Source Reference 13

Marin Sanitary Service Biological Resources Assessment and Focused Rare Plant Survey: White-Rayed Pentachaeta, prepared by WRA, Inc., dated May 2010 (aka, MUPA Appendix I)

Marin Sanitary Service

Master Use Permit
December 2013

Appendix I: Biological Resource Assessment

Marin Sanitary Service
Biological Resources Assessment and Focused Rare Plant Survey: White-rayed Pentachaeta

SAN RAFAEL, MARIN COUNTY
CALIFORNIA

Prepared For:

Mr. Pat Cousens
Fredric C. Divine Associates, Architects
1924 Fourth St.
San Rafael, California 94901

WRA Contact:
Geoff Smick
smick@wra-ca.com

Date:
May 2010

wra
ENVIRONMENTAL CONSULTANTS

2169-G East Francisco Blvd., San Rafael, CA 94901 (415) 454-8868 tel (415) 454-0129 fax info@wra-ca.com www.wra-ca.com

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

On April 7 and 16, 2010, WRA, Inc. performed an assessment of biological resources and a focused rare plant survey at the Open Space parcel of the Marin Sanitary Service lands (Study Area) in San Rafael, Marin County, California (Figure 1). The Study Area is located off of Jacoby Street, less than one mile west of Interstate 580. The purpose of the assessment was to 1) evaluate the existing biological resources for the proposed parcel line adjustment of the Study Area and 2) conduct a protocol level, focused rare plant survey for white-rayed pentachaeta (*Pentachaeta bellidiflora*).

The 50.8-acre Study Area includes all of Parcel E and comprises approximately 62 percent of the Marin Sanitary Service land; the property is bound by Highway 101 to the northwest, and Jacoby Street along the eastern boundary. Within the Study Area, a mixed oak woodland community, grasslands, and disturbed areas with invasive species are the dominant vegetative communities. Land uses adjacent to the Study Area include medium-density residential, commercial and municipal development, open space, and a highway corridor.

This report describes the results of the site visits, which assessed the Study Area for the (1) potential to support special status species; and (2) presence of other sensitive biological resources protected by local, state, and federal laws and regulations. Specific findings on the habitat suitability or presence of special status species or sensitive habitats *may require* that protocol level surveys be conducted.

A biological assessment provides general information on the potential presence of sensitive species and habitats. The biological assessment is not an official protocol level survey for listed species that may be required for project approval by local, state, or federal agencies. However, a focused survey for white-rayed pentachaeta was conducted during the biological assessment. This assessment is based on information available at the time of the study and on site conditions that were observed on the date of the site visits.

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts.

2.1 Special Status Species

Special status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed and proposed species. In addition, California Department of Fish and Game (CDFG) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, sensitive species included in USFWS Recovery Plans, and CDFG special status invertebrates are all considered special status species. Although CDFG Species of Special Concern generally have no special legal status, they are

given special consideration under the California Environmental Quality Act (CEQA). In addition to regulations for special status species, most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act of 1918. Under this legislation, destroying active nests, eggs, and young is illegal. Plant species on California Native Plant Society (CNPS) Lists 1 and 2 are also considered special status plant species and must be considered under CEQA. CNPS List 3 plants have little or no protection under CEQA, but are included in this analysis for completeness.

Critical Habitat

Critical habitat is a term defined and used in the Federal Endangered Species Act as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The FESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species by the FESA "jeopardy standard." However, areas that are currently unoccupied by the species but which are needed for the species' recovery, are protected by the prohibition against adverse modification of critical habitat.

2.2 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, and riparian habitat. These habitats are protected under federal regulations (such as the Clean Water Act), state regulations (such as the Porter-Cologne Act, the CDFG Streambed Alteration Program, and CEQA), or local ordinances or policies (City or County Tree Ordinances, Special Habitat Management Areas, and General Plan Elements).

Waters of the United States

The U.S. Army Corps of Engineers (Corps) regulates "Waters of the United States" under Section 404 of the Clean Water Act. "Waters of the U.S." are defined broadly as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands stated in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated for sufficient duration and depth to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as "other waters" and are often characterized by an ordinary high water mark (OHWM). Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into "Waters of the U.S." (including wetlands) generally requires an individual or nationwide permit from the Corps under Section 404 of the Clean Water Act.

Waters of the State

The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope, but has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated by the Corps under Section 404. "Waters of the State" are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact "Waters of the State," are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to "Waters of the State," the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

Streams, Lakes, and Riparian Habitat

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFG under Sections 1600-1616 of California Fish and Game Code. Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term stream, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as follows: "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG ESD 1994). Riparian is defined as, "on, or pertaining to, the banks of a stream;" therefore, riparian vegetation is defined as, "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG ESD 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFG.

Other Sensitive Biological Communities

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFG. CDFG ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its Natural Diversity Database. Sensitive plant communities are also identified by CDFG on their *List of California Natural Communities Recognized by the CNDDB.* Impacts to sensitive natural communities identified in local or regional plans, policies, regulations or by the CDFG or USFWS must be considered and evaluated under CEQA (California Code of Regulations: Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in City or County General Plans or ordinances.

Marin County Tree Ordinance

Pursuant to the City of San Rafael Tree Ordinance, Chapter 11.12.050, the City requires a tree removal permit to remove any living tree within the city. In addition, trees near construction areas must have protective measures in place around them (Chapter 11.12.060.)

3.0 METHODS

On April 7 and 16, 2010, the Study Area was traversed on foot to determine (1) plant communities present within the Study Area, (2) if existing conditions provided suitable habitat for any special status plant or wildlife species, (3) if sensitive habitats are present (4) if white-rayed pentachaeta was present within the Study Area. All plant and wildlife species encountered were recorded, and are summarized in Appendix A.

3.1 Biological Communities

Prior to the site visit, the Soil Survey of Marin County, California [U.S. Department of Agriculture (USDA) 1985], and aerial photographs were examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Study Area. Biological communities present in the Study Area were classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

3.1.1 Non-sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations and ordinances. These communities may, however, provide suitable habitat for some special status plant or wildlife species and are identified or described in Section 4.1.1 below.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are given special protection under CEQA and other applicable federal, state, and local laws, regulations and ordinances. Applicable laws and ordinances are discussed above in Section 2.0. Special methods used to identify sensitive biological communities are discussed below.

Wetlands and Waters

The Study Area was surveyed to determine if any wetlands and waters potentially subject to jurisdiction by the Corps, RWQCB, or CDFG were present. The assessment was based primarily on the presence of wetland plant indicators, but may also include any observed indicators of wetland hydrology or wetland soils. Any potential wetland areas were identified as

areas dominated by plant species with a wetland indicator status[1] of OBL, FACW, or FAC as given on the U.S. Fish and Wildlife Service List of Plant Species that Occur in Wetlands (Reed 1988). Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, surface sediment deposits, algal mats and drift lines, or indirect indicators (secondary indicators), such as oxidized root channels. Some indicators of wetland soils include dark colored soils, soils with a sulfidic odor, and soils that contain redoximorphic features as defined by the Corps Manual (Environmental Laboratory, 1987) and Field Indicators of Hydric Soils in the United States (NRCS, 2002).

The preliminary waters assessment was based primarily on the presence of unvegetated, ponded areas or flowing water, or evidence indicating their presence such as a high water mark or a defined drainage course. Collection of additional data will be necessary to prepare a delineation report suitable for submission to the Corps.

Other Sensitive Biological Communities

The Study Area was evaluated for the presence of other sensitive biological communities, including riparian areas, needle grass grassland and sensitive plant communities recognized by CDFG. If present in the Study Area, these sensitive biological communities are described in the Section 4.1.2 below.

3.2 Special Status Species

3.2.1 Literature Review

Potential occurrence of special status species in the Study Area was evaluated by first determining which special status species occur in the vicinity of the Study Area through a literature and database search. Database searches for known occurrences of special status species focused on the San Rafael and San Quentin 7.5 minute USGS quadrangle. The following sources were reviewed to determine which special status plant and wildlife species have been documented to occur in the vicinity of the Study Area:

- California Natural Diversity Database records (CNDDB) (CDFG 2010)
- USFWS quadrangle species lists (USFWS 2010)
- CNPS Electronic Inventory records (CNPS 2010)
- CDFG publication "California's Wildlife, Volumes I-III" (Zeiner et al. 1990)
- CDFG publication "Amphibians and Reptile Species of Special Concern in California" (Jennings 1994)
- A Field Guide to Western Reptiles and Amphibians (Stebbins, R.C. 2003)

[1] OBL = Obligate, always found in wetlands (> 99% frequency of occurrence); FACW = Facultative wetland, usually found in wetlands (67-99% frequency of occurrence); FAC = Facultative, equal occurrence in wetland or non-wetlands (34-66% frequency of occurrence).

3.2.2 Site Assessment

A site visit was made to the Study Area to search for suitable habitats for species identified in the literature review as occurring in the vicinity. The potential for each special status species to occur in the Study Area was then evaluated according to the following criteria:

1) No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

2) Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

3) Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

4) High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

5) Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

The site assessment is intended to identify the presence or absence of suitable habitat for each special status species known to occur in the vicinity in order to determine its potential to occur in the Study Area. The site visit does not constitute a protocol-level survey and is not intended to determine the actual presence or absence of a species. Appendix B presents the evaluation of potential for occurrence of each special status plant and wildlife species known to occur in the vicinity of the Study Area with their habitat requirements, potential for occurrence, and rationale for the classification based on criteria listed above. Recommendations for further surveys are made in Section 5.0 below for species with a moderate or high potential to occur in the Study Area.

4.0 RESULTS

The Study Area is located adjacent to an industrial and commercial area of San Rafael, California, on a ridge line running south towards San Quentin. Commercial development borders the western edge of the site, at the base of a historic quarry, and Highway 101 is located to the north, although a small parcel of undeveloped land is located between the Study Area and the actual freeway. The majority of the site is characterized by coast live oak woodland, with patches of native and non-native grassland interspersed. Portions of the site have undergone development: access roads cross the hillside and large areas of pavement are located along the hilltop. An intermittent, isolated drainage is located between two paved roads (Figure 1) on the northern portion of the site; the drainage is less than 100 feet in length and flows onto the paved road. Elevations of the Study Area range from 32 to 330 feet. The following sections present the results and discussion of the biological assessment within the Study Area.

4.1 Biological Communities

Non-sensitive biological communities in the Study Area include non-native grassland, ruderal - invasive areas, and developed areas. Two sensitive biological communities are found in the Study Area: coast live oak woodland and purple needlegrass grassland. Descriptions for each biological community are contained in the following sections.

4.1.1 Non-sensitive biological communities

Non-native annual grassland

Non-native annual grassland typically occurs in open areas of valleys and foothills throughout California, usually on fine textured clay or loam soils that are somewhat poorly drained (Holland 1986). Non-native grassland is typically dominated by non-native annual grasses and forbs along with scattered native wildflowers. Non-native annual grassland occurs interspersed with patches of native grassland throughout the Study Area, mainly within openings in oak woodland and along open ridgelines. Plant species observed in this area included soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), and slender wild oats (*Avena fatua*). Wildlife species observed in this community in the Study Area include Turkey Vulture (*Cathartes aura*), California Towhee (*Pipilo crissalis*), and the cabbage white butterfly (*Pieris rapae*).

Ruderal areas

Although not described in the literature, ruderal areas typically occur on land that has been previously disturbed and was subsequently colonized by ruderal or invasive plant species. Within the Study Area, ruderal areas occurred in disturbed portions of the site, especially along roadways and along the edges of paved areas. French Broom (*Genista monspessulana*) dominates this community and additional plant species present include fennel (*Foeniculum vulgare*), milk thistle (*Silybum marianum*), and Italian thistle (*Carduus pycnocephalus*). Wildlife species observed in this community in the Study Area include Peafowl (feral) (*Pavo cristatus*), and Western Fence Lizard (*Sceloporus occidentalis*).

Developed areas

Developed areas occur throughout the Study Area. Paved access roads cross the site and connect paved areas. Roadside edges and the perimeter of paved areas are dominated by ruderal plant species.

4.1.2 Sensitive Biological Communities

Coast live oak woodland

Coast live oak woodland typically occurs on north-facing slopes and shaded ravines throughout the coastal ranges of California (below 4000 feet). In general, the understory of coast live oak woodland is poorly developed and have an herb component dominated by invasive species. While dominated by coast live oak (*Quercus agrifolia*), additional characteristic species of this community include California buckeye (*Aesculus californica*), California Bay (*Umbellularia*

californica), and elderberry (*Sambucus mexicana*) (Holland 1986). Coast live oak woodland is the dominant plant community within the Study Area; species present included coast live oak, California bay, valley oak (*Quercus lobata*), California buckeye, poison oak (*Toxicodendron diversilobum*) and an understory predominantly consisting of French broom. Wildlife species observed in this community in the Study Area include Chestnut-backed Chickadee (*Poecile rufescens*), Western Scrub-Jay (*Aphelocoma californica*), and Anna's Hummingbird (*Calypte anna*).

Valley Needlegrass Grassland

Valley needlegrass grassland is a mid-height (to two feet) grassland dominated by perennial, tussock forming needlegrass (*Nassella pulchra*) with native and non-native annuals occurring between the perennials and often exceeding the bunchgrasses in cover (Holland 1986). This community occurred primarily towards the top of the ridge, in patches interspersed with non-native grassland and often surrounded by invasive species. Wildlife species observed within this community in the Study Area include Mule Deer (*Odocoileus hemionus*) and the anise swallowtail butterfly (*Papilio zelicaon*).

4.2 Special Status Species

4.2.1 Plants

Based upon a review of the resources and databases given in Section 3.2.1, 40 special status plant species have been documented in the vicinity of the Study Area. The Study Area has the potential to support ten of these species. Appendix B summarizes the potential for occurrence for each special status plant species occurring in the vicinity of the Study Area. No special status plant species were observed in the Study Area during the assessment site visit. One special status plant species has a high potential to occur in the Study Area, and eight special status plant species have a moderate potential to occur in the Study Area. The remaining species documented to occur in the vicinity of the Study Area are unlikely or have no potential to occur, primarily due to lack of suitable habitat or substrate (most commonly serpentinite), within the Study Area. Special status plant species that are most likely (high or moderate potential) to occur in the Study Area are discussed below.

High

Mt. Diablo cottonweed (*Micropus amphibolus*). CNPS List 3. Mt. Diablo cottonweed is an annual herb in the sunflower family (Asteraceae) that blooms from March to May. It occurs on bare, grassy, or rocky slopes in broadleaf upland forest, chaparral, cismontane woodland, and valley and foothill grassland. It has been recorded in Alameda, Contra Costa, Colusa, Lake, Monterey, Marin, Napa, Santa Barbara, Santa Clara, Santa Cruz, San Joaquin, San Luis Obispo, Solano, and Sonoma counties at elevations from 45-825 meters. Suitable habitat in the Study Area for Mt. Diablo cottonweed may be found in grasslands and woodlands.

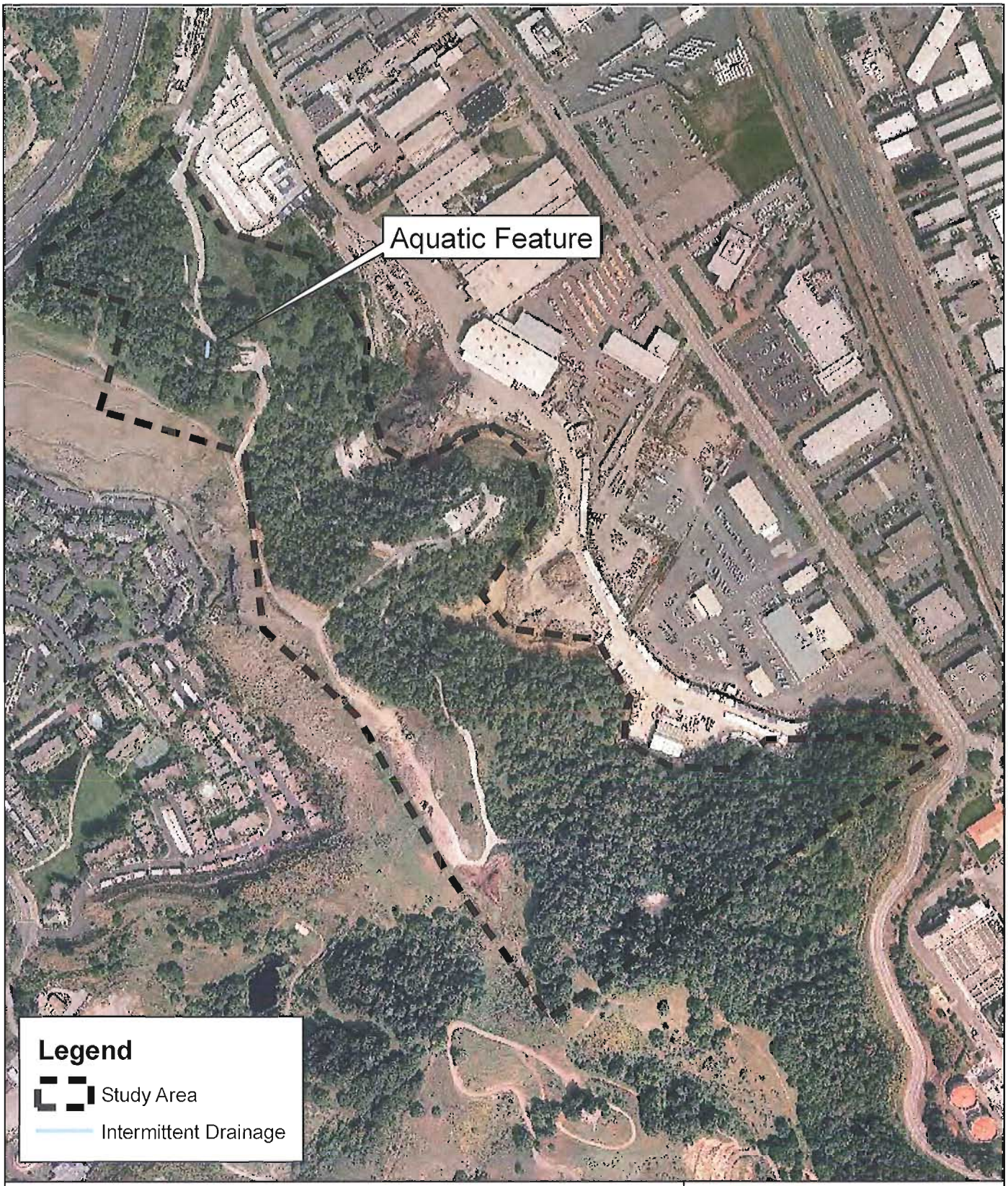

Figure 1. Aquatic feature within Study Area

N
W
E
S

0 175 350 700 Feet

wra
ENVIRONMENTAL CONSULTANTS

Marin Sanitary
San Rafael, California

Map Date: April 2010
Map By: Chris Zumwalt
Aerial Photo: MarinMap 5/9/06
Filepath: L:\ACAD2000\19000\19183\GIS\ArcMap\
Figure 1 Aquatic Feature.mxd

Moderate

Napa false indigo (*Amorpha californica* var. *napensis*). CNPS List 1B. Napa false indigo is a deciduous shrub in the pea family (Fabaceae) that blooms from April to July. It occurs in broadleaf upland forest, chaparral, and cismontane woodland, often in openings. It is known from 120 to 2000 meters in Monterey, Marin, Napa, and Sonoma counties. Oak woodland in the Study Area could provide suitable habitat for this species.

Diablo helianthella (*Helianthella castanea*). CNPS List 1B. Diablo helianthella is a perennial herb in the sunflower family (Asteraceae) that blooms from March to June. It is found in a variety of plant communities: broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. It is known from 60 to 1300 meters in elevation in Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and San Francisco counties. Grassland and woodland communities in the Study Area may contain suitable habitat for this species.

Hayfield tarweed (*Hemizonia congesta* ssp. *leucocephala*). CNPS List 3. Hayfield tarweed is an annual herb in the sunflower family (Asteraceae) that blooms from April to October. It occurs in coastal scrub and in hills and valleys in valley and foothill grassland and is found at elevations from 25 to 455 meters. It is sometimes found on roadsides or in fallow fields. Hayfield tarweed is known from Marin, Sonoma, and Mendocino counties. Patches of grassland within the Study Area may provide suitable habitat for this species

Tamalpais lessingia (*Lessingia micradenia* var. *micradenia*). List 1B. Tamalpais lessingia is an annual herb in the sunflower family (Asteraceae) that typically inhabits chaparral, and valley and foothill grassland, usually on serpentinite soils. This species can be found from 100 to 500 meters within Marin County and blooms July through October. Suitable habitat for this species may occur in Study Area native or non-native grasslands.

Marsh microseris (*Microseris paludosa*). CNPS List 3. Marsh microseris is a perennial herb in the sunflower family (Asteraceae) that blooms from April to June. It occurs in closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland, often where grasses are low-growing. It is known from 5 to 300 meters in Mendocino, Monterey, Marin, San Benito, Santa Cruz, San Francisco, San Luis Obispo, San Mateo, and Sonoma counties. Suitable habitat for this species may occur in Study Area native or non-native grasslands.

White-rayed pentachaeta. FE, SE, List 1B. White-rayed pentachaeta is an annual herb in the sunflower family (Asteraceae) that blooms from March through May. It occurs in cismontane woodland and valley and foothill grassland, often on serpentinite soils. It is known from 35 to 620 meters in Marin, Santa Cruz and San Mateo counties. Grassland and woodland communities in the Study Area may contain suitable habitat for this species. An occurrence of this species was documented within the Study Area, but was believed to be extirpated by the use of motorcycles on the site by 1992. The population has not bee observed since. White-rayed pentachaeta was not present during the focused rare plant survey on April 16, 2010.

Santa Cruz microseris (*Stebbinsoseris decipiens*). List 1B. Santa Cruz microseris is an annual herb in the sunflower family (Asteraceae) that typically inhabits a variety of habitats

including broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub and on serpentinite soils in valley and foothill grasslands. This species is found from 10 to 500 meters in Monterey, Marin, Santa Cruz, San Francisco, San Luis Obispo, and San Mateo counties and blooms from April to May. Suitable habitat for this species may occur in Study Area native or non-native grasslands.

Two-fork clover (*Trifolium amoenum*). Federal Endangered, CNPS List 1B. Two-fork clover is an annual herb in the pea family (Fabaceae) that typically inhabits valley and foothill grassland and coastal bluff scrub, sometimes occurring on serpentinite, roadsides, swales, or cliff faces. The species is known from 5 to 560 meters in elevation in Alameda, Marin, Napa, Santa Clara, Solano, and Sonoma counties and blooms from April to June. Grassland communities in the Study Area may provide suitable habitat for this species.

The site assessment occurred during the blooming period of eight of the ten special status plant species with a potential to occur in the Study Area; however, none of the potentially blooming species were observed.

4.2.2 Wildlife

Fifty special status species of wildlife have been recorded in the vicinity of the Study Area. Appendix B summarizes the potential for each of these species to occur in the Study Area. No special status wildlife species were observed in the Study Area during the site assessment. No special status wildlife species have a high potential to occur in the Study Area; however, four special status wildlife species have a moderate potential to occur in the Study Area. Special status wildlife species that have a moderate potential to occur in the Study Area are discussed below.

Long-eared Myotis (*Myotis evotis*), WBWG High Priority. This bat species is primarily a forest associated species. Day roosts are found in hollow trees, under exfoliating bark, rock outcrop crevices and buildings. Other roosts include caves, mines, and under bridges. Potential suitable roosting locations are present within the oak woodland within the Study Are, and potentially within rock crevices of the old quarry wall along the Study Areas western boundary. Suitable foraging habitat exists around the perennial ponds to the south west off of the Study Area and may occur within the grassland of the Study Area. There is a moderate potential that this bat species will occur within the Study Area.

Pallid Bat (*Antrozous pallidus*), CDFG Species of Special Concern, WBWG High Priority. Pallid Bat is found in a variety of low elevation habitats throughout California. It selects a variety of day roosts including rock outcrops, mines, caves, hollow trees, buildings, and bridges. Night roosts are usually found under bridges, but also in caves, mines, and buildings. Pallid Bat is sensitive to roost disturbance. Unlike most bats, Pallid Bats primarily feed on large ground-dwelling arthropods, and many prey are taken on the ground (Zeiner, et al. 1990). Oak woodland within the Study Area and the old quarry rock wall adjacent to the Study Area may provide suitable roost habitat for this species. Potential foraging habitat within the grassland of the Study Area and a CNDDB documented occurrence approximately 1.6 miles north of the Study Area warrant a moderate potential for this species to occur within the Study Area.

White-tailed Kite (*Elanus leucurus*), CDFG Fully Protected Species. White-tailed Kite occurs in low elevation grassland, agricultural, wetland, oak woodland, and savannah habitats. Riparian zones adjacent to open areas are also used. Vegetative structure and prey availability seem to be more important than specific associations with plant species or vegetative communities. Lightly grazed or ungrazed fields generally support large prey populations and are often preferred to other habitats. Kites primarily feed on small mammals, although, birds, reptiles, amphibians, and insects are also taken. Nest trees range from single isolated trees to trees within large contiguous forests. Preferred nest trees are extremely variable, ranging from small shrubs (less than 10 feet tall), to large trees (greater than 150 feet tall) (Dunk 1995). There is suitable foraging habitat within the grassland of the Study Area and the adjacent grassland hillside along with potentially suitable nesting habitat within the oak and bay forest. Because of this, there is a moderate potential for this species to occur within the Study Area.

Loggerhead Shrike (*Lanius ludovicianus*), CDFG Species of Special Concern, USFWS Bird of Conservation Concern. Loggerhead Shrike is a common resident and winter visitor in lowlands and foothills throughout California. It prefers open habitats with scattered trees, shrubs, posts, fences, utility lines or other perches. Nests are usually built on a stable branch in a densely-foliaged shrub or small tree and are usually well-concealed. The highest densities occur in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian pinyon-juniper, juniper, and desert riparian habitats. While this species eats mostly Arthropods, they also take amphibians, small to medium-sized reptiles, small mammals and birds, and is also known to scavenge on carrion. Suitable foraging habitat exists along the grassland portion of the Study Area, and several areas have dense shrubs that may provide potential nesting habitat. The Study Area is located within this species' year round documented range, and there is a moderate potential that this species will occur within the Study Area.

5.0 SUMMARY AND RECOMMENDATIONS

Two sensitive plant communities were identified within the Study Area. Ten special status plant species and 50 special status wildlife species have a moderate or high potential to occur within the Study Area. The following sections present recommendations for future studies and/or measures to avoid or reduce impacts to these species and sensitive habitats.

5.1 Biological Communities

Most of the Study Area was comprised of coast live oak woodland, a sensitive plant community. In addition, the Study Area contains areas of purple needlegrass grassland which is considered a sensitive community by the CDFG. The Study Area contains a short, intermittent drainage potentially within the jurisdiction of the Corps under the Section 404 of the Clean Water Act and RWQCB under the Porter Cologne Act and Section 401 of the Clean Water Act.

In the event that tree removal, vegetation removal or ground disturbance is conducted within the Study Area, a jurisdictional wetland delineation is recommended for the Study Area to map the extent of potentially jurisdictional features.

5.2 Special Status Plant Species

Of the 40 special status plant species known to occur in the vicinity of the Study Area, nine species were determined to have the potential to occur in the Study Area. Most of the 40 species were determined not to have potential to occur within the because they are found in habitats that are not present in the Study Area, such as coastal, vernal pool, or coniferous forest habitats, or are associated with special soil types such as serpentinite. White-rayed pentachaeta was not observed during the April 16, 2010 focused rare plant survey. In the event that tree removal, vegetation removal or ground disturbance is conducted within the Study Area, rare plant surveys are recommended for May and August, during the blooming period of those species.

Should any special status plant species be found in an area that would be impacted by future development, mitigation measures could include avoidance, transplanting, establishment of a conservation easement, or mitigation banking. The most appropriate mitigation measure would depend on the life history, status, and population size of the species and on the type of impact expected.

5.3 Special Status Wildlife Species

Of the 50 special status wildlife species known to occur in the vicinity of the Study Area, four were determined to have the potential to occur in the Study Area. Most of the species found in the review of background literature occur in habitats not found in the Study Area. Additionally, grassland and woodland habitat within the Study Area is lower quality habitat due to its proximity to substantial anthropogenic disturbance and isolation from most overland migratory corridors.

No additional protocol-level surveys of wildlife species are needed to carry out the project objective. However, according to the field study and literature review, two special status bird species, the White-tailed Kite and Loggerhead Shrike, have a moderate potential to occur within the Study Area. Breeding birds are protected under the Migratory Bird Treaty Act which prohibits the disturbance or harm of breeding birds and their eggs or young. Furthermore, Long-eared Myotis and Pallid Bat are special status species with moderate potential to occur within the Study Area. In the event that tree removal, vegetation removal or ground disturbance is conducted within the Study Area, the following recommendations are provided to avoid impact to the four special status wildlife species identified as potentially occurring within the Study Area:

- Tree removal is encouraged to take place between September 1 and October 31. This window falls outside of the breeding bird window and avoids both the maternity and hibernation period for bats. Tree removal can take place during this period without a breeding bird or bat roost survey. This does not include removing fallen trees, which can be removed at any time.

- If brush clearing or ground disturbance is required for the site, these activities should be conducted outside of the breeding bird season which begins February 1 and lasts through August 31. The exception to this is for clearing weedy brush overhanging well used roads. Weedy brush, such as French broom, that overhangs roads that are travelled at least every two weeks can be removed to the extent of the road within the bird nesting window without pre-

construction surveys. Brush is these areas are regularly disturbed by active traffic and would not support suitable nesting habitat. Removal of brush outside of the outer edge of the road should have pre-construction surveys to prevent impacts to breeding birds.

- In the event that initial ground disturbance, vegetation removal or construction can not be scheduled outside of the breeding bird season (February through August), a wildlife biologist should conduct a breeding bird survey within 14 days of the onset of the activity to determine if nesting birds are present. In the event that nesting birds are identified to be present, further mitigation may include establishing buffers no less than 50 feet from active nests until young birds have fledged the nest. Larger buffers may be required for nesting birds of prey or special status species. The consulting biologist will provide a specific buffer based on agency guidelines, which species has been identified as nesting within the area and the presence of natural visual and auditory buffers (such as large stands of trees or hillsides).

- If ground disturbance or tree removal occur during the bat roosting season, November through August, potential bat roosts should be inspected for the presence of bats. Potential bat roosts include cavities in trees, exfoliating bark, snags, and cracks in large rocks. If a maternity roost is detected, up to a 200 foot buffer will be placed around the maternity site, and once the roost is clear for removal, a replacement structure (such as a bat box) should be created within the vicinity. In the event that bats are detected using a non-maternity roost site, one possible mitigation measure would be the placement of exclusion devices to potential entrance and exit holes after dusk once the bats have left the roost to forage.

6.0 REFERENCES

California Department of Fish and Game. 2010. Natural Diversity Database, Wildlife and Habitat Data Analysis Branch. Sacramento.

California Department of Fish and Game. Environmental Services Division (ESD). 1994. A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607, California Fish and Game Code.

California Native Plant Society. 2010. Electronic Inventory of Rare and Endangered Vascular Plants of California. California Native Plant Society, Sacramento, California.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.

Hickman, J.C. (ed.) 1993. The Jepson manual: higher plants of California. University of California Press.

Holland, R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Prepared for the California Department of Fish and Game, Sacramento, California

Information Center for the Environment (ICE). 2010. Distribution Maps of Fishes in California. Department of Environmental Science and Policy, University of California, Davis, California. http://ice.ucdavis.edu/aquadiv/fishcovs/fishmaps.html

Jennings, Mark R. 2004. An Annotated Check List of Amphibians and Reptile Species of California and Adjacent Waters. Third, revised edition. California Department of Fish and Game.

Marin Countywide Plan. 1994. Environmental Quality Element. Adopted January, 1994.

Natural Resources Conservation Service (NRCS). 2002. Field Indicators of Hydric Soils in the United States, version 5.0. G.W. Hurt, P.M. Whited, eds. USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils, Fort Worth, TX.

Reed, Jr., Porter B. 1988. National List of Plant Species That Occur in Wetlands: National Summary. U.S. Fish & Wildlife Service. Biol. Rep. 88 (24). 244 pp.

Shuford, W.D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and CDFG, Sacramento.

Stebbins, R.C. A Field Guide to Western Reptiles and Amphibians, 3rd Edition. 2003. The Peterson Field Guide Series, Houghton Mifflin Company, New York.

U.S. Army Corps of Engineers (Corps). 2006. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. December.

U.S. Army Corps of Engineers and the Environmental Protection Agency. 2007. U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook.

U.S. Department of Agriculture, Soil Conservation Service.1985. Soil Survey of Marin County. California. In cooperation with the University of California Agricultural Experiment Station.

United States Fish and Wildlife Service (USFWS). 2010. Quadrangle Species Lists, Sacramento Fish and Wildlife Service.

WRA, 2009. Potential for the endangered *Pentachaeta bellidiflora* on Marin Sanitary Service property. Letter to the City of San Rafael.

Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White. 1990. California's Wildlife, Volume I-III: Amphibians and Reptiles, Birds, Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento.

APPENDIX A

LIST OF OBSERVED PLANT AND ANIMAL SPECIES

Appendix A. Plant and Wildlife Species Observed during the April 7 and 16, 2010 Site Visits

Scientific Name	Common Name
Wildlife	
Odocoileus hemionus	Mule Deer
Cathartes aura	Turkey Vulture
Buteo jamaicensis	Red-tailed Hawk
Columba livia	Rock Pigeon
Calypte anna	Anna's Hummingbird
Aphelocoma californica	Western Scrub-Jay
Corvus brachyrhynchos	American Crow
Tachycineta thalassina	Violet-green Swallow
Poecile rufescens	Chestnut-backed Chickadee
Pipilo crissalis	California Towhee
Carpodacus mexicanus	House Finch
Pavo cristatus	Peafowl (feral)
Sceloporus occidentalis	Western Fence Lizard
Papilio zelicaon	Anise swallowtail butterfly
Pieris rapae	Cabbage white butterfly
Plants	
Acacia decurrens	black wattle
Achillea millefolium	common yarrow
Aesculus californica	buckeye
Anagalis arvensis	scarlett pimpernel
Arbutus menziesii	madrone
Avena fatua	slender wild oats
Baccharis pilularis	coyote bush
Briza maxima	rattlesnake grass
Briza minor	baby rattlesnake grass
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft chess

Cardamine californica	bittercress
Carduus pycnocephalus	Italian thistle
Cedrus deodara	Deodar cedar
Cortaderia selloana	pampas grass
Cynosurus echinatus	dogtail grass
Echium candicans	pride of Madeira
Erodium botrys	broad leaf filaree
Eucalyptus globulus	blue gum
Foeniculum vulgare	fennel
Galium aparine	common bedstraw
Genista monspessulana	French broom
Geranium dissectum	cutleaf geranium
Gnaphalium sp.	cudweed
Iris sp.	iris
Lolium multiflorum	Italian ryegrass
Lotus corniculatus	birdfoot trefoil
Lupinus bicolor	bicolored lupine
Melilotus albus	sweetclover
Melilotus indicus	yellow sweetclover
Nassella pulchra	purple needlegrass
Opuntia sp.	cactus
Oxalis albicans	sorrel
Picris echioides	bristly oxtongue
Pittosporum crassifolium	thick-leaved pittosporum
Prunella vulgaris	selfheal
Pteridium aquilinum	bracken fern
Quercus agrifolia	coast live oak
Quercus kelloggi	black oak
Quercus lobata	valley oak
Ranunculus californicus	buttercup

Rubus ursinus	California blackberry
Scandix pectin-veneris	sheperd's needle
Scrophularia californica	bee plant
Sherardia arvensis	field madder
Silybum marianum	milk thistle
Sisyrinchium bellum	blue-eyed grass
Sonchus asper	sow thistle
Spergularia rubra	red sand spurry
Taraxacum officinale	dandelion
Toxicodendron diversilobum	poison oak
Trifolium hirtum	rose clover
Umbellularia californica	California bay
Vicia sativa	spring vetch
Vicia villosa	smooth vetch
Vulpia myuros	foxtail fescue