
Biological Resources Assessment Report

245 PAULA LANE, SONOMA COUNTY
CALIFORNIA

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LIST OF ACRONYMS

BCC	Birds of Conservation Concern
CDFW	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
FAC	Facultative plant
FACU	Facultative upland plant
HTL	High Tide Line
MHW	Mean High Water
NGVD	National Geodetic Vertical Datum
NL	Not listed on wetland plant lists
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
OBL	Obligate wetland plant
OHWM	Ordinary High Water Mark
RWQCB	Regional Water Quality Control Board
UPL	Upland plant
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WRA	WRA, Inc.

EXECUTIVE SUMMARY

This report presents the results of a biological resource assessment conducted at 245 Paula Lane, Petaluma, California (Project Area). The Project includes a proposed minor subdivision to add two 2-acre lots plus one designated remainder lot. The two new lots include two building envelopes and new well and septic systems. At the time of the initial site visit in March 2013, there were five structures on the southeastern half of the Project Area include three open-sided, wooden horse sheds with metal roofs in the northeastern quarter of the Project Area that have since been removed. Also present on the proposed remainder lot is a single one-story house with attic and an approximately 125-foot long barn. Since the initial site visit, six shade structures and fencing have been added to the remainder lot plus some minor grading has occurred to include: the addition of a round pen, a BMX bike track, a small parking area, and a partially constructed horse riding arena.

The Project Area was assessed for the potential to support special-status species and presence of other sensitive biological resources protected by local, state, and federal laws and regulations. The report also contains an evaluation of the potential impacts to special status species and sensitive biological resources that may occur as a result of the proposed project and potential mitigation measures to compensate for these impacts.

Biological communities within the Project Area include ruderal/developed, non-native annual grassland, and Eucalyptus grove. No sensitive biological communities, including wetlands or waters, were found within the Project Area.

Seventy-six special status plant species are known to occur in the vicinity of the Project Area. Of these, none were determined to have a high potential to occur in the proposed project footprint and five species were determined to have a moderate potential to occur in the Project Area. A protocol-level special status plant survey was conducted in March and June 2013 with negative findings.

Fifty-three special status wildlife species are known to occur in the vicinity of the proposed project. Of these, signs of site use by one species, American badger were observed, and eight species have a moderate or high potential to occur in the Project Area. Potential impacts to these species include direct mortality, harm, or harassment during construction of new residences, and/or minor grading associated property development as well as disruption of breeding activities. Mitigation measures to offset potential impacts to a less than significant level are provided; measures to prevent mortality to American Badger a California Species of Special Concern, were prepared through direct consultation with the California Department of Fish and Wildlife (CDFW).

Non-native annual grassland habitat in the northwestern quarter of the Project Area appears to be part of a corridor connecting open space habitat to the west to the Paula Lane Open Space Preserve located north of the Project Area. Off-site dispersal barriers to the south include fencing that abuts pavement and lacks openings large enough to allow the passage of wildlife, and a heavily traversed two-lane road bordered by commercial development and bright night lighting. Dense residential development to the west precludes movement in this direction. While common mammal species and American Badger may occasionally occur in areas to the south of the Project Area while foraging this area does not provide a viable corridor due to barriers. Mitigation measures to protect the dispersal corridor connecting open space to the north and west are provided.

1.0 INTRODUCTION

On March 8, 2013, WRA, Inc. performed an assessment of biological resources at the 6-acre Paula Lane minor subdivision (Project Area) located at 245 Paula Lane, north of Bodega Drive in western Sonoma County, California (Figure 1). The purpose of the assessment was to gather information necessary to complete a review of biological resources under the California Environmental Quality Act (CEQA) for the proposed minor subdivision to add two 2-acre lots plus one designated remainder lot and minor grading for a horse arena and associated infrastructure. The existing parcel is currently zoned for rural residential and agricultural uses. The Project Area is currently bordered by low-density rural development to the south and east, an apartment complex to the west, and the Paula Lane Open Space Preserve to the north.

This report describes the results of the site visit, which assessed the Project 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. If special-status species were observed during the site visit, they were recorded. Specific findings on the habitat suitability or presence of special-status species or sensitive habitats may require that protocol-level surveys be conducted. This report also contains an evaluation of potential impacts to special-status species and sensitive biological resources that may occur as a result of the proposed project and potential mitigation measures to compensate for those impacts.

A biological resources assessment provides general information on the potential presence of sensitive species and habitats. This assessment is based on information available at the time of the Project and on site conditions that were observed on the date of the site visit.

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 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, the California Department of Fish and Wildlife (CDFW) Streambed Alteration Program, and CEQA; or local ordinances or policies such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.

2.1.1 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 in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and

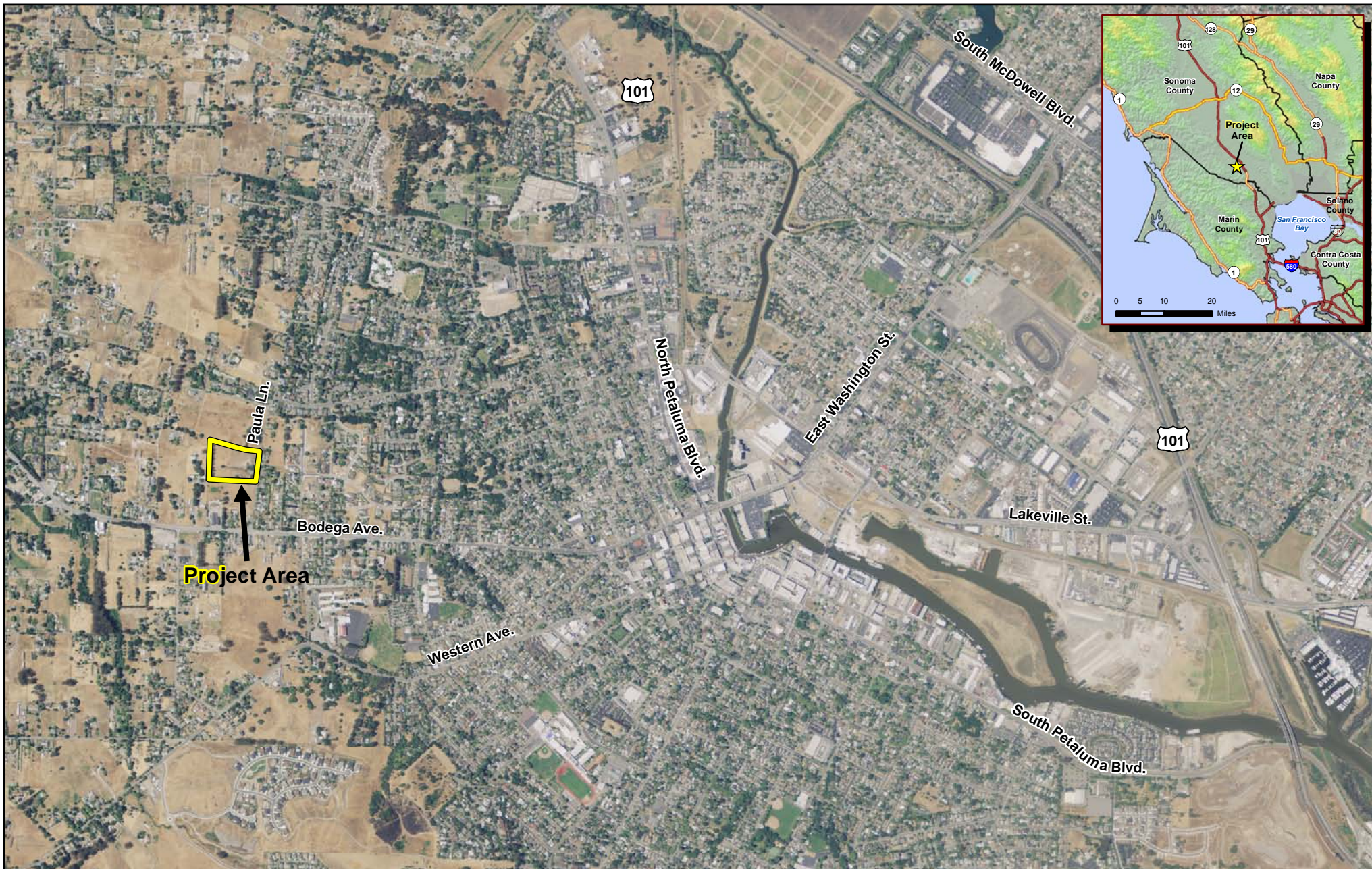


Figure 1. Location Map

Petaluma
Sonoma County, California



0 1,000 2,000 4,000
Feet



Date: December 2013
Aerial: 2009 NAIP
Map By: Michael Rochelle

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

as defined 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 at a sufficient depth and for a sufficient duration 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 generally requires an individual or nationwide permit from the Corps under Section 404 of the Clean Water Act.

2.1.2 *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 and 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.

2.1.3 *Streams, Lakes, and Riparian Habitat*

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW 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 “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...[including] 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 (CDFW 1994). “Riparian” is defined as “on, or pertaining to, the banks of a stream.” 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” (CDFW 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

2.1.4 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 CDFW. The CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB; CDFW 2013). Sensitive plant communities are also identified by CDFW (2003, 2007, 2009). CNDDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2013) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or USFWS must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in city or county general plans or ordinances.

2.2 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 species and species proposed for listing. In addition, CDFW Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, United States Fish and Wildlife Service (USFWS) Birds of Conservation Concern (BCC), and CDFW special-status invertebrates are all considered special-status species. Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under the 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 included within the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (Inventory) with California Rare Plant Rank (Rank) of 1 and 2 are also considered special-status plant species and must be considered under CEQA. Very few Rank 3 or Rank 4 plants meet the definitions of Section 1901 Chapter 10 of the Native Plant Protection Act or Sections 2062 and 2067 of the CDFW Code that outlines the California Endangered Species Act. However, CNPS and CDFW strongly recommend that these species be fully considered during the preparation of environmental documentation relating to CEQA. This may be particularly appropriate for the type locality of a Rank 4 plant, for populations at the periphery of a species range or in areas where the taxon is especially uncommon or has sustained heavy losses, or from populations exhibiting unusual morphology or occurring on unusual substrates.

2.2.1 Wildlife Movement Corridors

An evaluation of potential impacts to local and regional wildlife movement corridors (i.e., riparian corridor, areas that are contiguous with adjacent open space areas, etc.) is required for CEQA assessments. In general, any activities in or adjacent to defined wildlife movement corridors that could potentially disturb, restrict movement or activity, or facilitate increased predation of wildlife species would be considered a significant adverse impact under CEQA.

3.0 METHODS

On March 8, 2013 the Project Area was traversed on foot to determine (1) biological communities present within the Project Area, and (2) if existing conditions provide suitable habitat for any special-status plant or wildlife species. All plant and wildlife species encountered were recorded and are summarized in Appendix A. Plants were identified using *The Jepson Manual: Vascular Plants of California 2nd Edition* (Baldwin et al. 2012), to the taxonomic level necessary to determine rarity. Some plants were cross referenced and identified using *The Jepson Manual* (Hickman 1993) as some agencies and jurisdictions may base rarity on older names. Names given follow *The Jepson Manual: Vascular Plants of California 2nd Edition* (Baldwin et al. 2012). Additional visits to the site have been performed between March 2013 and August 2014; observations from subsequent site visits are noted where applicable.

3.1 Biological Communities

Prior to the site visit, the Soil Survey of Sonoma County, California (U.S. Department of Agriculture [USDA] Web Soil Survey), USGS topographic maps, and the USFWS National Wetlands Inventory were examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Project Area. Biological communities present in the Project Area were classified based on existing plant community descriptions from NatureServe Comprehensive Ecological Reports (2013). However, in some cases it was 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 4.3.1 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 Project Area was surveyed to determine if any wetlands or waters potentially subject to the jurisdiction of the Corps, RWQCB, or CDFW were present. The assessment was based primarily on the presence of wetland plant indicators, but it also included any observed indicators of wetland hydrology or wetland soils where appropriate.

Other Sensitive Biological Communities

The Project Area was evaluated for the presence of other sensitive biological communities, including riparian areas, sensitive plant communities recognized by CDFW, and trees which are protected under the City of Petaluma Tree Ordinance. Prior to the site visit, local soil maps, aerial photographs, the *List of Vegetation Alliances* (CDFW 2009), and *A Manual of California Vegetation* (Sawyer et al. 2009) were reviewed to assess the potential for sensitive biological communities to occur in the Project Area.

3.2 Special-Status Species

3.2.1 Literature Review

Potential occurrence of special-status species in the Project Area was evaluated by first determining which special-status species occur in the vicinity of the Project Area through a literature and database search. Database searches for known occurrences of special-status species focused on the Vine Hill, Benicia, Fairfield South, Cordelia, Honker Bay, Denverton, Walnut Creek, Briones Valley, and Clayton USGS 7.5-minute quadrangles. The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the vicinity of the Project Area:

- California Natural Diversity Database (CNDDDB) records (CDFW 2014)
- USFWS quadrangle species lists (USFWS 2014)
- CNPS Inventory records (CNPS 2014)
- Consortium of California Herbaria (CCH 2013)
- CDFW publication "California's Wildlife, Volumes I-III" (Zeiner et al. 1990)
- CDFW publication "Amphibians and Reptile Species of Special Concern in California" (Jennings 1994)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- Sonoma County Breeding Bird Atlas (Burridge 1995)
- California Bird Species of Special Concern (Shuford and Gardali 2008)

3.2.2 Site Assessment

Habitat conditions assessed were used to evaluate the potential for presence of special-status species. The potential for each special-status species to occur in the Project Area was then evaluated according to the following criteria:

- 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).
- 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.
- 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.
- 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.

- Present. Species is observed on the site or has been recorded (i.e. CNDDDB, 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 Project 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. All species observed were recorded (Appendix A).

In cases where little information is known about species occurrences and habitat requirements, the species evaluation was based on best professional judgment of WRA biologists with experience working with the species and habitats. If necessary, recognized experts in individual species biology were contacted to obtain the most up-to-date information regarding species biology and ecology.

For some species, a site assessment visit at the level conducted for this report may not be sufficient to determine presence or absence of a species to the specifications of regulatory agencies. In these cases, a species may be assumed to be present or further protocol-level special-status species surveys may be necessary. For the species with a moderate (or higher) likelihood of occurring within the Project Area, a protocol-level rare plant survey was conducted on June 13, 2013 during the appropriate blooming period.

Wildlife Movement Corridors

The Project Area and surrounding lands were evaluated for the potential presence of wildlife movement corridors, as well as potential barriers to wildlife movement. Prior to the site visit, current and historical aerial photographs were reviewed to determine whether or not the surrounding land uses had potential to support wildlife species movement and whether any obvious barriers (e.g., fences, structures, developed land, etc.) were present. During the site visit, the quality of areas identified as potential movement corridors was assessed. Any potential barriers to movement were noted including roads, non-passable fencing, bright night lighting, and residential and commercial development. Also noted was any evidence that multiple wildlife species were using any part of the site specifically to move between the open space preserve located to the north and contiguous open areas to the south, east, or west of the Project Area. Primary and alternative corridor routes were mapped based on this analysis.

4.0 RESULTS

The Project Area is located at 245 Paula Lane, Sonoma County, California, southwest of the Petaluma city limits (Figure 1). The area is currently zoned for rural residential and agricultural uses. The Project Area is currently bordered by low-density rural development to the south and east, an apartment complex to the west, and the Paula Lane Open Space Preserve to the north. Elevations within the Project Area range from approximately 170 to 220 feet National Geodetic Vertical Datum (NGVD).

Along Paula Lane and surrounding the house is an assortment of mature cultivated trees. Although several of these trees are native, including coast live oak (*Quercus agrifolia*) and buckeye (*Aesculus californica*), many are non-native or invasive species including black wattle (*Acacia melanoxylon*) and European plum (*Prunus domestica*). The understory of the area immediately surrounding the house and on the northeastern half of the property is dominated by

non-native and invasive species including milk thistle (*Silybum marianum*), ripgut brome (*Bromus diandrus*), and foxtail barley (*Hordeum murinum*). Past clearing and soil disturbance is evident here based on the presence of non-native weedy species compared with surrounding areas, and also compacted soils in these areas. Visual signatures on historic aerial photographs suggest minor grading or removal of topsoils in this area sometime between 1993 and 2004.

The western edge of the Project Area is occupied by a row of mature eucalyptus (*Eucalyptus globulus*) with an herbaceous layer comprised of non-native ruderal grasses including rip-gut brome, foxtail barley, and common wheat (*Triticum aestivum*), and native herbs including miner's lettuce (*Claytonia parviflora*). The remainder of the site is primarily non-native grassland composed of rip-gut brome, foxtail barley, sky lupine (*Lupinus nanus*), common mallow (*Malva neglecta*), and white stemmed fillaree (*Erodium moschatum*).

A small depressional feature (approximately 6-foot diameter) is present on the northeastern edge of the Project Area. Based on the shape and size of the depression, it appears to have been formed from a long-standing water tank, since removed. Consequently, the soils appear to have been compacted sufficiently to preclude vegetation and hold surface waters. The vegetation immediately surrounding the depression is comprised of upland species (ripgut brome, foxtail barley), and the water does not appear to pond or saturate for a duration sufficient to form wetland conditions.

4.1 Land Use History

The Project Area and surrounding lands have historically been used for agricultural production. Common agricultural products from the area include chicken, eggs, milk, hay, produce, and cereal grains. Though the City of Petaluma (located north and east of the Project Area) has been growing and urbanizing quickly over the past decade, the Project Area and surrounding area to the north and west have remained largely rural. Denser residential and commercial development is evident to the east and south. Current land use in the immediate vicinity of the Project Area includes rural residential and commercial development, open space, and agriculture uses. Historically the Project Area was used for agriculture including chicken farming. Evidence of past structures and minor grading is present throughout the property; minor grading and soil compaction is evident on the eastern half of the property in historical photographs dating back as far as 2004.

4.2 Topography and Soils

The topography of the Project Area is moderately steep with slopes ranging from 5-15 percent. The general slope is from north to south, and elevations range from approximately 170 to 220 feet National Geodetic Vertical Datum (NGVD). The Sonoma County Soil Survey (USDA 1977) indicates that the Project Area is composed exclusively of the native soil Cotati fine sandy loam. This soil type is described in detail below.

Cotati fine sandy loam: This soil series consists of deep to very deep sandy loam soils formed in alluvium from weathered soft sedimentary rocks (e.g., mudstone, sandstone) which are located in hillside terrain at elevations ranging from 60 to 800 feet (USDA 1977). These soils are not considered hydric, and are moderately well drained with slow to rapid runoff, and moderately rapid to very slow permeability (USDA 2012, USDA 1977). Native and naturalized vegetation includes annual grasses with scattered coast live oak and California black oak (*Q. kelloggii*), and these soils are primarily utilized for pasture grazing, hay, small orchards, and Christmas tree production (USDA 1977).

A representative pedon of this series consists of an A-horizon of strongly acid (pH 5.3) dark grayish brown (10RY 4/2) when moist, fine sandy loam from approximately 0 to 19 inches. This is underlain by an E-horizon of strongly acid (pH 5.3) grayish brown (2.5Y 5/2) sandy loam from approximately 19 to 22 inches depth. This is underlain by a B-horizon of very strongly acid (pH 4.5) light olive brown (2.5Y 5/4) to olive (5Y 5/3), when moist, clay from approximately 22 to 55 inches depth. This is underlain by a C-horizon of very strongly acid (pH 4.5) dark brown (10YR 3/3), when moist, clay from approximately 55 to 68 inches depth.

Although these soils have a clay horizon in the upper two feet, they are located on relatively steep slopes (5 to 30 percent) and the upper horizons are composed of well drained sandy loams; therefore, these soils are unlikely to support wetlands without natural or artificial barriers to surface/subsurface flow. These soils may support special-status plant species with an affinity for low pH (acidic) well-drained sands and sandy loams, and are unlikely to support plant species with an affinity for clay, alkali, sustained hydrology, serpentine, or ultramafic soils. Where not compacted, these soils are friable and thus may support special status wildlife that rely on fossorial mammals for food or cover. Field observations confirm that the soils on-site are consistent with those described in the Soil Survey of Sonoma County (1977).

4.3 Biological Communities

Non-sensitive biological communities in the Project Area include developed land and non-native annual grassland. Descriptions for each biological community are contained in the following sections. There were no vegetation alliances within the Project Area with a ranking of 1 through 3 (none were ranked state or globally critically imperiled (S1/G1), imperiled (S2/G2), or vulnerable (S3/G3)).

4.3.1 Non-Sensitive Biological Communities

Ruderal / Developed

Ruderal and developed areas are not discussed in Holland (1986) or Sawyer et al. (2009); however, these areas contain patches of ruderal grass and herbaceous species interstitial to extensive tracts of bare soil and gravel roads. This community, combined with non-native annual grassland, dominates the Project Area. This community type is located along the road, the northeastern half of the property, and surrounding the house and barn structures in the Project Area.

The dominant species within this community type are disturbance-adapted, non-native forbs and grasses such as ripgut brome, milk thistle, foxtail barley, and common mallow. Ruderal and developed areas contain no potential for special-status plant or wildlife species. Though much of the overstory of the area classified as Ruderal/developed contains mature native tree species, including coast live oak, Monterey cypress (*Hesperocyparis macrocarpa*), and buckeye, based on the orientation of the trees, co-occurrence with non-native ornamental species, and an understory dominated by ruderal non-native forbs and herbs, it was determined that this area does not have a natural plant community structure and is best classified as Ruderal/developed. CNPS has listed Monterey cypress as a List 1B species, however that designation is only applicable within native stands on the Monterey Peninsula; because it is outside its natural range, the Monterey cypress trees in the Project Area do not have a special-status designation.

Non-Native Annual Grassland

Non-native annual grassland is a mixed herbaceous community dominated by non-native annual grasses with fine textured clay soils located throughout California (Holland 1986), typically dominated by one or two grass species (Sawyer et al. 2009). Within the Project Area, non-native annual grassland occurs primarily as a large, contiguous meadow throughout western portion of the Project Area.

The dominant species within this community type are exotic annual grasses including Italian ryegrass (*Festuca perennis*), soft chess (*Bromus hordeaceus*), and foxtail barley. Substantial cover of non-native forbs include curly dock (*Rumex crispus*), white-stemmed filaree, common chickweed (*Stellaria media*), and common mallow.

Eucalyptus Grove

Eucalyptus groves are areas with an overstory dominated by eucalyptus trees. Within the Project Area eucalyptus groves occur as a contiguous row of trees along the western edge of the Project Area.

The overstory of this area is dominated by non-native eucalyptus trees with an understory primarily composed of non-native annual grasses including Italian ryegrass and foxtail barley, though both native and non-native forbs including wild radish (*Brassica sativus*) and miner's lettuce were present.

4.3.2 Sensitive Biological Communities

Wetlands and Waters

No wetlands, waters, or sensitive plant communities were observed within the Project Area.

4.4 Special-Status Species

4.4.1 Special-Status Plant Species

Based upon a review of the resources and databases listed in Section 3.2.1, 76 special-status plant species have been documented in the vicinity of the Project Area. Appendix B summarizes the potential for each of these species to occur in the Project Area, and Figure 2 shows the plant species documented in CNDDB (CDFW 2014) to occur within five miles of the site.

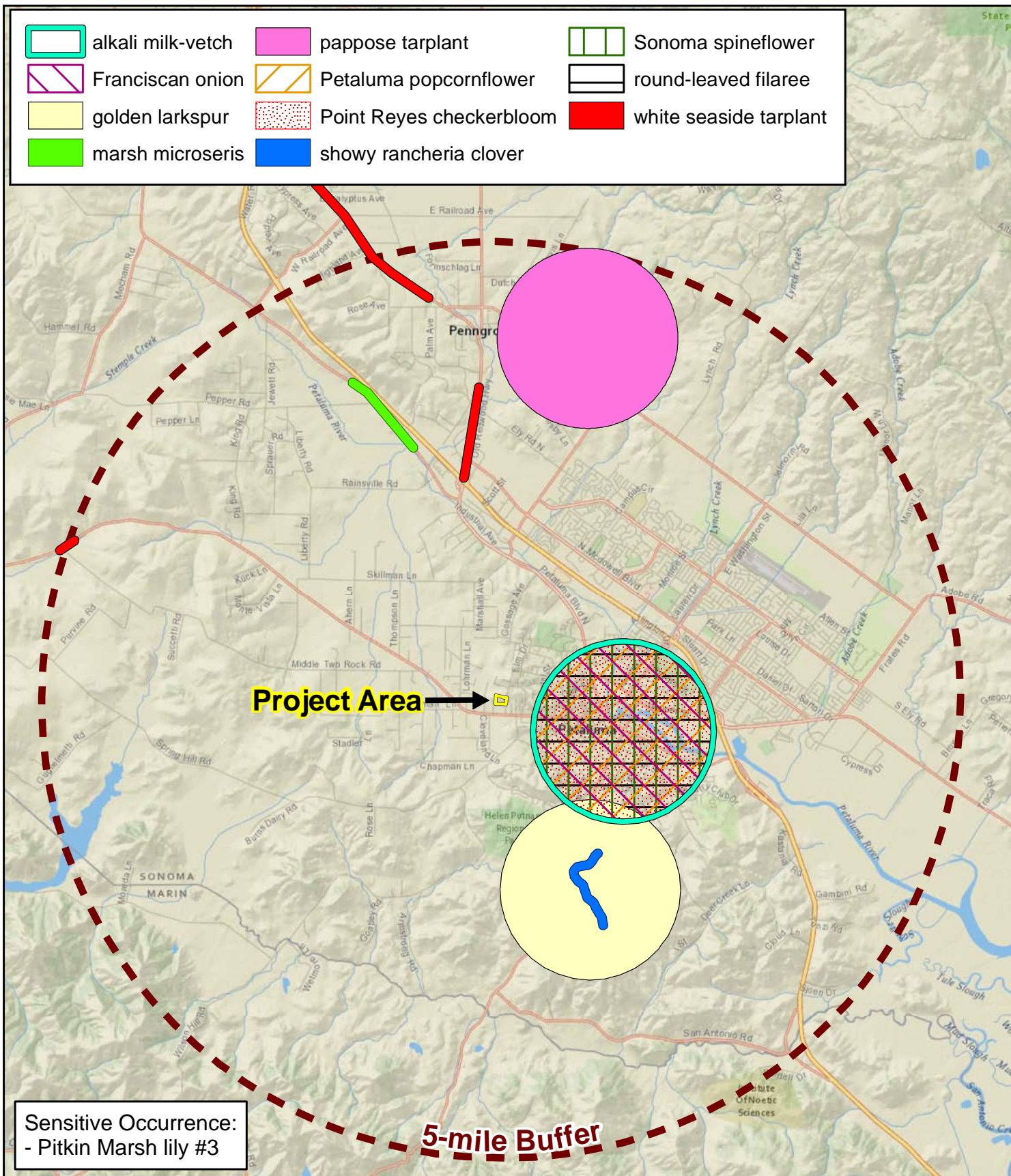


Figure 2. Special Status Plant Occurrences within 5 Miles of Project Area

Petaluma
Sonoma County, California



0 0.5 1 2
Miles



Date: December 2013
Map By: Michael Rochelle
Basemap: NatGeo

No special-status plant species have a high potential to occur in the larger Project Area and five special-status plant species were determined to have a moderate potential to occur in the Project Area. The remaining species documented to occur in the vicinity of the Project Area are unlikely or have no potential to occur due to:

- The species has a very limited range of endemism and has never been observed in the vicinity of the Project Area;
- Common plants associated with the special-status species, and which indicate the presence of suitable, intact habitat, are absent from the Project Area;
- Specific edaphic characteristics, such as soil derived from serpentine or volcanic, are absent from the Project Area;
- Specific hydrologic characteristics, such as perennial saline, are absent from the Project Area;
- Unique pH characteristics, such as alkali scalds or alkali vernal pools, are absent from the Project Area;
- No or very little tolerance of invasive species competition and/or disturbance.

No special status plant species were observed during the site visit including those in bloom at the time of the site visit; a protocol-level survey was performed for those species that bloom in March. However, many species bloom in late spring and summer and were therefore not identifiable during the initial site visit. As such, a second protocol-level rare plant survey was conducted on June 13, 2013 by a WRA botanist during the blooming period of all potentially present special-status plant species. No special-status plant species were found within the Project Area. All special-status species with a moderate potential to occur, though not found during protocol-level surveys are discussed below.

Bent-flowered fiddleneck (*Amsinckia lunaris*). CNPS Rank 1B.2. Moderate Potential.

Bent-flowered fiddleneck is an annual forb in the forget-me-not family (Boraginaceae) that blooms from March to June. It typically occurs in open areas within cismontane woodland, valley and foothill grassland, and coastal bluff scrub habitat often underlain by clay substrate at elevations ranging from 10 to 1625 feet (CDFW 2013, CNPS 2013, Hickman 1993). Observed associated species include coast live oak, blue oak (*Quercus douglasii*), California juniper (*Juniperus californicus*), buck brush (*Ceanothus cuneatus*), poison oak (*Toxicodendron diversilobum*), miniature lupine (*Lupinus bicolor*), foothill lotus (*Acmispon brachycarpus*), calf lotus (*A. wrangelianus*), fringe pod (*Thysanocarpus curvipes*), q-tips (*Micropus californicus*), cream cups (*Platystemon californicus*), slender tarweed (*Madia gracilis*), common yarrow (*Achillea millefolium*), goldenback fern (*Pentagramma triangularis*), one-sided bluegrass (*Poa secunda*), woolly sunflower (*Eriophyllum lanatum*), and slender wild oat (*Avena barbata*) (CDFW 2013).

Bent-flowered fiddleneck is known from 37 USGS 7.5-minute quadrangles in Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, Sonoma, and Yolo counties. There are three CNDDDB (CDFW 2013) records in the greater vicinity of the Project Area, and one CCH (2013) record from Sonoma County. The nearest and most recent documented occurrence in the greater vicinity is from 1952 near Marshall Petaluma Road approximately eight miles southwest of the Project Area. Bent-flowered fiddleneck has a moderate potential to occur in the Project Area due to the presence of non-native annual grassland habitat and the presence of associated species; however, this species has not been observed in the vicinity of the Project Area for over 60 years, and the degree of disturbance and presence of non-native species reduce its potential from high to moderate.

Pappose tarplant (*Centromadia parryi* ssp. *parryi*). CNPS Rank 1B. Moderate Potential.

Pappose tarplant is an annual herb in the sunflower family (Asteraceae) that blooms from May to November. It typically occurs in vernal mesic, often alkaline areas in coastal prairie, meadow, seep, coastal salt marsh, and valley and foothill grassland habitat at elevations ranging from 5 to 1380 feet (CDFW 2013, CNPS 2013). This species is a facultative wetland plant (Lichvar 2012), and is a vernal pool generalist (Keeler-Wolf et al. 1998). Observed associated species include bristly ox-tongue (*Helminthotheca echioides*), wild radish (*Raphanus sativus*), foxtail fescue (*Festuca myuros*), willow leaf dock (*Rumex salicifolius*), toad rush (*Juncus bufonius*), Italian ryegrass, Mediterranean barley (*Hordeum marinum*), salt grass (*Distichlis spicata*), alkali heath (*Frankenia salina*), perennial pepperweed (*Lepidium latifolium*), yellow star thistle (*Centaurea solstitialis*), alkali mallow (*Malvella leprosa*), and alkali weed (*Cressa truxillensis*) (CDFW 2013).

Pappose tarplant is known from 17 USGS 7.5-minute quadrangles in Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, and Sonoma counties (CNPS 2013). There is one CNDDDB (CDFW 2013) and one CCH (2013) record from the greater vicinity of the Project Area. The nearest and most recent documented occurrence in the greater vicinity is from 1987 approximately four miles northeast of the Project Area near the intersection of Old Adobe Road and Jacobsen Lane. Pappose tarplant has a moderate potential to occur in the Project Area due to the presence of appropriate grassland habitat; however, the hydrology of the Project Area and presence of few known associated species suggests this plant has only a moderate potential to occur.

Sonoma spineflower (*Chorizanthe valida*). Federal Endangered, State Endangered, CNPS Rank 1B.1. Moderate Potential. Sonoma spineflower is an annual forb in the buckwheat family (Polygonaceae) that blooms from June to August. It typically occurs on sandy substrates in coastal prairie habitat at elevations ranging from 30 to 995 feet (CNPS 2013, CDFW 2013). Observed associated species include bush lupine (*Lupinus arboreus*), silver bush lupine (*L. albus*), many-colored lupine (*L. variicolor*), coyote brush (*Baccharis pilularis*), Point Reyes horkelia (*Horkelia marinense*), large-flowered leptosiphon (*Leptosiphon grandiflorus*), coast tarweed (*Madia sativa*), soft chess, brome fescue (*Festuca bromoides*), dogtail grass (*Cynosurus echinatus*), and windmill pink (*Silene gallica*) (CDFW 2013).

Sonoma spineflower is known from six 7.5-minute quadrangles in Marin and Sonoma counties (CNPS 2013). There is one CNDDDB (CDFW 2013) and one CCH (2013) record from the greater vicinity of the Project Area. The nearest documented occurrence is approximately 1.3 miles southeast of the Project Area, though the date that specimen was observed is unknown. Sonoma spineflower has a moderate potential to occur in the Project Area due to the presence of appropriate sandy substrate, associated species, and the proximity of the Project Area to a documented occurrence; however, few documented occurrences of this species and lack of appropriate coastal habitat suggests this plant has only a moderate potential to occur in the Project Area.

Hayfield tarplant (*Hemizonia congesta* ssp. *congesta*). CNPS Rank 1B. Hayfield tarplant is an annual herb in the sunflower family (Asteraceae) that blooms from April to November. It typically occurs in grassy areas and fallow fields in coastal scrub, and valley and foothill grassland at elevations ranging from 65 to 1840 feet (CDFW 2013, CNPS 2013). Observed associated species include coast live oak, white hyacinth (*Triteleia hyacinthina*), Italian ryegrass, little rattlesnake grass (*Briza minor*), pennyroyal (*Mentha pulegium*), and spiny-fruited buttercup (*Ranunculus muricatus*) (CDFW 2013).

Hayside tarplant is known from 23 USGS 7.5-minute quadrangles in Marin, Mendocino, San Francisco, San Mateo, and Sonoma counties (CNPS 2013). There are 11 CNDDDB (CDFW 2013) and 26 CCH records from the greater vicinity of the Project Area. The nearest documented occurrence is approximately 2.8 miles north of the Project Area; however that occurrence was documented in July 1916. The most recent occurrence in the vicinity of the Project Area was documented over 10 miles away in 2008. Hayfield tarplant has a moderate potential to occur in the Project Area due to the presence of annual grassland habitat, and associated species; however, a lack of recent documented occurrences near the Project Area limits this species' potential to occur in the Project Area.

Marsh microseris (*Microseris paludosa*). CNPS Rank 1B. Moderate Potential.

Marsh microseris is a perennial herb in the sunflower family (Asteraceae) that blooms from April to June, sometimes into July. It typically occurs in closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland habitat at elevations ranging from 15 to 985 feet (CDFW 2013, CNPS 2013). Observed associated species include coast live oak, coyote brush, English plantain (*Plantago lanceolata*), blue-eyed grass, bracken fern (*Pteridium aquilinum*), rough cat's ear (*Hypochaeris radicata*), common velvet grass (*Holcus lanatus*), little rattlesnake grass, and Douglas iris (*Iris douglasiana*) (CDFW 2013).

Marsh microseris is known from 24 USGS 7.5-minute quadrangles in Marin, Mendocino, Monterey, San Benito, Santa Cruz, San Francisco, San Luis Obispo, San Mateo, and Sonoma counties (CNPS 2013). There are three CNDDDB (CDFW 2013) and two CCH records from the greater vicinity of the Project Area. The nearest documented occurrence is approximately 3.5 miles from the Project Area and was documented in 1937. Marsh microseris has a moderate potential to occur in the Project Area due to the presence of non-native annual grassland habitat; however, a lack of coastal influence and appropriate woodland habitat limit this species' potential to occur in the Project Area.

4.4.2 Special-Status Wildlife Species

Fifty-three special-status species of wildlife have been recorded in the vicinity of the Project Area. Appendix B summarizes the potential for each of these species to occur in the Project Area, and Figure 3 shows the wildlife species documented in CNDDDB (CDFW 2014) to occur within five miles of the site. No special-status wildlife species were observed in the Project Area during the site assessment; however, signs of site use by one special-status species, American badger, were observed. There is one occurrence of American Badger on the property in 2009; this is the only documented occurrence in the statewide database within 5 miles of the site (CDFW 2014). Eight additional special-status wildlife species have a moderate or high potential to occur in the Project Area. Special-status wildlife species that were observed, or have a moderate or high potential to occur in the Project Area are discussed below.

American Badger (*Taxidea taxus*). CDFW Species of Special Concern. American badger occurs throughout California in drier open stages of most scrub, forest, and herbaceous habitats, which provide loose, gravelly soils suitable for burrowing. Badger burrows are constructed mainly in the pursuit of prey, but they are also used for sleeping. Dens may be as far as 10 feet (3 meters) below the surface and contain about 33 feet (10 meters) of tunnels. Badgers use multiple burrows within their home range, and they may not use the same burrow more than once a month. In the summer months they may dig a new burrow each day (Kurta 1995, Long 1999, Sullivan 1996).

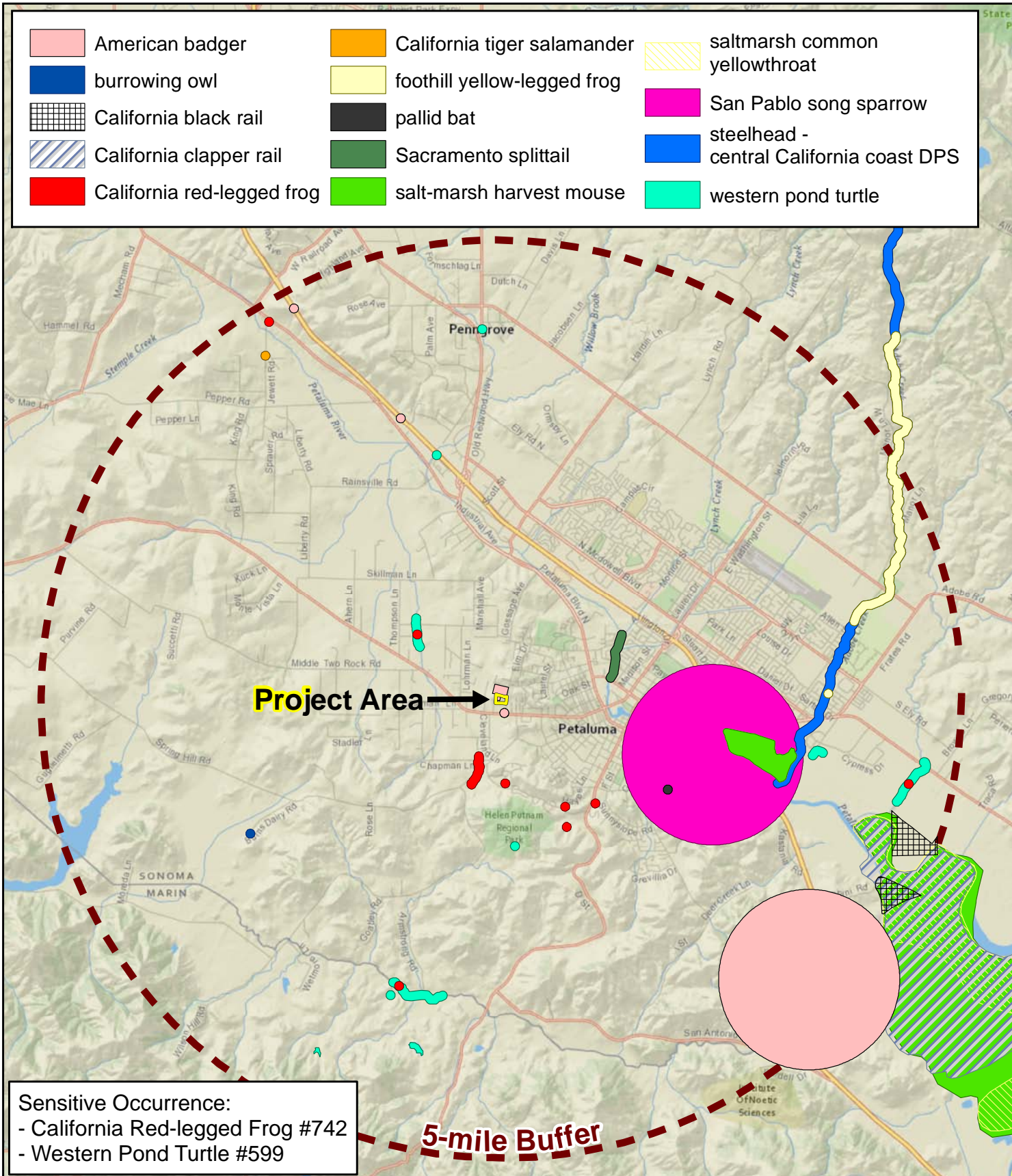


Figure 3. Special Status Wildlife Occurrences within 5 Miles of Project Area

Petaluma
Sonoma County, California



0 0.5 1 2
Miles



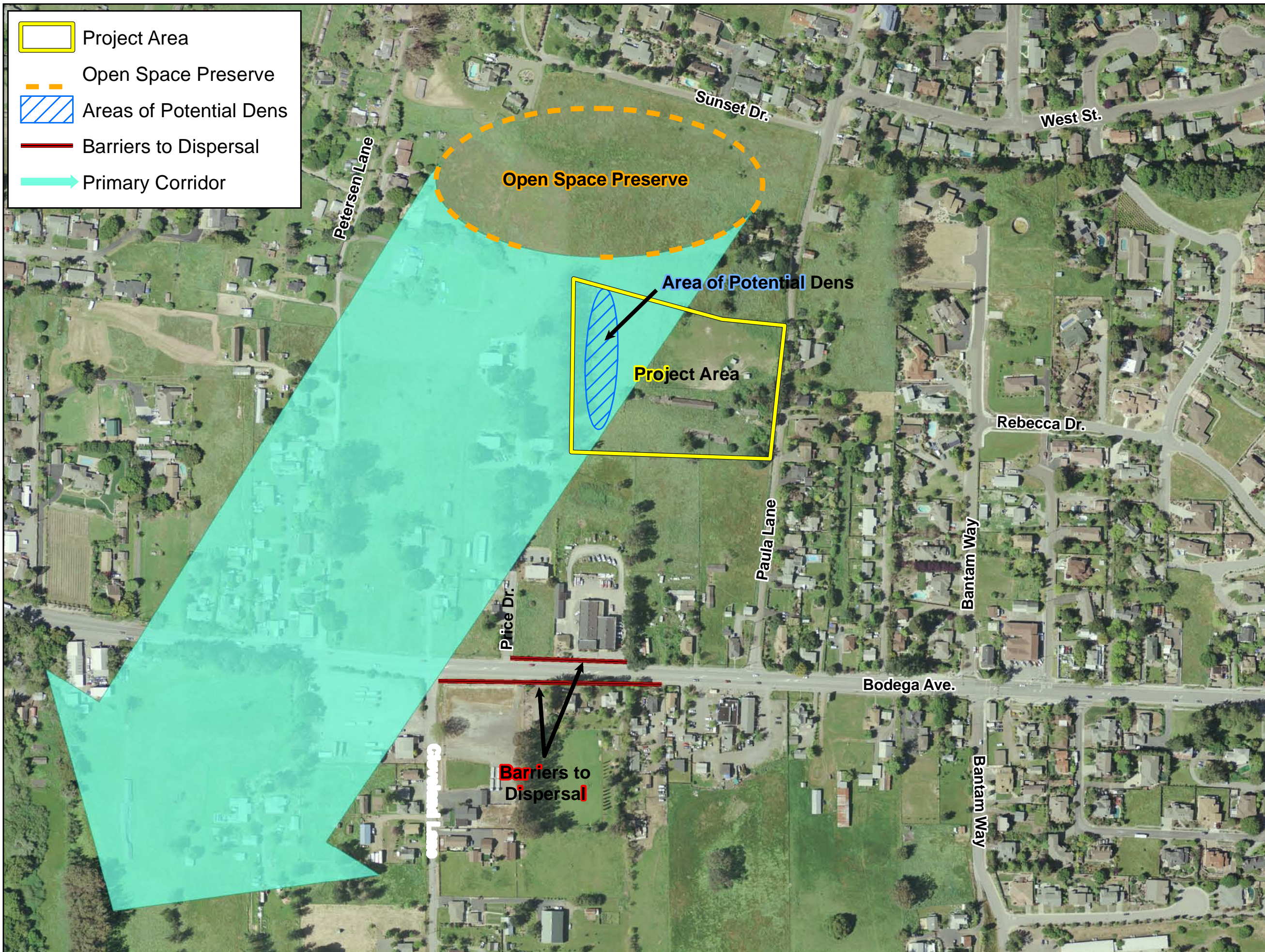
Date: March 2013
Map By: Michael Rochelle
Basemap: NatGeo

The badger is a highly specialized fossorial carnivore. It feeds mainly on small mammals, especially ground squirrels, pocket gophers, rats, mice, and chipmunks. Badgers also forage on birds, eggs, reptiles, invertebrates, and carrion, and some plant foods, such as corn and sunflower seeds. Badgers catch most of their food by digging and have been known to cache food (Long 1999, Sullivan 1996). Diet will shift seasonally and yearly depending upon prey availability. According to the IUCN Red List of Threatened Species (Reid and Helgen 2008), American badger is considered a species of "Least Concern" because it is relatively common over much of its large range, but is declining in areas converted from grassland to intensive agriculture or dense residential developments, and where colonial rodents such as prairie dogs and ground squirrels have been reduced or eliminated.

Primary threats to badger foraging habitat are loss of annual grasslands and competition from non-native or domestic animals including feral cats; the WRA biologist noted during the initial site assessment that feral cats were present in large numbers on the adjacent open space preserve. When present in large numbers, domestic cats can reduce the availability of prey for native predators including fossorial carnivores such as badgers as well as native raptors such as owls and hawks (George 1974, and Erlinge et al., 1984); domestic and feral cats are also a primary source of disease transmission to native wildlife. The biologist also noted the presence of feeding bowls and a watering bucket immediately adjacent to the Study Area in the Paula Lane Open Space Preserve. Unlike some predators, a cat's desire to hunt is not suppressed by supplemental feeding and cats will continue hunting even where abundant supplemental food is available (Adamec 1976). Feeding bowls also tend to attract "urban" wildlife such as raccoons, skunks, common raven, and domestic cats that compete with badgers for food.

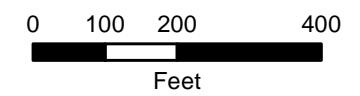
Badgers are somewhat tolerant of human activities and are found near humans where grassland habitat with friable soils and sufficient prey is available. Primary threats to this species include loss of prey or foraging habitat, vehicle strikes, poisoning (such as ground squirrel and rat poisoning), and deliberate mortality by humans. American badger is considered a game animal throughout California, and with the appropriate license it may be taken between November 16 and the end of February¹. Threats to this species have not been considered substantial enough to trigger federal, state or IUCN listing as threatened or endangered, but CDFW has categorized them as Species of Special Concern. Within the Study Area and surrounding vicinity, existing threats include vehicle strikes on Bodega Avenue and loss of foraging habitat due to increased pressures from the surrounding feral cat colony, as well as threats associated with urbanization that include competition from other urban wildlife such as raccoons, skunks, common raven, and domestic cats. Feeding bowls as previously noted, can also increase non-native rat populations; in residential areas this poses an additional threat to native wildlife both from disease transmission, as well as poisoning or traps that affect fossorial prey which can then lead to mortality in badgers and other predators. Cattle and horse grazing are not considered primary threats.

¹ Fish and Game Code, Mammal Hunting Regulations 2012-2013, Chapter 5 §461.



Petaluma,
Sonoma County,
California

Figure 4.
American Badger
Corridor Analysis



Within the Project Area, there is a single documented occurrence of badger presence from September 2009 on the western portion of the site (CDFW 2014). Though according to the record, this occurrence was of an emaciated (starving) female with an abscess on the right hip (CDFW 2014). Corresponding reports by the Press Democrat indicate this badger was removed from the property and taken to a local rescue center (September 2, 2009). The nearest documented occurrences are approximately 3 miles to the north, a badger carcass was recorded in 2006; and approximately 4 miles to the south a badger was observed in 1949. No other occurrences are documented in the vicinity of the Project Area.

A large number of burrows which appeared to have been excavated by badgers (burrows which were at least 8 inches in diameter, typically with visible claw marks on the sides of the burrow and a new throw pile of soil at more-recently excavated entrances) were observed and mapped in the northwestern portion of the Project Area at the time of the site visit. Badger digging activity has not been shown to correlate with badger population density, and the numerous burrows present in the Project Area may represent only one badger pair (Messick 1987). Within the Project Area boundaries, the recent badger activity was only evident on the northwestern edge of the site, east of the eucalyptus and northwest of the large barn in moderately tall grass; no recent burrows or digs excavated by badgers were found outside this area (Figure 5). Areas proposed for limited residential development (primarily the eastern portion of the property) contained no evidence of badger use.

The lack of observations on the eastern portion of the property may be due to a combination of factors, including but not limited to the following: proximity to the road and existing residential housing and lack of prey due to competition from observed feral cats and other urban wildlife such as raccoons and skunks. Scavenger species including common raven were also observed roosting in this area. Historical land use activity including an eggery, and other farming practices; and presence of barriers to dispersal east and south of the property were also observed. Historical photographs show disturbance of the eastern portion of the Project Area as evidenced by the lack of vegetation and soil compaction over more than a decade. Approximately four suitable burrows were found on the southwestern portion of the property; however no evidence of recent usage was found based on the presence of cobwebs and vegetation growing in the throw piles.

Potential movement corridors for American badger were evaluated based on presence of large contiguous tracts of open space areas surrounding the Project Area and presence of barriers to dispersal including off-site fencing (without openings at the base), residential and commercial development, and heavily traveled roadways. Badgers have very large home ranges, depending on the habitat available from as little as 1.6 square kilometers for females and 2.4 square kilometers for males, up to 38 square kilometers in areas where habitat is patchier (Messick and Hornocker 1981; Newhouse and Kinley 2000; Quinn 2008); furthermore, these animals have been recorded traveling up to 0.5 km in a single night (Quinn 2008). Based on the literature, it is likely a portion of the Project Area (0.015 square km.) contributes to a much larger home range (1.6 to 2.4 sq. km. minimum) for at least one American badger pair. Potential movement corridors for badger as well as other native wildlife are further discussed in Section 4.4.4 and depicted in Figure 4, though based on the density of development to the west and south, it is probable the Project Area makes up the southeastern extent of a single territory.

Western Burrowing Owl (*Athene cunicularia*). CDFW Species of Special Concern. Burrowing owl typically favors flat, open grassland or gentle slopes and sparse shrubland ecosystems. This species prefers annual or perennial grasslands, typically with sparse or nonexistent tree or shrub canopies; however, it also colonizes debris piles and old pipes.

Burrowing owl exhibits high site fidelity and usually nests in abandoned burrows of ground squirrels or pocket gophers.

The Project Area contains annual grassland habitat predominantly unsuitable for this species due to inadequate vegetation maintenance resulting in tall grasses (greater than 12 inches in height) over the majority of the site. The nearest documented occurrence is three miles away, and is an over-wintering owl occurrence. While burrowing owl historically has occurred in the region, it is not known to breed in Sonoma County (Burridge 1995). Burrowing owl prefers relatively short or grazed grassland habitats to defend against predators. The absence of adequate perches for owls to watch for predators combined with the noted feral cat colony likely precludes any potential for this species to occur on the site. However, proposed vegetation management practices such as mowing and grazing by the landowner will increase the suitability of on-site grasslands to support burrowing owl in the future. Fencing on the eastern portion of the property will reduce access to urban wildlife in the more densely residential area to the east including feral or domestic cats and raccoons that prey on burrowing owl.

Golden Eagle (*Aquila chrysaetos*). CDFW Fully Protected Species, USFWS Bird of Conservation Concern. Golden eagle is found in open and semi-open areas from sea level to 3600 meters elevation, in habitats including tundra, shrubland, grassland, mixed woodland, and coniferous forest. Golden eagle is usually found in mountainous areas, but it also nests in wetland, riparian and estuarine habitats (Kochert et al., 2002). This large raptor typically nests in large isolated trees or cliffs. Golden eagle forages over large areas, feeding primarily on ground squirrels, rabbits, large birds, and carrion.

The Project Area contains annual grassland where this species may find a limited amount of suitable foraging habitat; however, nesting habitat is only low- to marginal-quality for golden eagle. The only trees large enough to support a nest are the eucalyptus on the western edge of the property. Golden Eagle is not documented within 5 miles of the Project Area.

The Project Area is located in a rural residential area that may not be as remote a location as this species prefers for nesting. Additionally, golden eagles often reuse the same nest year after year, and no nests were observed within the Project Area. Based on documented occurrences in the region and absence of known nests, there is only a moderate potential for this species to occur within the Project Area.

White-tailed Kite (*Elanus leucurus*). CDFW Fully Protected Species. Kites occur 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).

The open grassland community within the Project Area may provide foraging habitat for this species, and the trees onsite may provide nesting habitat. Therefore, there is a high potential for this species to occur within the Project Area.

Northern Harrier (*Circus cyaneus*). CDFW Species of Special Concern. Harriers are residents of open wetlands, including marshy meadows; wet, lightly grazed pastures; old fields;

freshwater and brackish marshes. They also frequent also dry uplands, including upland prairies, mesic grasslands, drained marshlands, croplands, cold desert shrub-steppe, and riparian woodland throughout California (MacWhirter and Bildstein 1996). Harriers typically nest on ground in open (treeless) habitats in dense, often tall, vegetation. They show an extremely varied choice of vegetative cover types, even within a single area. Soil types include drained and non-drained wetlands as well as uplands.

Nest sites are typically associated with wetlands, and there are no wetland areas in the immediate vicinity of the Project Area. However, harriers may find suitable foraging habitat within the Project Area. Therefore, there is a moderate potential for this species to occur within the Project Area.

Ferruginous Hawk (*Buteo regalis*). USFWS Bird of Conservation Concern. Ferruginous hawk breeds in the semiarid grasslands of the Great Plains. This species is a winter visitor to California and occupies open terrain including, grasslands, agricultural fields, and deserts. Grassland and arid areas of California, Arizona, and New Mexico are used heavily where prairie dogs, rabbits, or pocket gophers (*Thomomys* spp.) are abundant (Bechard and Schmutz 1995). The grassland community within the Project Area may provide potential foraging habitat for this species, though the species does not nest in California. Therefore, there is a moderate potential for this species to occur within the Project Area.

Nuttall's Woodpecker (*Picoides nuttalli*). USFWS Bird of Conservation Concern. This species is associated with intact oak and riparian woodlands, rarely in conifers, and is primarily a cavity nester. The Project Area contains a patch of native oak trees though few cavities were observed. Due to the lack of cavities and limited availability of suitable habitat, it is somewhat unlikely this species will nest in the Project Area, though it may occasionally forage through the area. Therefore, there is only a moderate potential for this species to occur within the Project Area.

Loggerhead Shrike (*Lanius ludovicianus*). CDFW Species of Special Concern, USFWS Bird of Conservation Concern. A common resident of lowlands and foothills throughout California, this species 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. This species is found most often in open-canopied valley foothill hardwood, conifer, pinyon-juniper, or desert riparian habitats. While this species eats mostly arthropods, it also takes amphibians, small reptiles, small mammals or birds, and is also known to scavenge on carrion. The Project Area does not contain forest or riparian habitats that typically provide nesting habitat for this species, though the open grassland and fence posts may provide foraging opportunities. Therefore, there is a moderate potential for this species to forage within the Project Area.

Grasshopper Sparrow (*Ammodramus savannarum*). CDFW Species of Special Concern. Grasshopper sparrow generally prefers moderately open grasslands and prairies with patchy bare ground. It selects different components of vegetation, depending on grassland ecosystem. This sparrow typically avoids grasslands with extensive shrub cover, although some level of shrub cover is important for birds in western regions (Vickery 1996). Grasshopper sparrows are ground-nesting birds. The nest cup is domed with overhanging grasses and a side entrance. Eggs are usually laid in early to mid-June and hatch 12 days later. Males and females provide care to the young and second broods are common. This species feeds primarily on insects (Vickery 1996). This species is a rare breeder in Sonoma County (Burridge 1995), and there are no documented nesting sites within five miles of the Project Area (CDFW 2013). There is a

limited potential for on-site nesting, and a moderate- to high-potential for this species to forage in the grassland community present. Therefore, there is a moderate potential for this species to occur within the Project Area.

4.4.3 Federal Listed Wildlife Species Unlikely to Occur

Federally listed species that are documented to occur within the vicinity of the Project Area, but are unlikely to occur in the Project Area include: California red-legged frog and California tiger salamander. These species are discussed below.

California Red-legged Frog (*Rana draytonii*). Federal Threatened Species, CDFW Species of Special Concern. California red-legged frog is dependent on suitable aquatic, aestivation, and upland habitats. During periods of wet weather, starting with the first rainfall in late fall, red-legged frogs disperse away from their aestivation sites to seek suitable breeding habitat. Aquatic breeding habitat is characterized by dense, shrubby, riparian vegetation and deep, still or slow-moving water. Breeding occurs between late November and late April. California red-legged frog aestivates (period of inactivity) during the dry months in small mammal burrows, moist leaf litter, incised stream channels, and large cracks in the bottom of dried ponds. The nearest documented occurrence of this species is located approximately 0.8 mile south/southwest of the site (CDFW 2013).

No aquatic habitat is present within or adjacent to the Project Area, and thus the site does not provide aquatic breeding or aquatic non-breeding habitat for this species. Due to the absence of aquatic habitat or moist riparian habitat adjacent or near to the Project Area (within 0.5 mile), this species is also unlikely to aestivate in the Project Area. Additionally, the Project Area does not lie on any logical dispersal corridor. Due to the lack of suitable habitat features and the location of the site, it is unlikely that this species would occur within the Project Area.

California Tiger Salamander (*Ambystoma californiense*). Federal Endangered Species, State Threatened Species. California tiger salamander is restricted to grasslands and low-elevation foothill regions in California (generally under 1500 feet) where it uses seasonal aquatic habitats for breeding. The salamanders breed in natural ephemeral pools, or ponds that mimic ephemeral pools (stock ponds that go dry), and occupy substantial areas surrounding the breeding pool as adults. California tiger salamander spends most of its time in the grasslands surrounding breeding pools, up to 2,200 feet from their breeding habitat (Trenham et al. 2001). They survive hot, dry summers by living underground in burrows (such as those created by ground squirrels and other mammals and deep cracks or holes in the ground) where the soil atmosphere remains near the water saturation point. During wet periods, the salamanders may emerge from refugia and feed in the surrounding grasslands.

The nearest occurrence of California tiger salamander (west of Highway 101) is more than six miles north of the Project Area (CDFW 2013). As stated above, there is no aquatic habitat present within or adjacent to the Project Area, so there is no potential for this species to breed or aestivate in or near the site. The presence of dense residential development to the east of the Project Area also means that the site is not located on any logical dispersal corridor between potential aquatic breeding sites. Due to the lack of suitable habitat features and the location of the site, it is unlikely that this species would occur within the Project Area.

4.4.4 Wildlife Movement Corridors

Wildlife corridors provide connectivity between habitat areas for common species, enhancing species richness and diversity. Where habitat areas are subject to pressures from

development, defined movement corridors and/or contiguous open space areas are of particular importance as they provide cover, water, and food between seasonal breeding and foraging areas.

Non-native annual grassland habitat in the northwestern quarter of the Project Area appears to be part of a corridor connecting open space habitat to the west and southwest to the Paula Lane Open Space Preserve located north of the Project Area (Figure 4). Historically, the entire western portion of the property likely provided a corridor between the Preserve and open space located south of Bodega Road. However, off-site barriers to dispersal to the immediate south including fencing that abuts pavement (preventing burrowing underneath), and without openings large enough to allow passage, as well as commercial development along Bodega Road and bright night lighting to the immediate south likely preclude such a route other than occasional movements in this direction. Evidence of movement including scat was observed in the northwestern corner; though the lack of evidence including digs, on the southern portion of the Project Area suggest movement in this direction is limited. Common native species likely to use this area include: American badger (*Taxidea taxus*), coyote (*Canis latrans*), black-tailed jackrabbit (*Lepus californicus*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), mule deer (*Odocoileus hemionus*), and striped skunk (*Mephitis mephitis*), though these species may occasionally occur in this area while foraging also.

To the east, the grassland is ruderal and maintained, some of the area is landscaped, and there are barns, a house, and a driveway which leads to residential development along the paved Paula Lane. Beyond Paula Lane to the east and south, rural residential development becomes increasingly dense and urban, and large open tracts of land are absent. Dense development to the east likely precludes wildlife corridors in this direction. Annual grassland habitat and the row of eucalyptus in the northwestern corner of the Project Area likely provides connectivity between open space to the north and a more usable corridor to the west (to connect with open space to the south, free of barriers) for both common and/or special-status mammalian species described above, as well as avian species such as red-shouldered hawk (*Buteo lineatus*), American crow (*Corvus brachyrhynchos*), western scrub jay (*Aphelocoma californica*), and western meadowlark (*Sturnella neglecta*); and reptiles such as western fence lizard (*Sceloporus occidentalis*), California kingsnake (*Lampropeltis getula*), and Pacific gopher snake (*Pituophis catenifer*). Red-shouldered hawk was observed nesting in an tall eucalyptus tree in the northwestern corner in both 2013 and 2014. This area likely provides the needed cover and food for species moving through this area a viable wildlife corridor. Common wildlife species may occasionally forage elsewhere in the Project Area, though cover and connectivity are largely absent. Figure 4 depicts the predicted corridor movement pattern on the northwestern portion of the property based on existing conditions.

5.0 POTENTIAL IMPACTS AND MITIGATION

The project will completely avoid direct impacts to potential jurisdictional wetlands and waters of the U.S. and State, and sensitive riparian habitats that occur in the vicinity of the Project Area; no sensitive habitats are present in the Project Area. Furthermore, no special status plants are present based on the results of protocol-level surveys. Mitigation measures for special status species including American badger were developed through consultation with the CDFW including a site visit attended by WRA and Adam McKannay, CDFW on May 21, 2014.

5.1 Description of the Proposed Project

The Project includes a proposed minor subdivision to add two 2-acre lots plus one designated remainder lot that support current zoned land uses; the area is currently zoned for rural residential and agricultural uses. The two new lots include two building envelopes and new well and septic systems. At the time of the initial site visit in March 2013, there were five structures on the southeastern half of the Project Area include three open-sided, wooden horse sheds with metal roofs in the northeastern quarter of the Project Area that have since been removed. Also present on the proposed remainder lot is a single one-story house with attic and an approximately 125-foot long barn. Since the initial site visit, six shade structures and fencing have been added to the remainder lot plus some minor grading has occurred to include: the addition of a round pen, a BMX bike track, a small parking area, and a partially constructed horse riding arena. Some landscaping occurred including the apparent removal one or more trees located adjacent to the house structure; these trees had been removed prior to the March 2013 site visit. A review of historic aerial photographs suggests that no other trees on the property have been removed.

5.2 Potentially Significant Impacts

Potentially significant impacts include those that would result in “take” of special status species or impede/disrupt dispersal patterns. Take is defined as kill, harass, or otherwise harm a species of special concern. Removal of suitable habitat for non-listed species is not considered significant unless it disrupts movement patterns of the species such that take may occur as a result such as removal of habitat during the breeding season.

Most of the Project Area is comprised of non-native grassland, naturalized eucalyptus groves, and ruderal/ developed communities, none of which are considered sensitive plant communities. Significant impacts such as increase in transportation corridor size and conversion of habitat from rural low density development to high density development will not occur as a result of the proposed project.

5.2.1 Special-Status Wildlife Species

American Badger

Potentially significant impacts to American badger include those that could result in direct mortality, harm, or harassment to badgers on or adjacent to the Project Area, disrupt breeding or dispersal, or increase existing threats to the species such as an increase in transportation corridor size, change in land use from rural low density development to urban high density development, and loss of access to foraging habitats.

Based on the habitat assessment, the Project Area likely represents the southeastern extent of a single territory for one badger pair. Therefore, development of the property would not result in any loss of foraging habitat other than the very small (less than one percent) of the total available foraging habitat within a typical territory. Construction and/or grading could result in “take” and disrupt breeding badgers on or adjacent to the Project Area. Bright night lighting may also disrupt breeding on or adjacent to the Project Area. However, topography and existing vegetation will prevent lighting impacts from occurring to the neighboring preserve from the eastern and southern portion of the Project Area. Only a small portion of the overall Project Area (the northwestern corner) is visible from the adjacent Open Space Preserve and it is only visible from the ridgeline (southern extent of the preserve property).

Barriers to the south and east indicate the majority of the site is not part of any viable dispersal corridor. However, a viable dispersal corridor is present in the northwestern corner of the Project Area. Impenetrable fences, large structures, and indirect lighting may impact badgers as well as other common native species utilizing this movement area and are thus potentially significant. Compatible land uses, such as livestock grazing, may be located within badger habitat without impacting this species; such uses will help to maintain grass height which will likely improve prey availability for badger as well as migratory raptor species.

In April 2013, approximately three to four weeks following the initial site assessment the Applicant conducted some minor grading in the proposed remainder lot including partial construction of a riding arena, a round pen, a BMX bike path, and a small parking area. No active badger burrows were observed within 100 feet of the area where grading occurred; it is presumed the nearest burrow showing signs of recent use, was close to 250 feet from where the activity occurred. No evidence of nesting grassland bird species was observed at the time of the assessment. A single nesting raptor, red-shouldered hawk (*Buteo lineatus*) was observed nesting in a eucalyptus near to the northern boundary of the Project Area at the time of the March 2013 site visit. The bird was observed on the nest after April 15, 2013 following the grading activities indicating no disturbance occurred. It is unlikely any other raptors nested in the vicinity of the given the presence of this species.

Western Burrowing Owl

If burrowing owls nest within 500 meters of the Project Area, the loss of the nesting and foraging habitat can result in significant impacts. Potentially significant impacts resulting from construction activities occurring in close proximity to burrowing owl nest sites may result in nest abandonment and loss of foraging habitat (affecting nesting success), and direct mortality.

Breeding Birds (Including special status species: golden eagle, white-tailed kite, Nuttall's woodpecker, loggerhead shrike, grasshopper sparrow)

If special status and/or birds protected under the MBTA are found to nest on the Project Area, activities including construction and/or grading have the potential to disrupt nesting resulting in abandonment or mortality to eggs or chicks, which is considered significant under CEQA.

Other special status birds with potential to forage in the Project Area but not nest including ferruginous hawk, and northern harrier are not likely to be significantly impacted due to the availability of larger tracts of highly suitable and more abundant contiguous foraging areas to the north and west.

5.3 Mitigation Measures

5.3.1 *Special-Status Wildlife Species*





American Badger

The Project has been modified to include building envelopes which will be placed outside the designated badger habitat area, which comprises of the portion of the Project Area in which, suitable burrowing habitat was found (Figure 5). Only compatible uses such as but not limited to: horse and livestock grazing; agricultural uses; recreational related uses (that do not include grading); rural/permit exempt structures (e.g. small shed, gazebo, livestock rain shelter) with dirt or raised flooring; vegetation management (control of invasive species and fire management); or similar uses shall be allowed in this area. Disking of the badger habitat area should be avoided.

To mitigate for Project impacts to American badger, prior to any new construction or grading activities in the potential badger habitat area, the following measures will be implemented:

- 1) No grading, spoil sites or construction staging will occur within the designated badger habitat area. Excavation and haul equipment shall be confined to the designated access routes, designated staging areas, and designated excavation areas. The badger habitat area should be appropriately flagged and identified during construction to avoid accidental incursions by heavy equipment that could result in excessive soil compaction that may impact potential burrow sites.
- 2) A qualified biologist shall hold a training session for staff responsible for performing ground disturbing construction activities (e.g. activities involving heavy equipment used in excavation of foundations or other site grading). Staff will be trained to recognize American badgers and their habitats. Staff will also be trained to use protective measures to ensure that American badgers are not adversely impacted by ground disturbing construction activities. At least one staff person with up-to-date training in American badger protective measures shall be present at the site during all ground disturbing activities.
- 3) Pass-thru fencing shall be installed around the badger habitat area where it borders the Open Space Preserve to the north and the adjacent property to the west. A pass-through fence having at minimum a 12-inch opening from the ground to the bottom of the fence is recommended to allow badgers to move through the property; the 12-inch opening is based on the upper range of badger burrow entrance heights (Reid 2006). A no-climb fence may be used, provided the 12-inch opening at the bottom is maintained. The bottom wire or, if a no-climb fence, the bottom of the fence should be free from barbs to avoid entanglement. No screening, slats or weatherproofing material on the pass-through fence shall be installed in order to avoid the appearance of a visual barrier.
- 4) Prior to any grading or construction adjacent to the badger habitat area in designated building envelopes and/or septic areas, a pre-construction survey shall be performed by a qualified biologist to map the location of any potential dens. If potential dens are observed, a minimum 300-foot no disturbance setback/buffer will be established around the potential den during the breeding/pupping/rearing season (December 1 to May 31). During the non-breeding season (June 1 to November 31), a minimum 100-foot setback/buffer will be established.



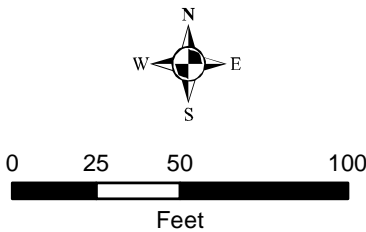
-  Study Area (6 acres)
-  Badger Habitat Area
-  Area Proposed for Minor Subdivision
-  Remainder Lot (Developed)



Petaluma,
Sonoma County,
California

Figure 5.
Badger Habitat
Area

Note: Areas depicted are
approximate and not to scale
Refer to Tentative Map
for actual configuration.



Map Date: March 2013
Map By: Michael Rochelle
Base Source: Sonoma County 2011 Aerial

a. If planned construction activities are to occur within the 100-foot setback, a qualified biologist will perform track plate and/or push camera surveys to determine occupancy in consultation with CDFW. If occupied, the biologist will install one-way doors to exclude badgers temporarily until work is completed. No work will occur within the setback until it is confirmed in consultation with CDFW that the den is no longer occupied.

5) Downcast lighting (or landscape lighting) is recommended for outdoor placement on any structures that may result in indirect lighting impacts to badgers that may be located in the badger habitat area. Ambient lighting from these structures is not expected to negatively affect any badgers present in the habitat area based on the presence of existing ambient lighting surrounding both the habitat area and adjacent Open Space Preserve in the form of streetlamps and existing residential and commercial structures. It is expected that existing topography will prevent lighting impacts from affecting wildlife use in the Open Space Preserve to the north.

6) Fire protection activities, including mowing, should be limited to those deemed necessary by local fire authorities and ordinances, and should be implemented in such a way that minimizes impacts to American badger to the extent feasible. It is understood that fire danger varies by season and that the extent of fire management activities will vary year by year.

Western Burrowing Owl

Mitigation measures proposed to avoid impacts to American badger will also be effective at avoiding impacts to burrowing owl. Several additional measures are prescribed to mitigate for potential impacts to burrowing owl if found present (BUOW) in compliance with the *Staff Report on Burrowing Owl Mitigation dated March 7, 2012* (CDFG 2012).

1) Prior to initiation of Project activities, a pre-construction burrowing owl survey should be performed by a qualified biologist in suitable habitats (namely the badger habitat area) to determine if present.

2) If the survey finds burrowing owl within 200 meters of the Project Area during the breeding season (April 1 to October 15), the biologist will establish a no-disturbance buffer of no less than 200 meters around the active nest burrow. Any modification or reduction to these buffers will only be done on a case by case basis with written concurrence from CDFW and will include monitoring by the qualified biologist to ensure buffers are adequate to avoid any disturbance to nesting activity. If disturbance is observed, the buffer will be increased. Additional measures to further reduce or avoid disturbances such as temporary screens may be employed with written concurrence and approval of such methods by CDFW.

3) The burrowing owl shall be monitored by a qualified biologist, and the exclusion zone will be removed once it is determined by the biologist that the young have fledged from the nest and with written concurrence from CDFW.

4) If BUOWs are detected during the non-breeding season prior to construction activities, a buffer of 50 meters is recommended.

5) The following BMPs shall be implemented during the Proposed Project activities:

- No pesticides or rodenticides shall be employed or used.
- Construction will be limited to daylight hours only and artificial nighttime lighting on the Project site will be shielded, directed downward and minimized at night.
- Environmental training will be provided to all persons working on the Project site prior to the initiation of Project-related activities and training materials and briefings will include all biological resources that may be found on or in the vicinity of the Project site, the laws and regulations that protect those resources, the consequences of non-compliance with those laws and regulations and a contact person in the event that protected biological resources are discovered on the Project site.

Breeding Birds

Golden eagle, white-tailed kite, Nuttall's woodpecker, loggerhead shrike, and grasshopper sparrow are special-status bird species with potential to occur and nest in the Project Area or immediate surrounds. Although many of the mature trees will be retained Project activities have the potential to result in indirect nest abandonment, which would be considered take under the MBTA. WRA recommends the following measures be implemented to avoid take of special-status birds and breeding birds protected by the MBTA and California Fish and Game Code.

Breeding Season: February 1 through August 31

If ground disturbance or removal of vegetation occurs between February 1 and June 30, pre-construction surveys should be performed by a qualified biologist no more than 14 days prior to commencement of such activities to determine the presence and location of nesting bird species. If ground disturbance or removal of vegetation occurs between July 1 and August 31, pre-construction surveys should be performed within 30 days prior to such activities. If active nests are present, establishment of temporary protective breeding season buffers will avoid direct mortality of these birds, nests or young. The appropriate buffer distance is dependent on the species, surrounding vegetation, and topography and should be determined by a qualified biologist as appropriate to prevent nest abandonment and direct mortality during construction.

Non-breeding Season: September 1 through January 31

Ground disturbance and removal of vegetation within the Study Area does not require pre-construction surveys if performed between September 1 and January 31.

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Appendix A

Plant and Animal Species Observed in the Project Area

Appendix A. Plant species observed by WRA biologists during the March 8, 2013 site visit.

FAMILY	SCIENTIFIC NAME*	COMMON NAME	FORM	ORIGIN	RARITY STATUS ¹	INVASIVE STATUS ²	WETLAND STATUS ³
Fabaceae	<i>Acacia decurrens</i>	wattle	evergreen tree	non-native	--	--	NL
Sapindaceae	<i>Aesculus californica</i>	California buckeye	deciduous tree	native	--	--	NL
Liliaceae	<i>Agapanthus praecox</i>	Lily-of-the-Nile Agapanthus praecox	perennial forb	non-native Agapanthus praecox	--	--	NL Lily-of-the-Nile
Poaceae	<i>Avena barbata</i>	slender oat	annual graminoid	non-native	--	moderate	NL
Poaceae	<i>Avena fatua</i>	wild oat	annual graminoid	non-native	--	moderate	NL
Poaceae	<i>Bromus diandrus</i>	ripgut brome	annual graminoid	non-native	--	moderate	NL
Poaceae	<i>Bromus hordeaceus</i>	soft chess	annual graminoid	non-native	--	limited	FACU
Brassicaceae	<i>Capsella bursa-pastoris</i>	shepherd's purse	annual forb	non-native	--	--	FACU
Brassicaceae	<i>Brassica nigra</i>	black mustard	annual forb	non-native	--	--	NL
Montiaceae	<i>Claytonia parviflora</i> ssp. <i>parviflora</i>	streambank springbeauty	annual forb	native	--	--	FACU
Rosaceae	<i>Cotoneaster franchetii</i>	orange cotoneaster	evergreen shrub	non-native	--	moderate	NL
Geraniaceae	<i>Erodium moschatum</i>	musky stork's bill	annual forb	non-native	--	assessed	NL
Myrtaceae	<i>Eucalyptus globulus</i>	blue gum	evergreen tree	non-native	--	moderate	NL
Poaceae	<i>Festuca bromoides</i>	brome fescue	perennial graminoid	non-native	--	--	FAC
Poaceae	<i>Festuca perennis</i>	Italian rye grass	annual graminoid	non-native	--	moderate	FAC
Geraniaceae	<i>Geranium dissectum</i>	cutleaf geranium	annual forb	non-native	--	moderate	NL
Cupressaceae	<i>Hesperocyparis macrocarpa</i>	Monterey cypress	evergreen tree	native	List 1B.2	--	NL
Poaceae	<i>Hordeum murinum</i> ssp. <i>glaucum</i>	blue foxtail	annual graminoid	non-native	--	moderate	FAC
Fabaceae	<i>Lupinus nanus</i>	sky lupine	annual forb	native	--	--	NL
Malvaceae	<i>Malva neglecta</i>	common mallow	perennial forb	non-native	--	--	
Fabaceae	<i>Medicago polymorpha</i>	bur medic	annual forb	non-native	--	limited	FACU
Poaceae	<i>Poa annua</i>	annual bluegrass	annual graminoid	non-native	--	--	FACU
Fagaceae	<i>Quercus agrifolia</i> var. <i>agrifolia</i>	coast live oak	evergreen tree	native	--	--	NL

FAMILY	SCIENTIFIC NAME*	COMMON NAME	FORM	ORIGIN	RARITY STATUS ¹	INVASIVE STATUS ²	WETLAND STATUS ³
Fagaceae	<i>Quercus kelloggii</i>	California black oak	deciduous tree	native	--	--	NL
Fagaceae	<i>Quercus lobata</i>	valley oak	deciduous tree	native	--	--	FACU
Brassicaceae	<i>Raphanus sativus</i>	wild radish	perennial forb	non-native	--	limited	NL
Polygonaceae	<i>Rumex acetosella</i>	common sheep sorrel	perennial forb	non-native	--	moderate	FACU
Polygonaceae	<i>Rumex crispus</i>	curly dock	perennial forb	non-native	--	limited	FAC
Asteraceae	<i>Senecio vulgaris</i>	old man in the Spring	annual forb	non-native	--	--	FACU
Asteraceae	<i>Silybum marianum</i>	milk thistle	perennial forb	non-native	--	limited	NL
Caryophyllaceae	<i>Stellaria media</i>	common chickweed	annual forb	non-native	--	--	FACU
Poaceae	<i>Triticum aestivum</i>	bread wheat	annual graminoid	non-native	--	--	
Urticaceae	<i>Urtica urens</i>	dwarf nettle	annual forb	non-native	--	--	
Fabaceae	<i>Vicia sp</i>		annual forb				

* Plants were primarily identified using *The Jepson Manual II* (online version, Regents of the University of California 2010), to the taxonomic level necessary to determine rarity.

¹ Rarity status:

Rank 1B CNPS Rank 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere.

² Invasive status from California Invasive Plant Council (Cal-IPC) Online Plant Inventory Database (<http://www.cal-ipc.org/ip/inventory/weedlist.php>):

High – Species that have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

Moderate – Species that have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

Limited – Species that are invasive but ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

Assessed – Species listed in the Cal-IPC inventory as evaluated but not listed as invasive, either due to minimal observed impacts or lack of sufficient data.

³ Wetland status (Lichvar 2012)

Appendix A-2. Wildlife species observed during the WRA March 8, 2013 site assessment and subsequent incidental visits.

Common Name	Scientific Name	Status	Comments
American badger	<i>Taxidea taxus</i>	SSC	Badger digs evidenced by claw marks on the side of burrow
Common vole	<i>Microtus arvalis</i>	None	Throughout property; concentrated in northern half
Domestic cat	<i>Felis catus</i>	None	Several observed on property and adjacent to property on the Open Space Preserve
Red fox	<i>Vulpes vulpes</i>	Non-native	Scat/droppings observed
Mule deer	<i>Odocoileus hemionus</i>	None	Observed foraging on northern portion of property in west to east direction.
Wild turkey	<i>Meleagris gallopavo</i>	MBTA	Observed foraging on property in west to east direction
Red-shouldered hawk	<i>Buteo lineatus</i>	MBTA	Observed nesting on northwestern corner of property
Common raven	<i>Corvus corax</i>	MBTA	Observed flock in trees adjacent to property
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	MBTA	Observed nesting adjacent to property on Open Space Preserve (on ridgeline)
House sparrow	<i>Passer domesticus</i>	Non-native	Observed foraging on southern portion of property
Turkey vulture	<i>Cathartes aura</i>	MBTA	Observed foraging over property
Oak titmouse	<i>Baeolophus inornatus</i>	MBTA	Observed foraging on southern portion of property

Appendix B

Potential for Special-status Species to Occur within the Project Area

Appendix B. Potential for Special Status Plant and Wildlife Species to Occur in the Project Area. List compiled from the U.S. Fish and Wildlife Service (USFWS) Species Lists (2013), the California Department of Fish and Wildlife (CDFW) Natural Diversity Database (2013) and California Native Plant Society (CNPS) Electronic Inventory (2013) searches of the Cotati, Glen Ellen, Inverness, Novato, Petaluma, Petaluma River, Point Reyes NE, San Geronimo, and Two Rock USGS 7.5' quadrangles and a review of other CDFG lists and publications (Jennings and Hayes 1994, Zeiner *et al.* 1990, Burridge 1995, Shuford and Gardali 2008). Wildlife species associated with marine habitats were not included in this table.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
Mammals				
pallid bat <i>Antrozous pallidus</i>	SSC, WBWG High	Found in deserts, grasslands, shrublands, woodlands, and forests. Roost sites include old ranch buildings, rocky outcrops and caves within sandstone outcroppings. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Unlikely. A barn is present in the central Project Area, but the corrugated iron roof is highly unlikely to provide suitable thermal requirements to support roosting habitat for this species. The nearest documented occurrence is approximately 2 miles to the east (CDFW 2013).	No further actions are recommended.
silver-haired bat <i>Lasionycteris noctivagans</i>	WBWG Medium	Summer habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. This species is primarily a forest dweller, feeding over streams, ponds, and open brushy areas. It roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	Unlikely. The Project Area does not support any coniferous forest and is not considered optimal habitat for this species. Silver-haired bats may occasionally forage in or migrate through the site. The nearest documented occurrence is approximately 15 miles southwest of the Project Area from 1951; the only other occurrence listed in this 9-quad search was documented in 1904 (CDFW 2013).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
hoary bat <i>Lasiurus cinereus</i>	WBWG Medium	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires standing water to drink.	Unlikely. This species is highly associated with forested habitats in the west, and no such habitat is present within or adjacent to the Project Area. The nearest documented occurrence is approximately 12 miles southwest of the Project Area, and the most recent was from 1954 (CDFW 2013).	No further actions are recommended.
western red bat <i>Lasiurus blossevillii</i>	SSC, WBWG High	Typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields. There may be an association with intact riparian habitat.	Unlikely. Typical willow-cottonwood-alder riparian roosting habitat is not present within the Project Area, although suitable foraging habitat is present. The nearest documented occurrence is approximately 15 miles southwest of the Project Area (CDFW 2013).	No further actions are recommended.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	SC, SSC, WBWG High	This species is associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging occurs in open forest habitats where they glean moths from vegetation.	Unlikely. There are no buildings, caves or mines that provide roosting sites for this species, although they may forage on-site. The nearest documented occurrence is approximately 8 miles to the southeast (CDFW 2013).	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
American badger <i>Taxidea taxus</i>	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	Present. This species has been documented to occur within the Project Area as recently as 2009 (CDFW 2013). Burrows that showed signs of badger use were observed throughout the western portion of the Project Area. This species has a large home range and may only use the site occasionally when dispersing through the area.	Mitigation measures for American badger are detailed in Section 5.3.
Point Reyes mountain beaver <i>Aplodontia rufa phaea</i>	SSC	The Point Reyes mountain beaver is only known to occur in western Marin County, almost entirely within Point Reyes National Seashore. It occurs on cool, moist, north-facing slopes in moderately dense coastal scrub. Burrows are typically constructed in dense thickets or in forest openings and feed on coyote brush, sword fern, cow parsnip, black berries, poison oak, California nettle, and thistle.	No Potential. The Project Area is outside the known range of this subspecies and suitable habitat is not present.	No further actions are recommended.
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	SSC	Forest habitats of moderate canopy and moderate to dense understory. Also in chaparral habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	Unlikely. No woodrat nests were present within the Project Area during the site visit, and vegetation communities typical of this species are lacking.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
salt marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE, SE, CFP	Found only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat. Do not burrow, build loosely organized nests. Require higher areas for flood escape.	No Potential. No pickleweed or saltmarsh habitat found within Project Area.	No further actions are recommended.
Birds				
golden eagle <i>Aquila chrysaetos</i>	BCC, CFP	Rolling foothills, mountain areas, sage-juniper flats, desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Moderate Potential. The Project Area may provide a small amount of marginal foraging habitat for this species. No nests were observed during the site visit, but this species may find suitable nest trees in the eucalyptus along the east side of the site.	Perform preconstruction surveys for eagle nests. If an active or inactive nest is found, consultation with CDFW on work-windows and or exclusion buffers.
white-tailed kite <i>Elanus leucurus</i>	CFP	Year-long resident of coastal and valley lowlands; frequently found around grasslands and agricultural areas. Specific plant associations appear unimportant for nesting and roosting, but vegetation structure and prey abundance are considered important. Preys on small diurnal mammals and occasional birds, insects, reptiles, and amphibians.	High Potential. Suitable foraging and marginal nesting habitat is present within the Project Area.	Perform ground disturbance and vegetation removal outside of the breeding bird season (Sep 1 – Jan 31). If project activities occur within the breeding bird season (Feb 1 – Aug 31), perform preconstruction breeding bird survey within 14 days start of work. Any active nests will be protected by work windows or exclusion buffers.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
bald eagle <i>Haliaeetus leucocephalus</i>	SE, CFP, BCC	Frequents ocean shores, lake margins, and rivers for both nesting and wintering. Requires large bodies of water, or free-flowing rivers with abundant fish and adjacent snags or other perches. Most nests are located within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branchwork. Shows a preference for ponderosa pine. Roosts communally in winter.	Unlikely. The Project Area is outside of the known breeding range. Bald eagles may roost here in the winter.	No further actions are recommended.
northern harrier <i>Circus cyaneus</i>	SSC	Nests and forages in grassland habitats, usually in association with coastal salt and freshwater marshes. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas. Breeds April to September.	Moderate Potential. Suitable foraging habitat is present within the Project Area, although the site is not associated with marshes and thus is unlikely to provide suitable nesting habitat.	Although this species may occasionally forage over the Project Area, nesting habitat is not present, therefore no further actions are recommended.
ferruginous hawk <i>Buteo regalis</i>	BCC	Frequents open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys and fringes of pinyon-juniper habitats. Preys on lagomorphs, ground squirrels and mice. Population trends may follow lagomorph population cycles.	Moderate Potential. The Project Area may provide potential wintering habitat. However, this species does not nest in California.	Although this species may occasionally forage over the Project Area, nesting habitat is not present, therefore no further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
American peregrine falcon <i>Falco peregrinus anatum</i>	BCC, CFP	Prefers dry, open terrain, either level or hilly. Forages far afield, even to marshlands and ocean shores. Nests near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape on a depression or ledge in an open site.	Unlikely. No suitable cliff or ledge sites are present for nesting, however this species may occasionally forage through the Project Area.	No further actions are recommended.
western snowy plover <i>Charadrius alexandrinus nivosus</i>	FT, SSC, BCC	Found on sandy beaches, salt pond levees and shores of large alkali lakes. Requires sandy, gravelly or friable soils for nesting. The federal listing applies only to the Pacific coastal population.	No Potential. No suitable nesting or foraging habitat present within the Proposed Bank.	No further actions are recommended.
California clapper rail <i>Rallus longirostris obsoletus</i>	FE, SE, CFP	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	No Potential. No suitable nesting or foraging habitat present within the Proposed Bank.	No further actions are recommended.
California black rail <i>Laterallus jamaicensis coturniculus</i>	ST, BCC, CFP	Mainly inhabits salt marshes bordering larger bays. Occurs in tidal salt marsh heavily grown to pickleweed; also in fresh-water and brackish marshes, all at low elevation.	No Potential. No suitable nesting or foraging habitat present within the Proposed Bank.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FC, SE, BCC	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	No Potential. The Project Area does not contain any riparian habitat necessary to support this species.	No further actions are recommended.
burrowing owl <i>Athene cunicularia</i>	BCC, SSC	Found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Unlikely. Marginal wintering habitat is present in the Project Area. Large burrows are present within the western portion of the Project Area, though they are almost all located within a community of tall grasses, which is not favored by this species. No own sign was observed during the site visit, and this species is not known to breed in the area (Burridge 1995).	Perform a habitat assessment. If suitable habitat is present, perform protocol-level surveys. If burrowing owls are found, mitigate per Section 5.3.
northern spotted owl <i>Strix occidentalis caurina</i>	FT, SSC	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. Prefers high, multistory canopy dominated by big trees, trees with cavities or broken tops, woody debris and space under canopy.	Not Present. No old-growth fir or redwood forest is present in the vicinity of the Project Area.	No further actions are recommended.
long-eared owl <i>Asio otus</i>	SSC	Inhabits riparian bottom lands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	Unlikely. No riparian habitat or oaks adjacent to a watercourse for nesting are present within the Project Area.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
short-eared owl <i>Asio flammeus</i>	SSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	No Potential. No suitable habitat present within the Project Area for this species.	No further actions are recommended.
Vaux's swift <i>Chaetura vauxi</i>	SSC	Found in redwood, Douglas fir, and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.	Unlikely. The Project Area lacks suitable coniferous forest with such cavities for this species to nest. This species may pass through the site during migration periods.	No further actions are recommended.
black swift <i>Cypseloides niger</i>	BCC, SSC	Generally found in the coastal belt of Santa Cruz and Monterey County; central and southern Sierra Nevada; San Bernardino and San Jacinto Mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above surf; forages widely.	Unlikely. No waterfalls, cliffs or bluffs are present within the Project Area. Species may rarely occur over the site during migration periods.	No further actions are recommended.
rufous hummingbird <i>Selasphorus rufus</i>	BCC	Breeds in transition life zone of northwest coastal area from Oregon border to southern Sonoma County. Nests in berry tangles, shrubs, and conifers. Favors habitats rich in nectar-producing flowers.	Unlikely. The Project Area is located farther south than this species' documented breeding range. Rufous hummingbird may occasionally migrate through the site.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
Nuttall's woodpecker <i>Picoides nuttallii</i>	BCC	Resident in lowland woodlands throughout much of California west of the Sierra Nevada. Typical habitat is dominated by oaks.	Moderate Potential. This species is relatively common in oak woodlands in the area, however the row of oaks along the eastern edge of the site may provide only low- to marginal-quality roosting and nesting habitat for this species.	Perform ground disturbance and vegetation removal outside of the breeding bird season (Sep 1 – Jan 31). If project activities occur within the breeding bird season (Feb 1 – Aug 31), perform preconstruction breeding bird survey within 14 days start of work. Any active nests will be protected by work windows or exclusion buffers.
Lewis's woodpecker <i>Melanerpes lewis</i>	BCC	Uncommon winter resident occurring in open oak savannahs, broken deciduous and coniferous habitats.	Unlikely. The Project Area is not within this species breeding range, and the row of oaks along the eastern edge of the site may provide only low- to marginal-quality foraging habitat for wintering Lewis's woodpeckers.	No further actions are recommended.
little willow flycatcher <i>Empidonax traillii brewsteri</i>	SE, BCC	Most numerous where extensive thickets of low, dense willows edge on wet meadows, ponds, or backwaters. Winter migrant.	Unlikely. The Project Area does not provide willow-riparian for nesting. This species may occasionally move through the Project Area.	No further actions are recommended.
purple martin <i>Progne subis</i>	SSC	Inhabits woodlands and low elevation coniferous forests. Nests in old woodpecker cavities and human-made structures. Nests are often built in a tall, isolated tree or snag.	Unlikely. The Project Area does not contain the coastal redwood habitats that this species prefers.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
bank swallow <i>Riparia riparia</i>	ST	Migrant in riparian and other lowland habitats in western California. Colonial nester in riparian areas with vertical cliffs and banks with fine-textured or fine-textured sandy soils near streams, rivers, lakes or the ocean.	No Potential. No suitable breeding habitat is present in the area and the Project Area is outside of this species' documented range.	No further actions are recommended.
olive-sided flycatcher <i>Contopus cooperi</i>	BCC, SSC	Nesting habitats are mixed conifer, montane hardwood-conifer, douglas-fir, redwood, red fir and lodgepole pine. Most numerous in montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain.	Unlikely. The Project Area lacks suitable coniferous forest. This species may pass through the site during migration periods.	No further actions are recommended.
loggerhead shrike <i>Lanius ludovicianus</i>	BCC, SSC	Generally nests in broken woodlands, savannah, pinyon-juniper, Joshua tree and riparian woodlands, desert oases, scrub, and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting. Found throughout much of the state.	Moderate Potential. Suitable foraging habitat exists within the open grassland habitats, though no suitable nesting habitat is present. This species may occasionally move or forage through the Project Area.	Perform ground disturbance and vegetation removal outside of the breeding bird season (Sep 1 – Jan 31). If project activities occur within the breeding bird season (Feb 1 – Aug 31), perform preconstruction breeding bird survey within 14 days start of work. Any active nests will be protected by work windows or exclusion buffers.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
yellow warbler <i>Dendroica petechia brewsteri</i>	BCC, SCC	Frequents riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores and alders for nesting and foraging. Also nests in montane shrubbery in open conifer forests.	Unlikely. The Project Area does not support riparian or montane habitat. This species may occasionally move through the Project Area, however no suitable breeding habitat is present.	No further actions are recommended.
San Francisco [salt marsh] common yellowthroat <i>Geothlypis trichas sinuosa</i>	BCC, SCC	Resident of the San Francisco Bay region, in fresh and saltwater marshes with riparian forest. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Unlikely. The Project Area does not support freshwater marsh or riparian forest habitat for this species. Common yellowthroats may be detected during dispersal or migration periods, however no suitable breeding habitat is present.	No further actions are recommended.
San Pablo song sparrow <i>Melospiza melodia samuelis</i>	BCC, SSC	Resident of salt marshes along the north side of San Francisco and San Pablo Bays. Inhabits tidal sloughs in the pickleweed marshes; nests in gum plant bordering slough channels.	Unlikely. The Project Area is outside the known range for this species, and no salt marsh is present within or adjacent to the Project Area.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
grasshopper sparrow <i>Ammodramus savannarum</i>	SSC	Found in dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs, and scattered shrubs. Loosely colonial when nesting.	Moderate Potential. Grasslands within the Project Area may provide suitable nesting habitat for this species. No nesting occurrences are known from within 5.0 miles of the Project Area (CDFW 2013, Burridge 1995).	Perform ground disturbance and vegetation removal outside of the breeding bird season (Sep 1 – Jan 31). If project activities occur within the breeding bird season (Feb 1 – Aug 31), perform preconstruction breeding bird survey within 14 days start of work. Any active nests will be protected by work windows or exclusion buffers.
tricolored blackbird <i>Agelaius tricolor</i>	BCC, SSC, RP	A highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Unlikely. The Project Area does not support aquatic emergent vegetation that this species needs to breed. This species may occasionally pass through the Project Area.	No further actions are recommended.
Reptiles and Amphibians				
California red-legged frog <i>Rana aurora draytonii</i>	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to aestivation habitat.	Unlikely. The closest aquatic habitat is approximately 0.25 mile to the southwest in a fluvial channel. The nearest CNDDDB occurrence is approximately 1.1 miles to the northwest (CDFW 2013). No aquatic habitat is present within or adjacent to the Project Area, and the Project Area does not lie on any logical dispersal corridor.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
California tiger salamander <i>Ambystoma californiense</i>	FE, ST	Populations in Santa Barbara and Sonoma counties currently listed as endangered. Inhabits grassland, oak woodland, ruderal and seasonal pool habitats. Seasonal ponds and vernal pools are crucial to breeding. Adults utilize mammal burrows as aestivation habitat.	Unlikely. The closest aquatic habitat is approximately 0.25 mile to the southwest in a fluvial channel. The nearest CNDDDB occurrence is approximately 4.5 miles to the northwest (CDFW 2013). No aquatic habitat is present within or adjacent to the Project Area, and the Project Area is beyond the known dispersal distance for this species.	No further actions are recommended.
Pacific pond turtle <i>Actinemys marmorata</i>	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat for egg-laying.	Unlikely. The closest aquatic habitat is approximately 0.25 mile to the southwest in a fluvial channel. The nearest CNDDDB occurrence is approximately 1.1 miles to the northwest (CDFW 2013). No aquatic habitat is present within or adjacent to the Project Area, and the Project Area does not lie on any logical dispersal corridor. No aquatic habitat is present within or adjacent to the Project Area, and the Project Area does not lie on any logical dispersal corridor.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
foothill yellow-legged frog <i>Rana boylei</i>	SSC	Found in or near rocky streams in a variety of habitats. Prefers partly-shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	No Potential. No aquatic habitat is present within or adjacent to the Project Area, and the Project Area does not lie on any logical dispersal corridor. Typical stream habitat with cobble substrate is not present within the vicinity of the Project Area.	No further actions are recommended.
Fishes				
green sturgeon <i>Acipenser medirostris</i>	FT, SSC	Spawn in the Sacramento River and the Klamath River. Spawning occurs at temperatures between 8-14 degrees Celsius. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	No Potential. No aquatic habitat is present within or adjacent to the Project Area.	No further actions are recommended.
Tomales roach <i>Lavinia symmetricus ssp.</i>	SSC	Habitat generalists. Tolerant of relatively high temperatures and low oxygen levels, however unable to tolerate very saline water.	No Potential. No aquatic habitat is present within or adjacent to the Project Area.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	SSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Sacramento Delta, Suisun Bay and associated marshes. Occurs in slow-moving river sections and dead end sloughs. Requires flooded vegetation for spawning and foraging for young. Splittail are primarily freshwater fish, but are tolerant of moderate salinity and can live in water where salinity levels reach of 10-18 parts per thousand.	No Potential. No aquatic habitat is present within or adjacent to the Project Area.	No further actions are recommended.
Delta smelt <i>Hypomesus transpacificus</i>	FT, SE, RP	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	No Potential. No aquatic habitat is present within or adjacent to the Project Area.	No further actions are recommended.
tidewater goby <i>Eucyclogobius newberryi</i>	FE, SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	No Potential. No aquatic habitat is present within or adjacent to the Project Area.	No further actions are recommended.
coho salmon - central CA coast ESU <i>Oncorhynchus kisutch</i>	FE, SE	Occurs inland and in coastal marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen.	No Potential. No aquatic habitat is present within or adjacent to the Project Area.	No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE PROJECT AREA	RECOMMENDATIONS
steelhead - central CA coast ESU <i>Oncorhynchus mykiss</i>	FT	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	No Potential. No aquatic habitat is present within or adjacent to the Project Area.	No further actions are recommended.
chinook salmon - Central Valley spring-run ESU <i>Oncorhynchus tshawytscha</i>	FT, ST, RP	Populations spawning in the Sacramento and San Joaquin Rivers and their tributaries. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean	No Potential. No aquatic habitat is present within or adjacent to the Project Area.	No further actions are recommended.
chinook salmon - winter-run ESU <i>Oncorhynchus tshawytscha</i>	FE, SE, RP	Occurs in the Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 degrees C for spawning. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles typically migrate to the ocean soon after emergence from the gravel.	No Potential. No aquatic habitat is present within or adjacent to the Project Area.	No further actions are recommended.

Invertebrates				
Myrtle's silverspot butterfly <i>Speyeria zerene myrtleae</i>	FE, SSI, RP	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County. Larval foodplant thought to be <i>Viola adunca</i> .	No Potential. This species is generally found within three miles of the coast. The inland location of the Project Area precludes this species from being found on the site. The nearest documented occurrence is approximately 16 miles south in Marin County (CDFW 2013).	No further actions are recommended.
California freshwater shrimp <i>Syncares pacifica</i>	FE, SE, SSI, RP	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient (generally less than 1%) perennial streams where riparian cover is moderate to heavy. Shallow pools away from main stream flow. Winters near undercut banks with exposed roots. In the summer uses leafy branches touching water.	No Potential. No aquatic habitat is present within or adjacent to the Project Area.	No further actions are recommended.
PLANTS				
<i>Abronia umbellata</i> var. <i>breviflora</i> pink sand-verbena	Rank 1B	Coastal dunes, coastal strand; located on foredunes and interdunes with sparse cover. Elevation range: 0 – 35 feet. Blooms: June – October.	No Potential. No coastal dune or coastal strand habitat is present in the Project Area	No additional action is recommended.
<i>Allium peninsulare</i> var. <i>franciscanum</i> Franciscan onion	Rank 1B	Cismontane woodland, valley and foothill grassland; on clay substrate, typically derived from serpentine or volcanics. Elevation range 170 – 985 feet. Blooms: May – June.	No Potential. Although grassland habitat is present, this species is closely associated with clay soils derived from serpentine or volcanic rock, which are not present in the Project Area.	No additional action is recommended.

<i>Alopecurus aequalis</i> var. <i>sonomensis</i> Sonoma alopecurus	FE, Rank 1B	Freshwater marshes and swamps, riparian scrub; closely associated with other wetland species. Elevation range: 15 – 1200 feet. Blooms: May – July.	No Potential. No marsh, swamp, or riparian scrub is present in the Project Area.	No additional action is recommended.
<i>Amorpha californica</i> var. <i>napensis</i> Napa false indigo	Rank 1B	Openings in broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 395 – 6560 feet. Blooms: April – July.	No Potential. No upland forest, chaparral, or cismontane woodland habitat is present in the Project Area. Additionally, the Project Area is out of the elevation range of this species.	No additional action is recommended.
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	Rank 1B	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. Elevation range: 10 – 1625 feet. Blooms: March – June.	Moderate Potential. Valley and foothill grassland is present in the Project Area; however, the nearest documented occurrence of this species is over (8 miles) away (CNPS 2013)	A protocol level rare-plant survey was conducted March 8 and June 13, 2013 coinciding with this species blooming period. It was not observed at the time of the survey. No additional action is recommended.
<i>Arctostaphylos montana</i> ssp. <i>montana</i> Mt. Tamalpais manzanita	Rank 1B	Chaparral, valley and foothill grassland; on rocky serpentine slopes in scrub and grassland. Elevation range: 520 – 2470 feet. Blooms: February – April.	Unlikely. Although grassland habitat is present, this species is closely associated with rocky serpentine slopes, which are not present in the Project Area	No additional action is recommended.
<i>Arctostaphylos virgata</i> Marin manzanita	Rank 1B	Broadleaf upland forest, closed-cone coniferous forest, chaparral, North Coast coniferous forest; on sandstone and granitic substrates. Elevation range: 195 – 2275 feet. Blooms: January – March.	No Potential. No broadleaf upland forest, closed cone coniferous forest, chaparral, or North Coast coniferous forest is present in the Project Area.	No additional action is recommended.
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i> coastal marsh milk-vetch	Rank 1B	Coastal dunes, coastal scrub, coastal salt marshes; mesic sites in dunes, along streams, and marshes. Elevation range: 0 – 100 feet. Blooms: April – October.	No Potential. No coastal dune, coastal salt marsh, mesic dune, or stream habitat is present in the Project Area	No additional action is recommended.

<i>Astragalus tener</i> var. <i>tener</i> alkali milk-vetch	Rank 1B	Playas, vernal pools, valley and foothill grassland; located in mesic grassy areas on alkaline substrate. Elevation range: 0 – 195 feet. Blooms: March – June.	No Potential. This species is closely associated with vernal pools and high pH (alkali) substrates. The Project Area is composed of strongly acidic marine sands.	No additional action is recommended.
<i>Blennosperma bakeri</i> Sonoma sunshine	FE, SE, Rank 1B	Vernal pools, vernal swales, and mesic areas in valley grassland; highly restricted to the Santa Rosa Plain and Valley of the Moon. Elevation range: 35 – 360 feet. Blooms: March – April.	Unlikely. While valley grasslands with mesic areas are present, the Project Area is outside the limited range of this species	No additional action is recommended.
<i>California macrophylla</i> round-leaved filaree	Rank 1B	Cismontane woodland, valley and foothill grassland; located in areas underlain by clay substrate. Elevation range: 45 – 3900 feet. Blooms: March – May.	Unlikely. Although grassland habitat is present, this species is closely associated with areas underlain by clay substrate which is not present in the Project Area.	No additional action is recommended.
<i>Campanula californica</i> swamp harebell	Rank 1B	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, freshwater marshes and swamps, North Coast coniferous forest; in mesic sites in forested and grassland habitat. Elevation range: 1 – 405 feet. Blooms: June – October.	No Potential. This species is closely associated with wet habitats such as bogs, fens, marshes and swamps. The Project Area is situated on a south-facing slope without sufficient habitat or water resources.	No additional action is recommended.
<i>Cardamine angulata</i> seaside bittercress	Rank 2	North Coast coniferous forest, lower montane coniferous forest; located in wet areas and along streambanks. Elevation range: 210 – 2975 feet. Blooms: March – July.	No Potential. No North Coast coniferous forest, lower montane coniferous forest, or stream bank habitat is present in the Project Area.	No additional action is recommended.

<i>Carex lyngbyei</i> Lyngbye's sedge	Rank 2	Freshwater and brackish marshes and swamps. Elevation range: 0 – 35 feet. Blooms: May – August.	No Potential. This species is closely associated with wet habitats Freshwater and brackish marshes. The Project Area is situated on a south-facing slope without sufficient habitat or water resources.	No additional action is recommended.
<i>Castilleja affinis</i> ssp. <i>neglecta</i> Tiburon paintbrush	FE; ST; Rank 1B	Valley and foothill grassland; located in grassy, open areas and rock outcrops underlain by serpentine substrate. Elevation range: 195 – 1300 feet. Blooms: April – June.	Unlikely. Although grassland habitat is present, this species is closely associated with rocky serpentine slopes, which are not present in the Project Area.	No additional action is recommended.
<i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i> Humboldt Bay owl's-clover	Rank 1B	Coastal salt marsh; in coastal areas associated with marsh vegetation. Elevation range: 0 – 10 feet. Blooms: April – August.	No Potential. There is no coastal salt marsh, or marsh vegetation present in the Project Area.	No additional action is recommended.
<i>Ceanothus gloriosus</i> var. <i>porrectus</i> Mt. Vision ceanothus	Rank 1B	Closed-cone coniferous forest, coastal prairie, coastal scrub, valley and foothill grassland; low shrub in a variety of habitats in Point Reyes; located on sandy soils. Elevation range: 80 – 1000 feet. Blooms: February – May.	Unlikely. While valley and foothill grassland habitat is present, the Project Area is outside the geographic range of this species.	No additional action is recommended.
<i>Ceanothus masonii</i> Mason's ceanothus	SR; Rank 1B	Chaparral; located on serpentine ridges and slopes in chaparral or transitional zones. Elevation range: 745 – 1625 feet. Blooms: March – April.	No Potential. This species is closely associated with serpentine ridges in chaparral or transition zones which do not exist in the Project Area.	No additional action is recommended.
<i>Ceanothus sonomensis</i> Sonoma ceanothus	Rank 1B	Chaparral; located on sandy serpentine or volcanic substrates. Elevation range: 705 – 2625 feet. Blooms: February – April.	No Potential. This species is closely associated with serpentine or volcanic soils which are not present in the Project Area.	No additional action is recommended.

<i>Centromadia parryi</i> ssp. <i>parryi</i> pappose tarplant	Rank 1B	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland; in vernal mesic sites, often with alkali substrate. Elevation range: 5 – 1380 feet. Blooms: May – November.	Moderate Potential. Appropriate habitat is present in the Project Area; however, this species grows preferentially on high pH soils while the Project Area is composed of strongly acidic sands.	A protocol level rare-plant survey was conducted June 13, 2013 coinciding with this species blooming period. It was not observed at the time of the survey. No additional action is recommended.
<i>Chlorogalum pomeridianum</i> var. <i>minus</i> dwarf soaproot	Rank 1B	Serpentine grassland and chaparral. Elevation range: 305 – 1000 feet. Blooms: May – August.	No Potential. Although grassland habitat is present, this species is closely associated with areas underlain by serpentine soils which are not present in the Project Area.	No additional action is recommended.
<i>Chloropyron maritimum</i> ssp. <i>palustre</i> Point Reyes bird's-beak	Rank 1B	Coastal salt marshes; located in low-growing saltgrass and pickleweed mats. Elevation range: 0 – 35 feet. Blooms: June – October.	No Potential. No coastal salt marsh habitat is present in the Project Area.	No additional action is recommended.
<i>Chloropyron molle</i> ssp. <i>molle</i> soft bird's-beak	FE, SR, Rank 1B	Coastal brackish or salt marshes; located in low-growing saltgrass and pickleweed mats. Elevation range: 0 – 10 feet. Blooms: June – November.	No Potential. No coastal brackish or salt marsh habitat is present in the Project Area.	No additional action is recommended.
<i>Chorizanthe valida</i> Sonoma spineflower	FE, SE, Rank 1B	Coastal prairie; in sandy soils. Elevation range: 35 – 1000 feet. Blooms: June – August.	Moderate Potential. While prairie, and sandy soils are present, coastal influence is muted by the geography surrounding the Project Area.	A protocol level rare-plant survey was conducted June 13, 2013 coinciding with this species blooming period. It was not observed at the time of the survey. No additional action is recommended.

<i>Cicuta maculata</i> var. <i>bolanderi</i> Bolander's water hemlock	Rank 2	Coastal freshwater and brackish marshes. Elevation range: 0 – 650 feet. Blooms: July – September.	No Potential. No coastal freshwater or brackish marsh habitat is present in the Project Area.	No additional action is recommended.
<i>Cirsium andrewsii</i> Franciscan thistle	Rank 1B	Coastal bluff scrub, broadleaf upland forest, coastal scrub; sometimes located along serpentine seeps. Elevation range: 0 – 490 feet. Blooms: March – July.	No Potential. No coastal bluff scrub, broadleaf upland forest, coastal scrub or serpentine seeps are present in the Project Area.	No additional action is recommended.
<i>Cirsium hydrophilum</i> var. <i>vaseyi</i> Mt. Tamalpais thistle	Rank 1B	Broadleaf upland forest, chaparral; located on streams and serpentine seeps in woodland and scrub habitat. Elevation range: 780 – 2015 feet. Blooms: May – August.	No Potential. No broadleaf upland forest, chaparral, or serpentine seeps are present in the Project Area.	No additional action is recommended.
<i>Delphinium bakeri</i> Baker's larkspur	FE; SE; Rank 1B	Coastal scrub, valley and foothill grassland; located on rocky north-facing slopes derived of decomposed shale. Elevation range: 260 – 995 feet. Blooms: March – May.	No Potential. This species is closely associated with very shallow rocky soils on north-facing slopes. The Project Area is situated on a south-facing slope with deep sandy-loam soils.	No additional action is recommended.
<i>Delphinium luteum</i> yellow larkspur	FE; SR; Rank 1B	Chaparral, coastal prairie, coastal scrub; located on rocky north-facing slopes. Elevation range: 0 – 325 feet. Blooms: March – May.	No Potential. This species is closely associated with very shallow rocky soils on north-facing slopes. The Project Area is situated on a south-facing slope with deep sandy-loam soils.	No additional action is recommended.

<i>Dirca occidentalis</i> western leatherwood	Rank 1B	Broadleaf upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, North Coast coniferous forest, riparian forest, riparian woodland; located on brushy, mesic slopes in woodland and forest. Elevation range: 165 – 1285 feet. Blooms: January – April.	No Potential. No Broadleaf upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, North Coast coniferous forest, riparian forest, riparian woodland habitat is present in the Project Area	No additional action is recommended.
<i>Downingia pusilla</i> dwarf downingia	Rank 2	Valley and foothill grassland, vernal pools; located in mesic grassy sites, pool and lake margins. Elevation range: 3 – 1450 feet. Blooms: March – May.	No Potential. This species is strongly associated with vernal pool margins which are not present in the Project Area.	No additional action is recommended.
<i>Entosthodon kochii</i> Koch's cord moss	Rank 1B	Cismontane woodland, valley and foothill grassland; located on river banks, may be on serpentine. Elevation range: 585 – 3250 feet.	No Potential. Although grassland habitat is present, this species is closely associated with areas underlain by serpentine soils which are not present in the Project Area.	No additional action is recommended.
<i>Erigeron bioletti</i> Streamside daisy	Rank 3	Broadleaf upland forest, cismontane woodland, North Coast coniferous forest; on rocky, mesic. Elevation range: 95 – 3610 feet. Blooms: June – October.	Unlikely. This species is closely associated with forest habitats with shallow rocky soils, which are not present in the Project Area	No additional action is recommended.
<i>Eriogonum luteolum</i> var. <i>caninum</i> Tiburon buckwheat	Rank 1B	Chaparral, valley and foothill grassland, cismontane woodland, coastal prairie; located on sandy or gravelly substrate derived from serpentine. Elevation range: 0 – 2275 feet. Blooms: May – September.	Unlikely. Although grassland habitat is present, this species is closely associated with areas underlain by serpentine soils which are not present in the Project Area.	No additional action is recommended.

<i>Erysimum concinnum</i> bluff wallflower	Rank 1B	Maritime chaparral, coastal dunes, coastal scrub, valley and foothill grassland; typically located on serpentine or volcanic substrate, often on roadsides. Elevation range: 0 – 1790 feet. Blooms: March – June.	Unlikely. Although grassland habitat is present, this species is closely associated with coastal areas underlain by serpentine soils which are not present in the Project Area.	No additional action is recommended.
<i>Fritillaria lanceolata</i> var. <i>tristulis</i> Marin checker lily	Rank 1B	Coastal bluff scrub, coastal scrub, coastal prairie; observed in canyons, riparian areas, and rock outcrops; often located on serpentine substrate. Elevation range: 45 – 490 feet. Blooms: February – May.	No Potential. This species is closely associated with shallow soils composed of serpentine substrate which are not present in the Project Area.	No additional action is recommended.
<i>Fritillaria liliacea</i> fragrant fritillary	Rank 1B	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland; located in grassy sites underlain by clay, typically derived from volcanics or serpentine. Elevation range: 10 – 1335 feet. Blooms: February – April.	No Potential. This species is closely associated with clay soils derived from volcanics or serpentine which are not present in the Project Area.	No additional action is recommended.
<i>Gilia capitata</i> ssp. <i>chamissonis</i> blue coast gilia	Rank 1B	Coastal dunes, coastal scrub. Elevation range: 5 – 600 feet. Blooms: April – July.	No Potential. No coastal dune or coastal scrub habitat is present in the Project Area.	No additional action is recommended.
<i>Gilia capitata</i> ssp. <i>tomentosa</i> woolly-headed gilia	Rank 1B	Coastal bluff scrub; rocky outcrops on the coast. Elevation range: 15 – 155 feet. Blooms: May – July.	No Potential. No coastal bluff or coastal rocky outcrops are present in the project site.	No additional action is recommended.
<i>Grindelia hirstula</i> var. <i>maritima</i>	Rank 3	Coastal bluff and scrub, valley and foothill grassland with sandy or serpentine soils. Elevation range 75- 1,200 feet. Blooms June-September	No Potential. This species is closely associated with coastal habitats with serpentine soils which are not present in the Project Area.	No additional action is recommended.

<i>Hemizonia congesta</i> ssp. <i>congesta</i> Hayfield tarplant	Rank 3	Coastal scrub, valley and foothill grassland. Elevation range: 65 – 1840 feet. Blooms: April – October.	Moderate Potential. While valley and foothill grassland habitat is present in the Project Area, it is associated with vernal pools and other mesic habitats the hydrology of the Project Area is not likely to be sufficient to support this species.	A protocol level rare-plant survey was conducted June 13, 2013 coinciding with this species blooming period. It was not observed at the time of the survey. No additional action is recommended.
<i>Hesperolinon congestum</i> Marin western flax	FT, ST, Rank 1B	Chaparral, valley and foothill grassland; located on serpentine substrate. Elevation range: 15 – 1205 feet. Blooms: April – July.	Unlikely. Although grassland habitat is present, this species is closely associated with areas underlain by serpentine soils which are not present in the Project Area	No additional action is recommended.
<i>Horkelia marinensis</i> Point Reyes horkelia	Rank 1B	Coastal dunes, coastal prairie, coastal scrub; located on sandy flats and dunes near the coast; in open grassy sites within scrub. Elevation range: 15 – 1140 feet. Blooms: May – September.	No Potential. This species is highly restricted to coastal dune habitat which is not present in the Project Area.	No additional action is recommended.
<i>Lasthenia burkei</i> Burke's goldfields	FE; SE; Rank 1B	Vernal pools, meadows and seeps; typically located in pools and swales. Elevation range: 45 – 1950 feet. Blooms: April – June.	No Potential. This species is highly restricted to vernal pools, meadows, seeps, and swales none of which are present in the Project Area.	No additional action is recommended.
<i>Lasthenia californica</i> ssp. <i>macrantha</i> perennial goldfields	Rank 1B	Coastal bluff scrub, coastal dunes, coastal scrub. Elevation range: 5 – 520 feet. Blooms: January – November.	No Potential. This species is highly restricted to coastal dune habitat which is not present in the Project Area.	No additional action is recommended.
<i>Lasthenia conjugens</i> Contra Costa goldfields	FE; Rank 1B	Valley and foothill grassland, vernal pools, cismontane woodland; located in pools, swales, and depressions in mesic grassy sites underlain by alkaline substrate. Elevation range: 0 – 1530 feet. Blooms: March – June.	Unlikely. This species is closely associated with vernal wet areas with high pH soils. The Project Area does not contain sufficient hydrology, or appropriately basic soils to support this species.	No additional action is recommended.

<i>Legenere limosa</i> legenere	Rank 1B	Vernal pools; typically located in the deepest portions of pools. Elevation range: 3 – 2860 feet. Blooms: April – June.	No Potential. This species is closely associated with vernal pool habitat which is not present in the Project Area.	No additional action is recommended.
<i>Leptosiphon jepsonii</i> Jepson's leptosiphon	Rank 1B	Chaparral, cismontane woodland; on open to partially shaded grassy slopes on volcanic or the periphery of serpentine substrate. Elevation range: 330 – 1640 feet. Blooms: April – May.	Unlikely. This species is closely associated with serpentine and other ultramafic soils which are not present in the Project Area.	No additional action is recommended.
<i>Lessingia hololeuca</i> woolly-headed lessingia	Rank 3	Broadleaf upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland; typically on clay, serpentine substrate. Elevation range: 3 – 2885 feet. Blooms: April – June.	Unlikely. Though valley and foothill grassland habitat is present in the Project Area, this species is closely associated with clay, serpentine soils, which do not occur in the Project Area.	No additional action is recommended.
<i>Lilaeopsis masonii</i> Mason's Lilaeopsis	SR, Rank 1B	Freshwater and brackish coastal marshes, riparian scrub; located on channel banks in the splash zone on bare mud substrate. Elevation range: 0 – 35 feet. Blooms: April – November.	No Potential. This species is closely associated with marshes and other low-elevation wet habitats which are not present in the Project Area.	No additional action is recommended.
<i>Lilium maritimum</i> coast lily	Rank 1B	Closed-cone coniferous forest, coastal prairie, coastal scrub, broadleaf upland forest, North Coast coniferous forest; typically located on sandy soils, often in raised hummocks or bogs, and roadside ditches. Elevation range: 15 – 1545 feet. Blooms: May – August.	Unlikely. The range of this species is highly restricted to coastal habitats which are not present in the Project Area.	No additional action is recommended.

<i>Lilium pardalinum</i> ssp. <i>pitkinense</i> Pitkin Marsh lily	FE; SE; Rank 1B	Cismontane woodland, meadows and seeps, freshwater marsh, riparian scrub; located on acidic saturated sandy substrate. Elevation range: 110 – 215 feet. Blooms: June – July.	Unlikely. This species is closely associated with marshes, seeps, and other wet habitats. There is not sufficient hydrology to support this species in the Project Area	No additional action is recommended.
<i>Limnanthes vinculans</i> Sebastopol meadowfoam	FE, SE, Rank 1B	Mesic meadows, valley and foothill grassland, vernal pools; located in swales, wet meadows, depressions, and pools in the oak savanna of the Santa Rosa Plain on heavy adobe clay substrate. Elevation range: 3 – 2885 feet. Blooms: April – June.	No Potential. This species is closely associated with vernal pools, swales, meadows, and other wet habitats underlain with heavy clay soils. This Project Area does not contain sufficient hydrology or appropriate soil to support this species.	No additional action is recommended.
<i>Micropus amphibolus</i> Mt. Diablo cottonweed	Rank 3	Broadleaf upland forest, chaparral, cismontane woodland, valley and foothill grassland; typically on thin, rocky soils. Elevation range: 145 – 2710 feet. Blooms: March – May.	Unlikely. Though valley and foothill grassland habitat is present in the Project Area, this species is closely associated with thin, rocky soils, which do not occur in the Project Area.	No additional action is recommended.
<i>Microseris paludosa</i> marsh microseris	Rank 1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation range: 5 – 300 feet. Blooms: April – June.	Moderate Potential. There is appropriate habitat for this species to occur in the Project Area; however the Project Area has been heavily disturbed, and has high weed cover which severely limits its ability to become established.	A protocol level rare-plant survey was conducted June 13, 2013 coinciding with this species blooming period. It was not observed at the time of the survey. No additional action is recommended.
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	Rank 1B	Wet, mesic sites underlain by adobe and/or alkaline substrate in cismontane woodland, meadows, seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Elevation range: 15 – 5710 feet. Blooms: April – July.	No Potential. This species is restricted to wet, mesic sites underlain by clay and/or alkaline substrate which does not exist in the Project Area.	No additional action is recommended.

<i>Navarretia rosulata</i> Marin County navarretia	Rank 1B	Closed-cone coniferous forest, chaparral; located on dry, rocky sites often formed from serpentine. Elevation range: 650 – 2065 feet. Blooms: May – July.	No Potential. This species is closely associated with dry rocky sites underlain with serpentine soils which is not present in the Project Area	No additional action is recommended.
<i>Phacelia insularis</i> var. <i>continentis</i> North Coast phacelia	Rank 1B	Coastal bluffs scrub, coastal dunes; located on open maritime bluffs underlain by sandy substrate. Elevation range: 30 – 555 feet. Blooms: March – May.	No Potential. This species is restricted to coastal dunes and bluffs which are not present in the Project Area.	No additional action is recommended.
<i>Plagiobothrys mollis</i> var. <i>vestitus</i> Petaluma popcornflower	Rank 1A	Coastal salt marsh, valley and foothill grassland; presumed to occur in mesic grasslands on marsh fringe. Elevation range: 30 – 165 feet. Blooms: June – July.	Unlikely. This species is closely associated with vernal pools and marshes. The Project Area does not contain hydrology sufficient to support this species.	No additional action is recommended.
<i>Pleuropogon hooverianus</i> North coast semaphore grass	ST, Rank 1B	Broadleaf upland forests, meadows and seeps, freshwater marshes and swamps, North Coast coniferous forest, shaded, wet, and grassy areas in forested habitat. Elevation range: 10 – 635 feet. Blooms May – August.	No Potential. This species is closely associated with upland forests, meadows, seeps, and other wet habitats. The Project Area does not contain sufficient hydrology to support this species.	No additional action is recommended.
<i>Polygonum marinense</i> Marin knotweed	Rank 3	Salt and brackish coastal marshes. Elevation range: 0 – 35 feet. Blooms: sometimes April, May – August, sometimes October.	No Potential. This species is restricted to salt and brackish coastal marsh habitat which is not present in the Project Area.	No additional action is recommended.
<i>Potentilla uliginosa</i> Cunningham Marsh cinquefoil	Rank 1A	Freshwater marshes and swamps; located in oligotrophic wetland habitat; presumed extinct. Elevation range: 95 – 130 feet. Blooms: May – August.	No Potential. This species was restricted to marshes, swamps, and wetlands which are not present in the Project Area.	No additional action is recommended.

<i>Quercus parvula</i> var. <i>tamalpaisensis</i> Tamalpais oak	Rank 1B	Lower montane coniferous forest; highly restricted to the slopes of Mt. Tamalpais. Elevation range: 325 – 2275 feet. Blooms: March – April.	No Potential. This species is restricted to the slopes of Mt. Tamalpais. The Project Area is outside the range of this species.	No additional action is recommended.
<i>Rhynchospora californica</i> California beaked-rush	Rank 1B	Bogs and fens, lower montane coniferous forest, meadows and seeps, freshwater marshes and swamps. Elevation range: 145 – 3315 feet. Blooms: May – July.	No Potential. This species is restricted to bog and fen habitat which is not present in the Project Area.	No additional action is recommended.
<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i> Point Reyes checkerbloom	Rank 1B	Marshes and swamps; located in freshwater marsh habitat near the coast. Elevation range: 10 – 245 feet. Blooms: April – September.	No Potential. This species is restricted to coastal freshwater marsh habitat which is not present in the Project Area.	No additional action is recommended.
<i>Sidalcea hickmanii</i> ssp. <i>viridis</i> Marin checkerbloom	Rank 1B	Chaparral; located on serpentine or volcanic substrate, often located in burns. Elevation range: 160 – 1400 feet. Blooms: May – June.	No Potential. This species is closely associated with serpentine or other ultramafic substrates which are not present in the Project Area.	No additional action is recommended.
<i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i> Mt. Tamalpais jewelflower	Rank 1B	Chaparral, valley and foothill grassland; located on serpentine slopes. Elevation range: 490 – 2600 feet. Blooms: May – August.	Unlikely. Though valley and foothill grassland habitat is present in the Project Area, this species is closely associated with serpentine substrates which are not present in the Project Area.	No additional action is recommended.
<i>Trifolium amoenum</i> showy rancheria clover	FE, Rank 1B	Valley and foothill grassland, coastal bluff scrub, swales, open sunny sites, with serpentine substrate. Elevation range: 15 – 1365 feet. Blooms: April – June.	Unlikely. Though valley and foothill grassland habitat is present in the Project Area, this species is associated with serpentine substrates, and coastal bluffs which are not present in the Project Area.	No additional action is recommended.

<i>Triquetrella californica</i> coastal triquetrella	Rank 1B	Coastal bluff scrub, coastal scrub, valley and foothill grassland; grows within 100 feet of the coastline in scrub and grasslands on open gravel substrates of roads, hillsides, bluffs, and slopes. Elevation range: 30 – 325 feet.	No Potential. This species is restricted to grassland and scrub habitat within 100 feet of the coast. The Project Area is outside this species' distribution range.	No additional action is recommended.
<p>* Key to status codes:</p> <p>FE Federal Endangered FT Federal Threatened SE State Endangered ST State Threatened SR State Rare CFP CDFW Fully Protected Species SSC CDFW Species of Special Concern BCC USFWS Bird of Conservation Concern SSI Special Status Invertebrate WBWG Western Bat Working Group High or Medium Priority species RP Recovery Plan exists for this species Rank 1A CNPS Rank 1A: Plants presumed extinct in California Rank 1B CNPS Rank 1B: Plants rare, threatened or endangered in California and elsewhere Rank 2 CNPS Rank 2: Plants rare, threatened, or endangered in California, but more common elsewhere Rank 3 CNPS Rank 3: Plants about which CNPS needs more information (a review list) <i>[not special status]</i></p> <p>Species Evaluations: <u>No Potential.</u> Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime). <u>Unlikely.</u> 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. <u>Moderate Potential.</u> 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. <u>High Potential.</u> 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. <u>Present.</u> Species was observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.</p>				

Appendix C

Representative Photographs of the Project Area



Appendix C. Photographs of the Project Area.

Top: Burrow complex in the northwestern Project Area.

Bottom: Small, man-made area of ponded water.





Appendix C. Photographs of the Project Area

Top: Project Area looking northwest; Open Space Preserve to the north not viewable due to topography. Non-native annual grassland and eucalyptus (Eucalyptus globulus) groves.

Bottom: Project Area looking south towards existing structures.





Appendix C. Photographs of the Project Area

Top: Project Area looking north; existing trees and structures block lighting and visual impacts.

Bottom: View of remainder lot prior to modification.





Appendix C. Photographs of the Project Area

Top: Tall, dense grasses at project area likely preclude animals such as the burrowing owl.

Bottom: View of recently developed remainder lot including fencing and some minor grading.





Appendix C. Photographs of the Project Area

Top: Commercial development south of the Project Area.

Bottom: Residential development adjacent to Open Space Preserve to the north.





Appendix C. Photographs of the Project Area

Top: Red fox in Project Area (red fox may utilize burrow habitat in the Project Area and can compete for prey).

Bottom: Red fox and domestic cat in Project Area.

