invasive Wildlife and Noxious Weeds

No invasive wildlife species were observed on the site. American bullfrogs were not observed during surveys but may be present on the site due to the proximity to the artificial golf course ponds. This species poses a significant threat to California red-legged frog as a predator and competitor. In addition, feral pigs have recently been observed on the site and, though feral cats have not been observed, it is probably that they occur on the site at various times. Rooting by feral pigs can cause serious habitat degradation, and feral cats pose a threat since they predate on native wildlife.

Multiple invasive plant species occur on the project site (**Appendix A-2**). Many of these species are typical dominants of annual grasslands and would not be reasonable to manage. Noxious weeds are considered in this report to be non-native species listed as moderate or highly invasive by the California Invasive Plant Council and are not typical species of a given plant community. The most widespread and established of the noxious weeds on site include yellow star-thistle, poison hemlock and Italian thistle. The largest and densest stands of yellow star-thistle occur on grassland slopes. Italian thistle occurs sporadically throughout the site in association with grassland, scrub, and woodland communities. There are large dense populations of poison hemlock scattered throughout the site, often within annual grassland and scrub communities. Two small populations of artichoke thistle (*Cynara cardunculus*) were observed in grassland openings within the larger coyote brush community in the eastern part of the site. Bull thistle was also observed occasionally at grassland transitions with other plant communities throughout the site. While consideration should be given to minimizing activities that may cause the dispersal of these weeds, these species are effectively distributed through the site and thus management would be difficult and likely unsuccessful.

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APPENDIX A

LISTS OF ALL WILDLIFE AND PLANT SPECIES OBSERVED ON THE FRANKLIN CANYON SITE 2003, 2004 and 2012 FIELD SURVEYS

Appendix A-1. List of incidental wildlife species observed on Franklin Canyon during 2012 field surveys conducted by VNLC.

Common Name	***Scientific Name***	**Status**
American crow	*Corvus brachyrhynchos*	
American goldfinch	*Spinus tristis*	
American kestrel	*Falco sparverius*	
barn owl	*Tyto alba*	
Bewick's wren	*Thryomanes bewickii*	
black pheobe	*Sayornis nigricans*	
bobcat	*Lynx rufus*	
California quail	*Callipepla californica*	
California vole	*Microtus californicus*	
chestnut-backed chickadee	*Poecile rufescens*	
Columbian black-tailed deer	*Odocoileus hemionus columbianus*	
coyote	*Canis latrans*	
Diablo range gartersnake	*Thamnophis atratus zaxanthus*	
golden-crowned sparrow	*Zonotrichia atricapilla*	
house finch	*Haemorhous mexicanus*	
Hutton's vireo	*Vireo huttoni*	
lesser goldfinch	*Spinus psaltria*	
mourning dove	*Zenaida macroura*	
northern flicker	*Colaptes auratus*	
northern harrier	*Circus cyaneus*	+
oak titmouse	*Baeolophus inornatus*	
red-tailed hawk	*Buteo jamaicensis*	
red-winged blackbird	*Agelaius phoeniceus*	
song sparrow	*Melospiza melodia*	
turkey vulture	*Cathartes aura*	
western bluebird	*Sialia mexicana*	
western scrub jay	*Aphelocoma californica*	
western wood pewee	*Contopus sordidulus*	
white-crowned sparrow	*Zonotrichia leucophrys*	
white-tailed kite	*Elanus leucurus*	+
wild turkey	*Meleagris gallopavo*	

'+' indicates special-status species

Appendix A-2. List of Plant Species Observed on the Franklin Canyon Site during 2003 and 2004 Field Surveys Conducted by VNLC.

Scientific Name	Common Name	Status
Adoxaceae	**Muskroot Family**	
Sambucus nigra ssp. *caerulea* (*Sambucus mexicana*)	western blue elderberry	
Agavaceae	**Agave Family**	
Chlorogalum pomeridianum var. *pomeridianum*	common soap plant	
Anacardiaceae	**Ssumac Family**	
Toxicodendron diversilobum	poison oak	
Apiaceae	**Carrot Family**	
Anthriscus caucalis	bur-chervil	*
Conium maculatum	poison-hemlock	**
Daucus pusillus	rattlesnake carrot	
Foeniculum vulgare	common fennel	**
Heracleum maximum (*Heracleum lanatum*)	common cow parsnip	
Osmorhiza berteroi (*Osmorhiza chilensis*)	mountain sweet cicely	
Perideridia kelloggii	Kellogg's yampah	
Sanicula bipinnata	poison sanicle	
Sanicula crassicaulis	Pacific sanicle	
Torilis arvensis	field hedge parsley	**
Aristolochiaceae	**Pipevine Family**	
Aristolochia californica	California pipevine	+
Asteraceae	**sunflower**	
Achillea millefolium	California white yarrow	
Achyrachaena mollis	blow wives	
Agoseris grandiflora	bigflower dandelion	
Anaphalis margaritacea	pearly everlasting	
Artemisia californica	California sagebrush	
Artemisia douglasiana	Douglas's mugwort	
Baccharis glutinosa (*Baccharis douglasii*)	marsh baccharis	
Baccharis pilularis	coyote brush	
Carduus pycnocephalus	Italian thistle	**
Centaurea calcitrapa	purple star-thistle	**
Centaurea solstitialis	yellow star-thistle	**
Cirsium vulgare	bull thistle	**
Cynara cardunculus	artichoke thistle	**
Deinandra lobbii (*Hemizonia lobbii*)	Lobb's tarplant	+
Erigeron foliosus var. *franciscensis*	San Francisco leafy fleabane	
Eriophyllum confertiflorum var. *confertiflorum*	long-stemmed golden yarrow	
Grindelia camporum (*Grindelia camporum* var. *camporum*)	Great Valley gumplant	
Helenium puberulum	rosilla sneezeweed	
Helianthella castanea	Diablo helianthella	++
Helminthotheca echioides (*Picris echioides*)	bristly ox tongue	*

Scientific Name	Common Name	Status
Asteraceae (cont.)	**sunflower**	
Hesperevax sparsiflora var. *sparsiflora*	inland evax	
Hypochaeris glabra	smooth cat's ear	*
Hypochaeris radicata	hairy cat's ear	**
Lactuca serriola	prickly wild lettuce	*
Logfia gallica (*Filago gallica*)	narrow-leaf cottonrose	*
Madia gracilis	slender gumweed	
Madia sativa	headland tarweed	
Matricaria discoidea (*Chamomilla suaveolens*)	pineapple weed	*
Micropus californicus var. *californicus*	slender cottonseed	
Pseudognaphalium beneolens (*Gnaphalium canescens* ssp. *beneolens*)	fragrant pearly everlasting	+
Pseudognaphalium luteoalbum (*Gnaphalium luteo-album*)	weedy cudweed	*
Silybum marianum	blessed milkthistle	*
Solidago velutina ssp. *californica* (*Solidago californica*)	California goldenrod	
Soliva sessilis	lawn burweed	*
Sonchus asper ssp. *asper*	prickly sow-thistle	*
Sonchus oleraceus	common annual sowthistle	*
Wyethia angustifolia	narrowleaf mule ears	
Wyethia helenioides	gray mule's ears	
Xanthium spinosum	spiny cocklebur	
Boraginaceae	**Borage Family**	
Amsinckia menziesii (var. *menziesii*)	common fiddleneck	
Nemophila heterophylla	small white nemophila	
Nemophila parviflora var. *parviflora*	small-flowered nemophila	+
Phacelia californica	California coast phacelia	
Plagiobothrys nothofulvus	rusty popcornflower	
Brassicaceae	**Mustard Family**	
Brassica nigra	common black mustard	**
Capsella bursa-pastoris	common shepherd's purse	*
Lepidium nitidum	shining peppergrass	
Nasturtium officinale (*Rorippa nasturtium-aquaticum*)	true watercress	
Raphanus raphanistrum	jointed wild radish	*
Sisymbrium officinale	common hedge mustard	*
Caprifoliaceae	**Honeysuckle Family**	
Lonicera hispidula (*Lonicera hispidula var. vacillans*)	California hairy honeysuckle	
Caryophyllaceae	**Pink Family**	
Cerastium glomeratum	mouse-ear chickweed	*
Silene gallica	small-flowered catchfly	*
Spergula arvensis	corn spurrey	*
Spergularia bocconi	Baccone sand spurry	*
Spergularia rubra	red sandspurrey	*

Scientific Name	Common Name	Status
Caryophyllaceae (cont.)	**Pink Family**	
Stellaria media	common garden chickweed	*
Convolvulaceae	**Morning-glory Family**	
Convolvulus arvensis	field morning glory	*
Cucurbitaceae	**Cucumber Family**	
Marah fabacea	California manroot	
Cyperaceae	**Sedge Family**	
Cyperus eragrostis	tall umbrella sedge	
Dennstaedtiaceae	**Bracken Fern Family**	
Pteridium aquilinum var. *pubescens*	bracken fern	
Dryopteridaceae	**Wood Fern Family**	
Dryopteris arguta	coastal wood fern	
Polystichum munitum	western swordfern	
Equisetaceae	**Horsetail Family**	
Equisetum telmateia ssp. *braunii*	giant horsetail	
Euphorbiaceae	**Spurge Family**	
Croton setiger (*Eremocarpus setigerus*)	turkey mullein	
Fabaceae	**Pea Family**	
Acmispon brachycarpus (*Lotus humistratus*)	short-podded lotus	
Acmispon glaber (*Lotus scoparius*)	common deerweed	
Acmispon wrangelianus (*Lotus wrangelianus*)	Wrangel's lotus	
Lathyrus vestitus var. *vestitus*	pacific peavine	
Lotus corniculatus	common bird's-foot trefoil	*
Lupinus albifrons var. *albifrons*	tall silverleaf lupine	
Lupinus bicolor	bicolored lupine	
Lupinus formosus var. *formosus*	summer bush lupine	
Medicago polymorpha	common burr clover	*
Melilotus indicus	small-flowered yellow sweet clover	*
Rupertia physodes	California tea	
Trifolium campestre	field hop clover	*
Trifolium ciliolatum	ciliate clover	
Trifolium fragiferum	strawberry clover	*
Trifolium hirtum	rose clover	**
Trifolium microcephalum	small-head clover	
Trifolium variegatum	whitetip clover	
Trifolium willdenovii	tomcat clover	
Vicia americana ssp. *americana*	bitleaf American vetch	
Vicia sativa ssp. *nigra*	blackpod vetch	*
Vicia sativa ssp. *sativa*	pubescent common vetch	*
Vicia villosa ssp. *villosa*	villous vetch	**

Scientific Name	Common Name	Status
Fagaceae	**Oak Family**	
Quercus agrifolia	coast live oak	
Quercus douglasii	California blue oak	
Quercus garryana var. *garryana*	Oregon white oak	+
Quercus kelloggii	California black oak	
Quercus lobata	valley oak	
Geraniaceae	**Geranium Family**	
Erodium botrys	long-beaked filaree	*
Erodium cicutarium	redstem filaree	*
Erodium moschatum	musk filaree	*
Geranium dissectum	dissected geranium	**
Iridaceae	**Iris Family**	
Sisyrinchium bellum	California blue-eyed grass	
Juncaceae	**Rush Family**	
Juncus balticus	Baltic rush	
Juncus bufonius	common toad rush	
Juncus effusus ssp. *pacificus*	pacific bog rush	
Juncus occidentalis	western rush	
Juncus patens	California gray rush	
Juncus xiphioides	iris-leaved rush	
Lamiaceae	**Mint Family**	
Clinopodium douglasii (*Satureja douglasii*)	Douglas's yerba buena	
Monardella villosa ssp. *villosa* (includes *Monardella villosa* ssp. *globosa*)	common hairy coyote mint	
Pogogyne serpylloides	oval-leaf knotweed	
Stachys pycnantha	short-spiked hedge-nettle	+
Stachys rigida var. *quercetorum* (*Stachys ajugoides* var. *rigida*)	rigid hedgenettle	
Umbellularia californica	California bay	
Liliaceae	**Lily Family**	
Calochortus luteus	yellow mariposa lily	+
Lythraceae	**Loosestrife Family**	
Lythrum hyssopifolia	hyssop loosestrife	*
Malvaceae	**Mallow Family**	
Sidalcea malviflora ssp. *laciniata*	laciniate checker mallow	+
Sidalcea malviflora ssp. *malviflora*	dwarf checker mallow	+
Montiaceae	**Montia Family**	
Calandrinia ciliata	redmaids	
Claytonia perfoliata	true miner's lettuce	
Myrsinaceae	**Myrsine Family**	
Anagallis arvensis	scarlet pimpernel	*
Eucalyptus camaldulensis	Murray red gum	*

Scientific Name	Common Name	Status
Onagraceae	**Evening Primrose Family**	
Clarkia purpurea ssp. *quadrivulnera*	four-spotted clarkia	
Clarkia unguiculata	elegant clarkia	
Epilobium brachycarpum	tall annual willow-herb	
Epilobium ciliatum ssp. *ciliatum*	ciliate willow-herb	
Epilobium sp.	willow-herb	
Taraxia ovata (*Camissonia ovata*)	coast suncup	+
Orobanchaceae	**Broomrape Family**	
Bellardia trixago	lousewort	*
Castilleja affinis var. *affinis*	common coast paintbrush	
Castilleja exserta ssp. *exserta*	purple owl's clover	
Papaveraceae	**Poppy Family**	
Eschscholzia californica	California poppy	
Papaver heterophyllum (*Stylomecon heterophylla*)	wind poppy	
Platystemon californicus	California cream cups	
Phrymaceae	**Monkeyflower Family**	
Mimulus aurantiacus	coast bush monkeyflower	
Mimulus guttatus	common streamside monkeyflower	
Plantaginaceae	**Plantain Family**	
Collinsia heterophylla	purple Chinese houses	
Plantago lanceolata	lance-leaf English plantain	*
Veronica americana	American brook lime	+
Poaceae	**Grass Family**	
Aira caryophyllea	silver hairgrass	*
Avena fatua	wild oat	**
Briza minor	little quakinggrass	*
Bromus carinatus var. *carinatus*	California brome	
Bromus diandrus	ripgut brome	**
Bromus hordeaceus	soft chess	*
Bromus madritensis ssp. *rubens*	red brome	**
Cynosurus echinatus	hedgehog dogtail	**
Danthonia californica	California oatgrass	+
Elymus glaucus ssp. *glaucus*	blue rye-grass	
Elymus multisetus	big squirreltail	+
Elymus triticoides (*Leymus triticoides*)	creeping wildrye	
Festuca bromoides (*Vulpia bromoides*)	brome fescue	*
Festuca myuros (*Vulpia myuros* var. *myuros*)	rattail fescue	**
Festuca perennis (*Lolium multiflorum*)	perennial ryegrass	**
Gastridium ventricosum	nit grass	*
Hordeum brachyantherum ssp. *brachyantherum*	northern meadow barley	
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	**
Hordeum murinum ssp. *leporinum*	mouse barley	**

Scientific Name	Common Name	Status
Poaceae (cont.)	**Grass Family**	
Koeleria macrantha	prairie junegrass	+
Lamarckia aurea	goldentop grass	*
Melica torreyana	Torrey melic	
Poa annua	annual bluegrass	*
Poa secunda ssp. *secunda*	one-sided bluegrass	
Polypogon monspeliensis	annual rabbitsfoot grass	*
Stipa pulchra (*Nassella pulchra*)	purple needlegrass	+
Polemoniaceae	**Phlox Family**	
Navarretia squarrosa	skunkweed pincushionplant	
Navarretia viscidula	sticky navarretia	+
Polygonaceae	**Buckwheat Family**	
Eriogonum nudum var. *auriculatum*	auriculed barestem buckwheat	
Polygonum aviculare ssp. *depressum* (*Polygonum arenastrum*)	common knotweed	*
Pterostegia drymarioides	fairy mist	
Rumex acetosella	common sheep sorrel	**
Rumex conglomeratus	clustered dock	*
Polypodiaceae	**Polypody Fern Family**	
Polypodium calirhiza	nested polypody	
Pteridaceae	**Brake Fern Family**	
Adiantum jordanii	California maidenhair fern	
Pentagramma triangularis ssp. *triangularis*	western goldback fern	
Ranunculaceae	**Buttercup Family**	
Ranunculus californicus	California buttercup	
Ranunculus canus	Sacramento Valley buttercup	+
Rhamnaceae *Frangula californica* ssp. *californica* (*Rhamnus californica* var. *californica*)	**Buckthorn Family** California coffeeberry	
Rosaceae *Drymocallis glandulosa var. glandulosa* (*Potentilla glandulosa* ssp. *glandulosa*)	**Rose Family** sticky cinquifoil	
Heteromeles arbutifolia	toyon	
Holodiscus discolor	creambush oceanspray	
Rosa californica	California wild rose	
Rubus armeniacus (*Rubus discolor*)	Himalayan blackberry	**
Rubus ursinus	California blackberry	
Rubiaceae	**Madder Family**	
Galium aparine	annual bedstraw	
Galium californicum ssp. *californicum*	California bedstraw	
Galium murale	tiny bedstraw	*
Galium parisiense	Paris bedstraw	*
Galium porrigens var. *porrigens*	twining bedstraw	

Scientific Name	Common Name	Status
Ruscaceae	**Lily of the Valley Family**	
Maianthemum racemosum (*Smilacina racemosa*)	branched false Solomon's seal	
Maianthemum stellatum (*Smilacina stellata*)	false solomon's seal	
Rutaceae	**Rue Family**	
Ptelea crenulata	California hop tree	+
Salicaceae	**Willow Family**	
Salix laevigata	smooth red willow	
Salix lasiolepis	arroyo willow	
Sapindaceae	**Soapberry Family**	
Acer macrophyllum	bigleaf maple	
Aesculus californica	California buckeye	
Saxifragaceae	**Saxifrage Family**	
Lithophragma parviflorum var. *parviflorum*	small-flowered woodland star	+
Scrophulariaceae	**Plantain Family**	
Scrophularia californica (*Scrophularia californica* var. *californica*)	California figwort	
Themidaceae	**Brodiaea Family**	
Brodiaea elegans ssp. *elegans*	elegant harvest brodiaea	
Dichelostemma capitatum ssp. *captitatum*	common blue dicks	
Triteleia hyacinthina	white brodiaea	
Triteleia laxa	Ithuriel's spear	
Urticaceae	**Nettle Family**	
Hesperocnide tenella	slender western nettle	
Urtica dioica ssp. *holosericea*	common perennial stinging nettle	

‘++’ indicates special-status species; ‘+’ indicates CNPS locally rare or unique species; ‘*’ indicates non-native species; ‘**’ indicates moderate or high-rated invasive plants identified by the Invasive Plant Council.

APPENDIX B

REPRESENTATIVE PHOTOGRAPHS OF PLANT COMMUNITIES AND OTHER FEATURES ON FRANKLIN CANYON

Appendix B: Representative Photographs of Plant Communities and Other Features on Franklin Canyon

California Bay Forest

Woodrat Nest in Coast Live Oak/California Bay Habitat

California Buckeye Woodland

Oregon White Oak and Mixed Oak Woodland

Appendix B: Representative Photographs of Plant Communities and Other Features on Franklin Canyon

Valley Oak Woodland and Annual Grassland

Coyote Brush Scrub with Annual Grassland

Coyote Brush/ Poison Oak Scrub

Preferred Habitat for Diablo Helianthella

Appendix B: Representative Photographs of Plant Communities and Other Features on Franklin Canyon

Creeping Wildrye Grassland

Annual Grassland Transition to Mixed Oak Woodland

Mixed Riparian Forest

Mixed Riparian Scrub

Appendix B: Representative Photographs of Plant Communities and Other Features on Franklin Canyon

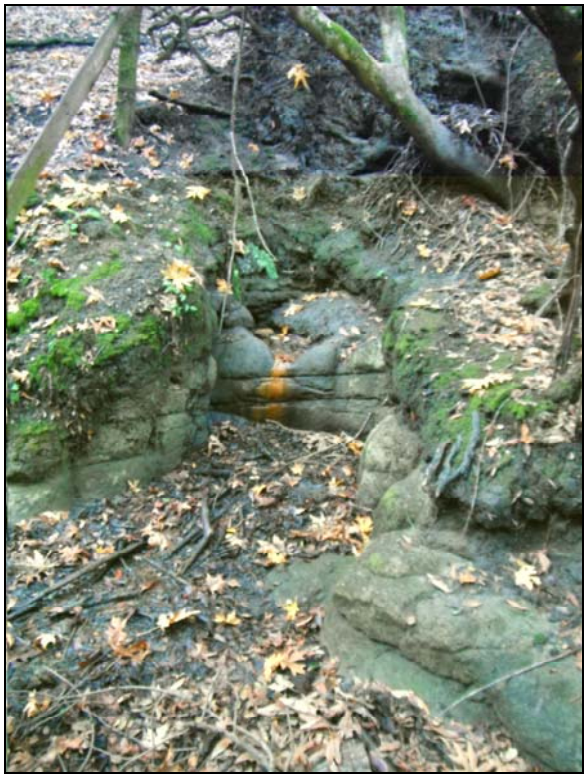
Annual Grassland bordering Coast Live Oak/Bay Woodland

Noxious Weeds Stand of Yellow Starthistle

Erosion Feature: Slump

Rock Outcrop

Appendix B: Representative Photographs of Plant Communities and Other Features on Franklin Canyon



Spring

Coast Live Oak and Bay Woodland on Cliff Edge