Biological Site Assessment

Overlook Drive (APN: 192-061-11, -12, -13)
Bolinas, Marin County, California

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1.0 INTRODUCTION

On October 4, 2017 and April 5 and July 26, 2018, WRA conducted a biological site assessment (BSA) at the site of a proposed residential development located on Overlook Drive, Bolinas, in unincorporated Marin County, California, Assessor's Parcel Numbers 192-061-11, -12, and -13 (Study Area, Figure 1). The purpose of this assessment is: (1) to gather information necessary to complete a review of biological resources adequate for use for the California Environmental Quality Act (CEQA), to determine whether the property supports any sensitive habitats or species, and (2), if applicable, to assess potential impacts to any sensitive natural resources as required by the Marin County Community Development Agency, Planning Division. The Study Area includes the entirety of the three subject parcels.

This report describes the results of the site visit for which the Study Area was assessed concerning: (1) the presence of suitable habitat and the potential on-site occurrence for regionally-known special-status plant and wildlife species, and (2) the approximate location and extent of any environmentally sensitive habitat areas (ESHAs), including wetlands, streams and riparian areas which may be subject to regulation under the California Coastal Act. The property is located within the Coastal Zone and is regulated under the Marin County Local Coastal Program (Marin County 1979; LCP) in the Unit II Area.

The Study Area does not contain sensitive biological communities; however, a drainage ditch and seasonal wetland are situated on Bolinas Community Public Utility District (BCPUD) adjacent to the Study Area. A botanical survey resulted in negative findings of special-status plants, and the Study Area does not have the potential to support special-status wildlife. The project proponent intends to develop a single-family residence, an accessory dwelling unit, and their associated infrastructure.

With prescriptive management practices and timing of construction, the Project will not impact sensitive natural resources.

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the BSA, 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, and the Coastal Zone Management Act; state regulations such as the Porter-Cologne Act, California Coastal Act, the California Department of Fish and Wildlife (CDFW) Streambed Alteration Program, and the California Environmental Quality Act (CEQA); or local ordinances or policies such as city or county tree ordinances, Local Coastal Programs (LCPs), Special Habitat Management Areas, and General Plan Elements.

2.1.1 Waters of 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 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 Habitats

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 (CDFG 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" (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

2.1.4 Environmentally Sensitive Habitat Areas

Environmentally sensitive habitat areas (ESHAs) are defined in California Coastal Act (CCA) Section 30107.5 and protected under section 30240 and include wetlands, rivers, streams and lakes, and riparian areas. For the purposes of this report, WRA has taken into consideration any areas that may meet the definition of any ESHA defined by the CCA, listed in the *Statewide Interpretive Guidelines for Identifying and Mapping Wetlands and Other Wet Environmentally Sensitive Habitat Areas* ("California Coastal Commission guidelines", CCC 1981), or the Marin County Local Coastal Program (LCP) (Marin County 1979).

The CCA defines an ESHA as follows:

> *"Environmentally sensitive habitat area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. "*

The CCC Guidelines discuss the various definitions for specific types of ESHAs, including wetlands, streams and riparian areas. Many of these definitions are synonymous with the definitions described above. Additional definitions are provided below.

Coastal Act Wetlands

The Coastal Act defines wetlands as:

> "*Wetland means land within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens".*
>
> (Public Resources Code § 30121)

CCC Administrative Regulations (Section 13577 (b)) provide a more explicit definition:

> *"Wetlands are lands where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deepwater habitats."*

The Coastal Act defines the upland limit of wetlands as:

(1) the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover; (2) the boundary between soil that is predominantly hydric and soil that is predominantly non-hydric; or (3) in the case of wetlands without vegetation or soil, the boundary between land that is flooded or saturated at some time each year and land that is not."

Coastal Act Streams and Rivers

The Marin County LCP provides special protections for USGS blue-line streams, and establishes buffers to protect streams from the impacts of adjacent uses including development impacts from construction and post-construction activities within the LCP Unit II Area. Stream buffers are defined by the LCP as: "the area covered by riparian vegetation on both sides of the stream and the area 50 feet landward from the edge of the riparian vegetation." The LCP also states that in no case shall the stream buffer be less than 100 feet in width, on either side of the stream, as measured from the top of the stream banks."

Coastal Act Riparian Habitats

While riparian vegetation is not defined specifically in the California Coastal Act, it is defined by the LCP as the stream itself and the riparian vegetation growing adjacent to it. Common plant genera associated with this vegetation type in Unit II of the Coastal Zone within Marin County include maple (*Acer* spp.), alder (*Alnus* spp.), ash (*Fraxinus* ssp.), and willow (*Salix* spp.). For the purposes of determination of status under the Coastal Act, we define riparina habitat as "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG 1994). This definition is synonymous with the CDFW definition described above.

2.1.5 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. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2018a). Sensitive plant communities are also identified by CDFW (CNPS 2018b). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2015) 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 U.S. Fish and Wildlife Service (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.

2.1.6 Marin County Sensitive Resources

In Marin County, a sensitive resource includes "jurisdictional wetlands, occurrences of special-status species, occurrences of sensitive natural communities, wildlife nurseries and nesting areas, and wildlife movement corridors. The County development review process typically requires a site assessment by qualified professionals to confirm whether any sensitive resources could be affected . . ."

Marin County Stream Conservation Areas

In Marin County, a Stream Conservation Area (SCA) is designated along all natural watercourses supporting riparian vegetation for a length of 100 feet or more. The SCA consists of the watercourse itself between the tops of the banks and a strip of land extending laterally outward from the top of both banks. For those ephemeral streams that do not meet these criteria, a minimum 20-foot development setback should be required. Development activities that may occur within a SCA are closely regulated by the County and require consideration of impacts of proposed developments on species and habitats during the environmental review process.

Marin County Wetland Conservation Areas

In Marin County, a Wetland Conservation Area (WCA) is designated around all Corps jurisdictional wetlands. The WCA consists of the wetland itself and a strip of land extending laterally outward from the wetland for a distance of 100 feet or as deemed appropriate by a qualified biologist to avoid impacts and protect the wetland. Development activities that may occur within a WCA are closely regulated by the County and require consideration of impacts of proposed developments on species and habitats during the environmental review process.

2.2 Special-status Species

2.2.1 Plants and Wildlife

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 those that are formal candidates for listing. In addition, CDFW Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, CDFW California Fully Protected species, USFWS Birds of Conservation Concern, and CDFW special-status invertebrates, are all considered special-status species. Although these aforementioned species generally have no special legal status, they are given special consideration under CEQA.

Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1, 2 are also considered special-status plant species and must be considered under CEQA. Rank 3 and Rank 4 species are afforded little or no protection under CEQA, but are included in this analysis for completeness. Plant species with a CNPS Rare Plant Rank of 1 through 2 are also considered as ESHAs.

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 (MBTA) and the California Fish and Game Code (CFGC). Under these laws, destroying active bird nests, eggs, and/or young is illegal.

Bat species designated as “High Priority” by the Western Bat Working Group (WBWG) are afforded legal protection under Section 15380(d) of the CEQA Guidelines. Species designated “High Priority” are defined as “imperiled or are at high risk of imperilment based on available information on distribution, status, ecology and known threats. California Fish and Game Code continues to protect non-listed bat species and their roosting habitat, including individual roosts

and maternity colonies. Relevant regulations include CFGC Section 86; 2000; 2014; 3007; 4150, along with Title 14 of California Code of Regulations.

Special-status species and their habitats are also defined as ESHAs by the California Coastal Act.

2.2.2 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

Critical habitat is a term defined in the ESA as a specific and formally-designated geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. Note that designated critical habitat areas that are currently unoccupied by the species but which are deemed necessary for the species' recovery are also protected by the prohibition against adverse modification.

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) provides for conservation and management of fishery resources in the U.S. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of Essential Fish Habitat (EFH). EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g. eelgrass (*Zostera* spp.)), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS.

Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

3.0 STUDY AREA SETTING

The following subsections summarize the physical and biological characteristics of the entire Study Area.

3.1 Topography and Soils

The Study Area is composed of three parcels located at 500 Overlook Drive, Bolinas, Marin County. The property is historically coastal terrace approximately 0.5 mile from coastal bluff falling into the Pacific Ocean. The predominant aspect is neutral, slopes range from two to five percent, and elevations range from 190 to 195 feet above sea level. According to the *Soil Survey of Marin County* (USDA 1985), the Study Area is underlain by one mapping unit: Olompali loam, 2 to 9 percent slopes. The parent series is detailed below.

Olompali Series: This series consists of deep loam soils formed in alluvium derived from igneous, metamorphic, and sedimentary rock located on marine terraces at elevations ranging from 50 to 800 feet (USDA 1985, CSRL 2018). These soils are somewhat poorly drained, with medium to rapid runoff, and very slow permeability (USDA 2017, USDA 1985). Native and naturalized vegetation includes annual grasses and forbs with scattered shrubs, and typical land uses are predominantly rangeland, watershed, and wildlife habitat (USDA 1985).

3.2 Climate and Hydrology

The Study Area is located within the maritime fog zone of Marin County where summer temperatures are buffeted by fog, and fog drip contributes to annual rainfall totals. Winter "tule" fog is common in the Study Area, and summer "coastal" fog emerges with increased interior temperatures. The average annual maximum temperature of Point Reyes Lighthouse (CA047027) is 61.0 degrees Fahrenheit, while the average annual minimum temperature is 54.1 degrees Fahrenheit. Predominantly, precipitation falls as rainfall with an annual average of 17.05 inches. Precipitation bearing weather systems are predominantly from the west and south with the majority of rain falls between November and March, with a combined average of 13.45 inches (WRCC 2018).

The local watershed is Coast Creek-Frontal Pacific Ocean (HUC 12: 1805000050402) and the regional watershed is Frontal Pacific Ocean (HUC 8: 18050005). There are no mapped blue line streams in the Study Area according to the 7.5-minute quadrangle (USGS 1971), nor are there other aquatic features on the California Aquatic Resources Inventory (CARI) (SFEI 2018) and the National Wetlands Inventory (NWI) (USFWS 2018a).

3.3 Biota and Land Use

The vegetation of the Study Area is typical of rural undeveloped properties of the Marin Coast with a mixed mosaic of native species, escaped ornamentals, and naturalized weeds. The regional vegetation is a mix of undeveloped to residential developed properties of prairies, annual grasslands, coastal scrubs, and coastal woodland groves. At the time of the site visits, vegetation cover was extremely low presumably from recent grubbing. Likewise, trees and shrubs were removed sometime between March 2015 and June 2017 (Google Earth 2018). The regional land uses include residential, rural residential, fishing and aquaculture, hunting, ranching, and recreation. There is no observable evidence that the Study Area was historically utilized for intensive agriculture (row crops), timbering, or quarrying/mining. Vegetation is detailed in Section 5.0.

4.0 METHODS

Prior to the site visits, WRA biologists reviewed the following literature and performed database searches to assess the potential for sensitive natural communities (e.g., wetlands) and special-status species (e.g., endangered plants):

- *Soil Survey of Marin County, California* (USDA 1985)
- Bolinas 7.5-minute quadrangle (USGS 1971)
- Contemporary aerial photographs (Google Earth 2018)

- Historical aerial photographs (Historical Aerials 2018)
- National Wetlands Inventory (USFWS 2018a)
- California Natural Diversity Database (CNDDB, CDFW 2018a)
- California Native Plant Society Electronic Inventory (CNPS 2018a)
- Consortium of California Herbaria (CCH 2018)
- California Aquatic Resource Inventory (SFEI 2018)
- USFWS List of Federal Endangered and Threatened Species (USFWS 2018b)
- *eBird* Online Database (Cornell 2018)
- CDFW Publication, *California Bird Species of Special Concern in California* (Shuford and Gardali 2008)
- CDFW and University of California Press publication *California Amphibian and Reptile Species of Special Concern* (Thomson et al. 2016)
- *The Marin County Breeding Birds Atlas* (Shuford 1993)
- *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003)
- *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009)
- *A Manual of California Vegetation Online* (CNPS 2018b)
- *Preliminary Descriptions of the Terrestrial Natural Communities* (Holland 1986)
- *California Natural Community List* (CDFW 2018b)

Database searches (i.e., CNDDB, CNPS) focused on the Inverness, San Geronimo, Novato, Double Point, Bolinas, San Rafael, and Point Bonita USGS 7.5-minute quadrangles.

On October 4, 2017 and April 5 and July 26, 2018, biologists with 40-hour Corps wetland delineation training and experience with the flora and fauna of coastal Marin County traversed portions of the Study Area on foot to determine (1) plant communities present within the Study Area, (2) if existing conditions provided suitable habitat for any special status plant or wildlife species, and (3) determine the approximate location and extent of ESHAs, including wetlands, streams and riparian areas which may be subject to regulation under the California Coastal Act.

4.1 Biological Communities

4.1.1 Terrestrial Biological Communities

The Study Area's terrestrial natural communities were evaluated to determine if such areas have the potential to support special-status plants or wildlife. In most instances, communities are delineated based on distinct shifts in plant assemblage (vegetation), and follow the *California Natural Community List* (CDFW 2018b), *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and *A Manual of California Vegetation, Online Edition* (CNPS 2018b). In some cases it may be necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature; should an undescribed variant be used, it will be noted in the description.

Vegetation alliances (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled (S1/G1), imperiled (S2/G2), or vulnerable (S3/G3), were evaluated as sensitive as part of this evaluation.[1] Additionally, any sensitive natural communities as described in the Marin

[1] Ranking of CDFW List of Vegetation Alliances is based on NatureServe Rankings (NatureServe 2018)

Countywide [General] Plan (Marin County 2007) and/or the Marin County LCP (Marin County 2015) were considered.

4.1.2 Aquatic Natural Resources

Aquatic natural resources include Waters of the U.S., Waters of the State, and Streams, Lakes, and Riparian Habitat as defined in the CWA, Porter-Cologne Act, and CFGC, respectively. Marin County mandates setbacks from such aquatic resources, and therefore requires mapping of the outward extent of such features.

This site assessment does not constitute a formal wetland delineation; however, the surveys looked for superficial indicators of wetlands such as hydrophytic vegetation (i.e., plant communities dominated by wetland species), evidence of inundation or flowing water, saturated soils and seepage, and topographic depressions/swales. None were noted, so there was no need for WRA biologists to perform sample points following the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps 2008).

If streams potentially jurisdictional under the CWA and/or the CFGC are noted on a site, they are delineated using a mix of surveyed topography data, high resolution aerial photographs, and a sub-meter GPS unit. The ordinary high water mark would be used to determine the extent of potential Section 404 jurisdiction, while the top-of-bank would be used to determine the extent of CFGC Section 1602 and 401. Streams with associated woody vegetation were assessed to determine if these areas would be considered riparian habitat by the CDFW following *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607, California Fish and Game Code* (CDFG 1994).

4.2 Special-status Species

4.2.1 General Assessment

Potential occurrence of special-status species in the Study Area was evaluated by first determining which special-status species occur in the vicinity of the Study Area through a literature and database review. Database searches for known occurrences of special-status species focused on the 7.5-minute USGS quadrangles mentioned above for special-status plants and the entirety of Marin County for special-status wildlife.

A site visit was made on October 4, 2017 to evaluate the presence of suitable habitat for special-status species. Suitable habitat conditions are based on physical and biological conditions of the site, as well as the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Study Area was then determined 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. CNDDB, other reports) on the site in the recent past.

If a more thorough assessment was deemed necessary, a targeted or protocol-level assessment or survey was conducted or recommended as a future study. Methods for the assessments are described below. If a special-status species was observed during the site visit, its presence was recorded and discussed below in Section 5.2.

4.2.2 Special-status Plants

To determine the presence or absence of special-status plant species, protocol-level surveys were conducted within the Study Area on April 5 and July 26, 2018. The surveys correspond to the period sufficient to observe and identify those special-status plants determined to have the potential to occur. The field surveys were conducted by botanists familiar with the flora of Marin and surrounding counties. The surveys were performed in accordance with those described by resource experts and agencies (CNPS 2001, CDFW 2018c, USFWS 1996). Plants were identified using *The Jepson Manual, 2nd Edition* (Baldwin et. al. 2012) and Jepson Flora Project (eFlora 2018), to the taxonomic level necessary to determine whether or not they were sensitive. Plant names follow those of Jepson Flora Project (eFlora 2018), unless otherwise noted.

4.2.3 Special-status Wildlife

Targeted and/or protocol-level wildlife surveys were not performed during this assessment, because the site does not have the potential to support special-status wildlife.

4.2.4 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

Prior to the site visit the USFWS Critical Habitat Mapper (USFWS 2018b) and the NMFS Essential Fish Habitat Mapper (NMFS 2018) were queried to determine if critical habitat for any species or EFH, respectively, occurs within the Study Area. To account for potential impacts to wildlife movement/migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (CalTrans 2010) and habitat connectivity data available through the CDFW Biogeographic Information and Observation System (BIOS) (CDFW 2018a). Additionally, aerial imagery (Google 2018) for the local area was referenced to assess if local core habitat areas were present within, or connected to the Study Area. This assessment was refined based on observations of on-site physical and/or biological conditions.

5.0 RESULTS

5.1 Biological Communities

5.1.1 Terrestrial Biological Communities

Non-native Grassland – Common Velvet Grass Meadow (*Holcus lanatus* Semi-Natural Herbaceous Stands). CDFW Rank: None: Common velvet grass meadows are common along the California Coast and Sierra Nevada Foothills. They are typically situated on coastal terraces, coastal bluffs, wet meadows, and the driest margins of wetlands (Sawyer et al. 2009). The Study Area was grubbed, presumably for fire prevention. Street View photographs demonstrate that the removed trees and shrubs include young eucalyptus (*Eucalyptus* sp.), plum (*Prunus* sp.), coyote brush (*Baccharis pilularis*), and Scotch broom (*Cytisus scoparius*) (Google Earth 2018). Likewise, the herbaceous layer in the Street View photographs is evidently dominated by common velvet grass (*Holcus lanatus*). At the time of the site visit, the dominant species was common velvet grass (*Holcus lanatus*). Sapling shrubs and herbs include coyote brush (*Baccharis pilularis*), French broom (*Genista monspeliensis*), California blackberry (*Rubus ursinus*), bird's-foot trefoil (*Lotus corniculatus*), blue flax (*Linum bienne*), sweet vernal grass (*Anthoxanthum odoratum*), and bracken fern (*Pteridium aquilinum*).

5.1.2 Aquatic Natural Resources

Drainage Ditch and NWI Mapped Wetland: This community is not situated in the Study Area, but rather adjacent to it (offset by approximately 50 feet) in the BCPUD lands. This wetland is mapped in the USFWS's NWI as a Freshwater Emergent Wetland. The site visit did not include direct access to BCPUD lands, but rather made observations of the area from the Study Area. Two areas appear to meet the condition of seasonal wetland outside of the Study Area: (1) a north-south drainage ditch running parallel to the eastern edge of the Study Area and (2) a broad wet meadow irrigated by BCPUD treated water lying east of the drainage of the drainage ditch. Indicators of wetland include a dominance of hydrophytes and inundation/saturation on aerial photographs (Google Earth 2018).

The ditch is unlikely to be considered jurisdictional under the Clean Water Act as it is man-made in what was historically an upland area; however, jurisdictional determinations can only be made by the U.S. Army Corps of Engineers. A jurisdictional determination would only be pursued with express permission of the property owner, the Bolinas Community Public Utility District. Under the California Coastal Act, drainage ditches are generally considered exempt and therefore not considered Environmental Sensitive Habitat Areas (ESHA).

The Marin County General Plan implies that wetlands meriting a Wetland Conservation Area (setbacks) are for those features that would be considered jurisdictional under the Clean Water Act. Wetlands in the Coastal Zone, including Marin County, are considered ESHA and typically only require presence of one parameter (vegetation, soils, hydrology) to be considered such, whereas Corps wetlands require presence of all three parameters. As noted above, drainage ditches are generally and regularly considered exempt from the Coastal Act.

As noted above, the ditch/wetland mapped in the NWI was observed from a distance, and hydrophytic vegetation and wetland hydrology were evident. A series of aerial photographs illustrate that this area is saturated and/or inundated for extended periods of time during the

winter; therefore, hydric soils are assumed present. However, it is unclear if the wetland mapped in the NWI would be considered jurisdictional under the CWA.

The General Plan and the Local Coastal Program of Marin County both require development setbacks from wetlands of 100 feet in rural settings. Both documents provide for adjustments to the setback if:

> "Wetlands are avoided and a site assessment demonstrates that minimal incursion within the minimum WCA [Wetland Conservation Area] setback distance would not result in any significant adverse direct or indirect impacts on wetlands". –General Plan, Page 2-24

> "The wetland was constructed out of dry land for the treatment, conveyance or storage of water, its construction was authorized by a coastal permit (or pre-dated coastal permit requirements), it has no habitat value, and it does not affect natural wetlands". –Local Coastal Program, Page 31

5.2 Special-status Species

5.2.1 Special-status Plant Species

Based upon a review of the resources and databases given in Section 3.2.1, 101 special-status plant species have been documented in the vicinity of the Study Area. Based on an initial assessment, four special-status species have the potential to occur within the Study Area. The remaining species documented in the greater vicinity of the Study Area are unlikely or have no potential to occur due to one or more of the following factors:

- Hydrologic conditions (e.g. vernally inundated, riverine) necessary to support the special-status plant species are not present in the Study Area.
- Edaphic (soil) conditions (e.g. volcanic tuff, serpentine) necessary to support the special-status plant species are not present in the Study Area.
- Topographic conditions (e.g. north-facing slope, montane) necessary to support the special-status plant species are not present in the Study Area.
- Unique pH conditions (e.g. alkali scalds, acidic bogs) necessary to support the special-status plant species are not present in the Study Area.
- Associated vegetation communities (e.g. interior chaparral, tidal marsh) necessary to support the special-status plant species are not present in the Study Area.
- The Study Area is geographically isolated (e.g. below elevation, coastal environ) from the documented range of the special-status plant species.
- The historical landscape and habitat(s) of the Study Area was not suitable habitat prior to land/type conversion (e.g., reclaimed shoreline) to support the special-status plant species.
- Land use history and contemporary management (e.g., grading, intensive grazing) has degraded local habitat necessary to support the special-status plant species.

Protocol-level rare plant surveys were conducted within the Study Area on April 5 and July 26, 2018; however, no special-status species were observed. All special-status species initially assessed to have the potential to occur are summarized below.

Coastal bluff morning-glory (*Calystegia purpurata* ssp. *saxicola*). CRPR 1B. Moderate Potential (Not Observed). Coastal bluff morning-glory is a perennial forb in the morning-glory family (Convolvulaceae) that blooms from May to September. It typically occurs on bluffs within coastal dune and coastal scrub habitat at elevations ranging from 30 to 330 feet (CDFW 2018a, CNPS 2018a). Associated species include Bishop pine (*Pinus muricata*), shore pine (*Pinus contorta* ssp. *contorta*), coyote brush (*Baccharis pilularis*), tree lupine (*Lupinus arboreus*), poison oak (*Toxicodendron diversilobum*), Douglas iris (*Iris douglasiana*), California blackberry (*Rubus ursinus*), sea lettuce (*Dudleya farinosa*), bracken fern (*Pteridium aquilinum*), ice plant (*Carpobrotus edulis*), seaside woolly sunflower (*Eriophyllum staechadifolium*), common velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), and little rattlesnake grass (*Briza maxima*) (CDFW 2018a, personal observations 2010, 2017). Coastal bluff morning-glory was not observed during the site visits which were conducted in a period sufficient to identify this species.

White hayfield tarplant (*Hemizonia congesta* ssp. *congesta*) CRPR 1B. Moderate Potential (Not Observed). White 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 1,840 feet (CDFW 2018a, CNPS 2018a). Associated species include coast live oak (*Quercus agrifolia*), white hyacinth (*Triteleia hyacinthina*), Italian rye grass (*Festuca perennis*), little rattlesnake grass (*Briza minor*), pennyroyal (*Mentha pulegium*), and spiny-fruited buttercup (*Ranunculus muricatus*) (CDFW 2018a, personal observation 2016). White hayfield tarplant was not observed during the site visits which were conducted in a period sufficient to identify this species.

Short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*). CRPR 1B. Moderate Potential (Not Observed). Short-leaved evax is an annual forb in the sunflower family (Asteraceae) that germinates and leafs-out in late winter, blooms from March to June, and senesces in late summer. It typically occurs on sandy substrate on bluffs and flats in coastal bluff scrub and coastal dune habitat at elevations ranging from 0 to 700 feet (CNPS 2018a, CDFW 2018a). Associated species include round-head Chinese houses (*Collinsia corymbosa*), beach suncup (*Camissoniopsis cheiranthifolia*), North Coast phacelia (*Phacelia insularis* var. *continentis*), seacoast angelica (*Angelica lucida*), beach sage (*Artemisia pycnocephala*), Howell's spineflower (*Chorizanthe howellii*), Mendocino paintbrush (*Castilleja mendocinensis*), seaside buckwheat (*Eriogonum latifolium*), and seaside daisy (*Erigeron glaucus*) (CDFW 2018a, personal observations 2010, 2014, 2015, 2016, 2017). Short-leaved evax was not observed during the site visits which were conducted in a period sufficient to identify this species.

Showy Rancheria clover (*Trifolium amoenum*). Federal Endangered, CRPR 1B. Moderate Potential (Not Observed). Showy rancheria clover is an annual forb in the pea family (Fabaceae) that blooms from April to June. It typically occurs on open, sunny sites, in swales, on roadsides, and cliffs sometimes underlain by serpentine substrate in valley and foothill grassland and coastal bluff scrub habitat at elevations ranging from 15 to 1,365 feet (CDFW 2018a, CNPS 2018a). Associated species slender oat grass (*Avena barbata*), bromes (*Bromus* spp.), fescues (*Festuca* spp.), Italian rye grass (*Festuca perennis*), California oat grass (*Danthonia californica*), California brome (*Bromus carinatus*), meadow barley (*Hordeum brachyantherum*), Italian thistle (*Carduus pycnocephalus*), and pale flax (*Linum bienne*) (CDFW 2018a). Show Rancheria clover was not observed during the site visits which were conducted in a period sufficient to identify this species.

5.2.2 Special-status Wildlife Species

Frequently, wildlife species, including designated special-status species, are documented from sites where physical and/or biological elements necessary to support critical life-cycle functions are lacking (e.g., roosting, nesting, breeding, metamorphosis, foraging, dispersal corridor). In these instances, species would be considered errant, but not occupying (i.e., occurring) within the site. With some exceptions, for purposes of analyzing potential presence, WRA biologists consider wildlife species to be unlikely or have no potential to occur in locales where habitat for critical life-cycle functions are lacking or absent.

Based upon a review of the resources and databases listed in Section 3.2.1, 64 special-status wildlife species have been documented across Marin County (CDFW 2018a, USFWS 2018b). The potential for each of these species to occur in the Study Area is summarized in Appendix B. The Study Area does not have the potential to support special-status wildlife due to one or more of the following reasons:

- Aquatic habitats (e.g., rivers, ponds, estuaries) necessary to support the special-status wildlife species are not present in the Study Area.
- Vegetation habitats (e.g., coast redwood forest, coastal prairie) that provide nesting and/or foraging resources necessary support the special-status wildlife species are not present in the Study Area.
- Physical structures and vegetation (e.g., unsealed buildings, old-growth trees) necessary to provide nesting, cover, and/or foraging habitat to support the special-status wildlife species are not present in the Study Area.
- Host plants (e.g., dog violet, harlequin lotus) necessary to provide larval and nectar resources for the special-status wildlife species are not present in the Study Area.
- Historic and/or contemporary disturbance (e.g., human visitation, intensive mechanical noise) deter the presence of the special-status wildlife species from occupying the Study Area.
- The Study Area is outside (e.g., north of, west of) of the special-status wildlife species documented nesting range.

Because the Study Area does not have the potential to support special-status wildlife, no targeted or protocol-level surveys were performed or recommended.

5.2.3 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

The Study Area is not within Critical Habitat or Essential Fish Habitat. Likewise, the Study Area is not an essential wildlife corridor. While common mammals and birds certainly wander in and out of the Study Area, there is nothing unique about its habitat or location that provides critical linkages for local wildlife.

6.0 PROJECT DESCRIPTION AND RECOMMENDATIONS

6.1 Project Description

The proposed Project is the construction of a single-family residence, accessory dwelling unit, associated septic system, fencing, driveway, pathways, and landscaping. The residence will be a 3-bedroom/2-bathroom, totaling 1,555 square feet and be located on the northernmost parcel (APN: 192-061-13). The accessory dwelling unit will be a 2-bedroom/1-bathroom, totaling 1,144 square feet and be located on the center parcel (APN: 192-061-11). The septic system will service both the residence and accessory dwelling unit, and will be located on the existing southernmost parcel (APN: 192-061-12).

As noted, in addition to the residence, accessory dwelling unit, and septic area, the Project entails associated infrastructure. A wooden fence will be installed that is setback from, but fronts on Overlook Drive, as well as for a short run between the residence and the accessory dwelling unit and on the northern and southern faces of them. The fences will not completely surround the buildings. Five adjoining parking units will be installed immediately fronting on Overlook Drive and will be underlain by compacted gravel. The wooden fence will separate the buildings and parking area. Concrete walkways connecting the parking are and the buildings will be installed.

Grading and shaping of the site will occur during the dry season and sloped toward Overlook Drive. The residence and accessory dwelling unit have been intentionally sited 100 feet or greater from the NWI wetland and 75 feet or greater from the drainage ditch. There is a slight rise or berm between the eastern edge of the Study Area and BCPUD property. All equipment and materials will be staged at least 100 feet or greater from the NWI wetland on the adjacent property. Spill containment and prevention kits will be deployed and maintained for all liquid materials necessary to maintain the construction equipment (e.g., gasoline, oil, diesel, solvents).

6.2 Sensitive Biological Communities

The Study Area does not support sensitive biological communities; therefore, the proposed project plans will not result in impacts to biological communities. There are two off-site wetlands situated east of the Study Area. The drainage ditch is within 100 feet of the proposed project; however, this feature is unlikely to be considered jurisdictional under the CWA. It is unclear if the freshwater emergent wetland mapped in the NWI would be considered jurisdictional under the CWA. Because the drainage ditch appears to have been constructed in uplands for the purpose of draining uplands, and it holds no habitat value, a reduced setback from this feature is sufficient to prevent adverse impacts. Conversely, it is not clear if the NWI mapped wetlands would be considered jurisdictional and their habitat values are unknown; therefore, as a prudent measure, a 100-foot setback should be applied to this wetland.

The residence and accessory dwelling unit have been intentionally sited 100 feet or greater from the mapped edge of the NWI wetland, and 75 feet or greater from the drainage ditch. These buffers accompanied by presence of the slight berm, reversing the grade, construction during the dry season, and the deployment of spill prevention kits will prevent any impacts to the off-site aquatic resources.

6.3 Special-status Species

6.3.1 Special-status Plant Species

Protocol-level rare plant surveys resulted in negative findings for special-status plants within the Study Area. Therefore, the proposed project plans within the Study Area will not result in impacts to special-status plants. No further actions are recommended for special-status plants.

6.3.2 Special-status Wildlife Species

The Study Area does not have the potential to support special-status wildlife; therefore, the proposed project plans within the Study Area will not result in impacts to special-status wildlife. Additionally, vegetation removal will be minimal and limited to sparse herbs that do not have the potential to provide nesting habitat for birds protected under the MBTA.

6.3.3 Critical Habitat, Essential Fish Habitat, and Wildlife Corridor

The Study Area is not within Critical Habitat or Essential Fish Habitat, nor is it a unique or critical pathway for local wildlife; therefore, there will be no impact to such.

6.4 Summary

The Project would not reduce the number or restrict the range of a rare, endangered or threatened plant or animal. The proposed Project will not result in impacts to roosting bats or breeding birds.

The Project would not cause a fish or wildlife population to drop below self-sustaining levels.

The Project would not adversely affect significant riparian lands, wetlands, marshes, and other significant wildlife habitats because the Project avoids all such habitats.

In conclusion, the Project, with the deployment of the BMPs and avoidance measures noted above, will minimize any potential affects from construction of the Project.

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Appendix A

Figures

Path: L:\Acad 2000 Files\27000\27283\GIS\ArcMap\Fig 1 Location.mxd

Sources: National Geographic, WRA | Prepared By: czumwalt, 10/26/2018

Figure A-1. Study Area Location

Bolinas Community Land Trust
Marin County, California

0 0.25 0.5 Miles

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ENVIRONMENTAL CONSULTANTS

Figure A-2. Site Map

Bolinas Community Land Trust
Marin County, California

0 20 40 Feet

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Appendix B

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

Table B. Potential for Special-status Species to Occur in the Study Area. List compiled from the CDFW BIOS database (CDFW 2018a), USFWS IPaC Report (USFWS 2018b), and CNPS Electronic Inventory (CNPS 2018a) searches. For plants, the Inverness, San Geronimo, Novato, Double Point, Bolinas, San Rafael, and Point Bonita USGS 7.5-minute quadrangles were included in the search. For wildlife, the entirety of Marin County was considered.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
PLANTS				
Abronia umbellata var. *breviflora* 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.** The Study Area does not contain dune or beach habitat to support this species.	**Not Present.** No further recommendations for this species.
Agrostis blasdalei Blasdale's bentgrass	Rank 1B	Coastal dunes, coastal bluff scrub, coastal prairie; on sandy or gravelly soil near exposed rock; often in nutrient-poor soil. Elevation range: 15 – 490 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain dune or bluff habitat to support this species.	**Not Present.** No further recommendations for this species.
Alopecurus aequalis var. *sonomensis* 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.** The Study Area does not contain wetland or riparian habitat to support this species.	**Not Present.** No further recommendations for this species.
Amorpha californica var. *napensis* Napa false indigo	Rank 1B	Openings in broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 395 – 6560 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain chaparral, woodland, or forest habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Amsinckia lunaris bent-flowered fiddleneck	Rank 1B	Cismontane woodland, valley and foothill grassland, coastal bluff scrub; typically situated on rocky substrates frequently derived from serpentine. Elevation range: 10 – 1625 feet. Blooms: March – June.	**No Potential.** The Study Area does not contain rocky grassland, bluff scrub, or woodland habitat to support this species.	**Not Present.** No further recommendations for this species.
Arabis blepharophylla coast rock cress	Rank 4	Broadleaf upland forest, coastal bluff scrub, coastal prairie, coastal scrub; located on rocky sites, often on coastal bluffs. Elevation range: 10 – 3575 feet. Blooms: February – May.	**No Potential.** The Study Area does not contain forest or scrub habitat, and does not contain rocky substrates or outcrops.	**Not Present.** No further recommendations for this species.
Arctostaphylos montana ssp. *montana* 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.	**No Potential.** The Study Area does not contain serpentine substrate, slopes, or chaparral to support this species.	**Not Present.** No further recommendations for this species.
Arctostaphylos virgata 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.** The Study Area does not contain forest or chaparral to support this species.	**Not Present.** No further recommendations for this species.
Aspidotis Carlotta-halliae Carlotta Hall's lace fern	Rank 4	Chaparral, cismontane woodland; typically located in rock crevices and outcrops of serpentine. Elevation range: 325 – 4550 feet.	**No Potential.** The Study Area does not contain chaparral or woodland to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Astragalus breweri Brewer's milk-vetch	Rank 4	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland; located on open, gravelly serpentine or volcanic substrate. Elevation range: 290 – 2375 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine or volcanic substrates to support this species.	**Not Present.** No further recommendations for this species.
Astragalus nuttallii var. *nuttallii* Nuttall's milk-vetch	Rank 4	Coastal bluff scrub, coastal dunes. Elevation range: 10 – 390 feet. Blooms: January – November.	**No Potential.** The Study Area does not contain bluff scrub and dune habitat to support this species.	**Not Present.** No further recommendations for this species.
Astragalus pycnostachyus var. *pycnostachyus* 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.** The Study Area does not contain wetland or streams to support this species.	**Not Present.** No further recommendations for this species.
Calamagrostis crassiglumis Thurber's reed grass	Rank 2B	Mesic areas within coastal scrub, freshwater marshes and swamps; typically in marshy swales surrounded by scrub or grassland. Elevation range: 10 – 45 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain wetland or swales to support this species.	**Not Present.** No further recommendations for this species.
Calamagrostis ophitidis serpentine reed grass	Rank 4	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland; located in openings, often north-facing, underlain by rocky serpentine substrate. Elevation range: 290 – 3465 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain chaparral or forest habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Calandrinia breweri Brewer's Calandrinia	Rank 4	Chaparral, coastal scrub; located on sandy or loamy substrate in areas often recently disturbed or burned. Elevation range: 30 – 3965 feet. Blooms: March – June.	**Unlikely.** The Study Area does contain chaparral habitat and the site management (mowing, disking) likely precludes this species.	**Not Present.** No further recommendations for this species.
Calochortus umbellatus Oakland star tulip	Rank 4	Broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland; often located on serpentine substrate. Elevation range: 325 – 2275 feet. Blooms: March – May.	**No Potential.** The Study Area does not contain serpentine substrate or woodland, forest, or chaparral habitat to support this species.	**Not Present.** No further recommendations for this species.
Calystegia purpurata ssp. *saxicola* coastal bluff morning-glory	Rank 1B	Coastal dunes, coastal scrub. Elevation range: 10 – 105 feet. Blooms: May – September.	**Moderate Potential.** Although the vegetation of the Study Area has been management, this species can tolerate repeated mowing and disking.	**Not Observed.** This species was not observed during protocol-level surveys. No further recommendations for this species.
Campanula californica 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.** The Study Area does not contain wetland habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Cardamine angulata seaside bittercress	Rank 2B	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.** The Study Area does not contain forest or stream habitat to support this species.	**Not Present.** No further recommendations for this species.
Carex comosa bristly sedge	Rank 2B	Typically on lake and pond margins in coastal prairie, marshes and swamps, valley and foothill grassland. Elevation range: 0 – 425 feet. Blooms: May – September.	**No Potential.** The Study Area does not contain wetland habitat to support this species.	**Not Present.** No further recommendations for this species.
Carex lyngbyei Lyngbye's sedge	Rank 2B	Freshwater and brackish marshes and swamps. Elevation range: 0 – 35 feet. Blooms: May – August.	**No Potential.** The Study Area does not contain wetland habitat to support this species.	**Not Present.** No further recommendations for this species.
Castilleja affinis ssp. *neglecta* 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.	**No Potential.** The Study Area does not contain serpentine grassland to support this species.	**Not Present.** No further recommendations for this species.
Castilleja ambigua ssp. *ambigua* johnny-nip	Rank 4	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pool margins. Elevation range: 0 – 1415 feet. Blooms: March – August.	**Unlikely.** The Study Area's management (mowing, disking) likely precludes the presence of this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Castilleja ambigua ssp. *humboldtiensis* 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.** The Study Area does not contain coastal marsh habitat to support this species.	**Not Present.** No further recommendations for this species.
Ceanothus decornutus Nicasio ceanothus	Rank 1B	Chaparral; associated with maritime chaparral species, located on rocky clay derived from serpentine. Elevation range: 760 – 945 feet. Blooms: March – May.	**No Potential.** The Study Area does not contain chaparral to support this species.	**Not Present.** No further recommendations for this species.
Ceanothus gloriosus var. *exaltatus* glory bush	Rank 4	Chaparral; typically located within maritime influence. Elevation range: 95 – 1985 feet. Blooms: March – June, sometimes August.	**No Potential.** The Study Area does not contain chaparral to support this species.	**Not Present.** No further recommendations for this species.
Ceanothus gloriosus var. *gloriosus* Point Reyes ceanothus	Rank 4	Coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal scrub; located on sandy substrate. Elevation range: 15 – 1690 feet. Blooms: March – May.	**No Potential.** The Study Area does not contain scrub or forest habitat to support this species.	**Not Present.** No further recommendations for this species.
Ceanothus gloriosus var. *porrectus* 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.	**No Potential.** The Study Area does not contain forest, scrub, or intact prairie habitat to support this species.	**Not Present.** No further recommendations for this species.
Ceanothus masonii 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.** The Study Area does not contain chaparral to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Ceanothus pinetorum Kern ceanothus	Rank 4	Lower montane coniferous forest, subalpine forest, upper montane coniferous forest; located on rocky areas of granitic rock. Elevation range: 5200 – 8925 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain forest habitat to support this species. Likewise, documented occurrences from Marin County are widely considered erroneous (CCH 2018).	**Not Present.** No further recommendations for this species.
Ceanothus rigidus Monterey ceanothus	Rank 4	Closed-cone coniferous forest, chaparral, coastal scrub; situated on sandy substrates. Elevation range: 10 – 1790 feet. Blooms: February – April, sometimes June.	**No Potential.** The Study Area does not contain scrub, chaparral, or forest habitat to support this species.	**Not Present.** No further recommendations for this species.
Chloropyron maritimum ssp. *palustre* 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.** The Study Area does not contain coastal marsh habitat to support this species.	**Not Present.** No further recommendations for this species.
Chorizanthe cuspidata var. *cuspidata* San Francisco Bay spineflower	Rank 1B	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub; located on loose, coarse sandy substrates of terraces and slopes. Elevation range: 10 – 700 feet. Blooms: April – August.	**No Potential.** The Study Area does not contain coarse sandy soils to support this species.	**Not Present.** No further recommendations for this species.
Chorizanthe valida Sonoma spineflower	FE, SE, Rank 1B	Coastal prairie; in coarse, loose sandy soils. Elevation range: 35 – 1000 feet. Blooms: June – August.	**No Potential.** The Study Area does not contain coarse sandy soils to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Cicuta maculata var. *bolanderi* Bolander's water hemlock	Rank 2B	Coastal freshwater and brackish marshes. Elevation range: 0 – 650 feet. Blooms: July – September.	**No Potential.** The Study Area does not contain coastal marsh habitat to support this species.	**Not Present.** No further recommendations for this species.
Cirsium andrewsii 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.** The Study Area does not contain serpentine seeps to support this species.	**Not Present.** No further recommendations for this species.
Cirsium hydrophilum var. *vaseyi* 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.** The Study Area does not contain serpentine seeps to support this species.	**Not Present.** No further recommendations for this species.
Cistanthe maritima seaside cistanthe	Rank 4	Coastal bluff scrub, coastal scrub, valley and foothill grassland; situated on sandy substrates. Elevation range: 15 – 975 feet. Blooms: sometimes February, March – June, sometimes August.	**No Potential.** The Study Area does not contain dunes or coarse sandy substrates to support this species.	**Not Present.** No further recommendations for this species.
Collinsia corymbosa round-headed Chinese houses	Rank 1B	Coastal dunes, coastal prairie underlain by loose, coarse substrate. Elevation range: 0 – 65 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain dunes or coarse sandy substrates to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Cypripedium californicum California lady's-slipper	Rank 4	Bogs and fens, lower montane coniferous forest; located along seeps and streambanks, typically underlain by serpentine. Elevation range: 95 – 8940 feet. Blooms: April – August.	**No Potential.** The Study Area does not contain streams and forest habitat to support this species.	**Not Present.** No further recommendations for this species.
Dirca occidentalis 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.** The Study Area does not contain forest or scrub habitat to support this species.	**Not Present.** No further recommendations for this species.
Elymus californicus California bottle-brush grass	Rank 4	Broadleaf upland forest, cismontane woodland, North Coast coniferous forest, riparian woodland; located in mesic areas. Elevation range: 50 – 1530 feet. Blooms: May – August, sometimes November.	**No Potential.** The Study Area does not contain forest or woodland habitat to support this species.	**Not Present.** No further recommendations for this species.
Entosthodon kochii 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.** The Study Area does not contain riverine habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Eriogonum luteolum var. *caninum* 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.	**No Potential.** The Study Area does not contain chaparral, woodland, or serpentine grassland habitat to support this species.	**Not Present.** No further recommendations for this species.
Erysimum concinnum bluff wallflower	Rank 1B	Coastal bluff scrub, coastal scrub, coastal dunes; situated on sandy substrate. Elevation range: 0 – 605 feet. Blooms: February – July.	**No Potential.** The Study Area does not contain scrub or dune habitat, and is not underlain by loose, coarse substrate to support this species.	**Not Present.** No further recommendations for this species.
Erysimum franciscanum San Francisco wallflower	Rank 4	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.	**No Potential.** The Study Area does not contain chaparral, scrub, or serpentine or volcanic grassland habitat to support this species.	**Not Present.** No further recommendations for this species.
Fissidens pauperculus minute pocket moss	Rank 1B	North Coast coniferous forest; located on damp soil along the coast, and in dry streambanks and streambeds. Elevation range: 30 – 3330 feet.	**No Potential.** The Study Area does not contain forest habitat to support this species.	**Not Present.** No further recommendations for this species.
Fritillaria lanceolata var. *tristulis* 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.	**Unlikely.** The Study Area does not contain scrub or riparian habitat, and the grassland is substantially disturbed.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Fritillaria liliacea 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.** The Study Area does not contain clay substrate to support this species.	**Not Present.** No further recommendations for this species.
Gilia capitata ssp. *chamissonis* blue coast gilia	Rank 1B	Coastal dunes, coastal scrub. Elevation range: 5 – 600 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain coastal dune or scrub habitat to support this species.	**Not Present.** No further recommendations for this species.
Gilia capitata ssp. *tomentosa* woolly-headed gilia	Rank 1B	Coastal bluff scrub; rocky outcrops on the coast. Elevation range: 15 – 155 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain rock outcrops or scrub habitat to support this species.	**Not Present.** No further recommendations for this species.
Gilia millefoliata dark-eyed gilia	Rank 1B	Coastal dune. Elevation range: 5 – 100 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain coastal dune habitat to support this species.	**Not Present.** No further recommendations for this species.
Grindelia hirsutula var. *maritima* San Francisco gumplant	Rank 1B	Coastal scrub, coastal bluff scrub, valley and foothill grassland; situated on sea bluffs underlain by sand substrate, often derived from serpentine. Elevation range: 45 – 1300 feet. Blooms: June – September.	**No Potential.** The Study Area does not contain scrub or sandy serpentine grassland to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Helianthella castanea Diablo helianthella	Rank 1B	Broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; typically located in oak woodland/chaparral ecotone underlain by rocky, azonal substrates, often in partial shade. Elevation range: 195 – 4225 feet. Blooms: March – June.	**No Potential.** The Study Area does not contain forest, woodland, chaparral, or interior grassland habitat to support this species.	**Not Present.** No further recommendations for this species.
Hemizonia congesta ssp. congesta White hayfield tarplant	Rank 1B	Coastal scrub, valley and foothill grassland. Elevation range: 65 – 1840 feet. Blooms: April – October.	**Moderate Potential.** Although the vegetation of the Study Area has been management, this species can tolerate repeated mowing and disking.	**Not Observed.** This species was not observed during protocol-level surveys. No further recommendations for this species.
Hesperevax sparsiflora var. *brevifolia* short-leaved evax	Rank 1B	Coastal bluff scrub, coastal dunes; on sandy bluffs and flats in direct maritime influence. Elevation range: 0 – 215 feet. Blooms: March – June.	**Moderate Potential.** Although the vegetation of the Study Area has been management, this species can tolerate repeated mowing and disking.	**Not Observed.** This species was not observed during protocol-level surveys. No further recommendations for this species.
Hesperolinon congestum Marin western flax	FT, ST, Rank 1B	Chaparral, valley and foothill grassland; located on serpentine substrate. Elevation range: 15 – 1205 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain chaparral or serpentine grassland habitat to support this species.	**Not Present.** No further recommendations for this species.
Heteranthera dubia water star-grass	Rank 2B	Marshes and swamps; still or slow-moving water, alkaline. Elevation range: 95 – 4905 feet. Blooms: July – October.	**No Potential.** The Study Area does not contain open water habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Holocarpha macradenia Santa Cruz tarplant	FT, SE, Rank 1B	Coastal prairie, coastal scrub, valley and foothill grassland; located on light, sandy clay substrate; tolerant of non-native herbaceous vegetation. Elevation range: 30 – 715 feet. Blooms: June – October.	**Unlikely.** Although this species can tolerate disturbance, the Study Area does not contain clay substrate. Likewise, there are no documented occurrences from the Marin Coast.	**Not Present.** No further recommendations for this species.
Horkelia cuneata var. *sericea* Kellogg's horkelia	Rank 1B	Closed cone coniferous forest, coastal scrub, chaparral; located in openings on relict dunes and coastal sandhills. Elevation range: 30 – 650 feet. Blooms: April – September.	**No Potential.** The Study Area does not contain forest or scrub habitat to support this species.	**Not Present.** No further recommendations for this species.
Horkelia marinensis 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.** The Study Area does not contain coarse sandy soils to support this species.	**Not Present.** No further recommendations for this species.
Horkelia tenuiloba thin-lobed horkelia	Rank 1B	Broadleaf upland forest, coastal scrub, valley and foothill grassland, chaparral; in mesic openings, on sandy substrate. Elevation range: 165 – 1640 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain forest, scrub, chaparral, or interior grassland habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Hosackia gracilis harlequin lotus	Rank 4	Broadleaf upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, North Coast coniferous forest, valley and foothill grassland; located in wetlands and roadside ditches. Elevation range: 0 – 2275 feet. Blooms: March – July.	**Unlikely.** The Study Area does not contain seasonal wetlands to support this species.	**Not Present.** No further recommendations for this species.
Kopsiopsis hookeri small groundcone	Rank 2B	North Coast coniferous forest; located in open woods, shrublands, generally hosts on salal (*Gaultheria shallon*). Elevation range: 290 – 2880 feet. Blooms: April – August.	**No Potential.** The Study Area does not contain forest or shrub habitat to support this species.	**Not Present.** No further recommendations for this species.
Lasthenia californica ssp. macrantha perennial goldfields	Rank 1B	Coastal bluff scrub, coastal dunes, coastal scrub. Elevation range: 5 – 520 feet. Blooms: January – November.	**No Potential.** The Study Area does not contain scrub or dune habitat to support this species.	**Not Present.** No further recommendations for this species.
Layia carnosa beach layia	FE, SE, Rank 1B	Coastal dunes; located in sparsely vegetated semi-stabilized dunes behind foredunes. Elevation range: 0 – 195 feet. Blooms: March – July.	**No Potential.** The Study Area does not contain coastal dune or loose, coarse sands to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Leptosiphon acicularis bristly leptosiphon	Rank 4	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland; often located on shallow, rocky substrate in foothill positions; typically, low-growing and sparse vegetation; often on edge of chaparral and shrub thickets. Elevation range: 175 – 4875 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain chaparral, woodland, grassland on scrub margins to support this species.	**Not Present.** No further recommendations for this species.
Leptosiphon croceus coast yellow leptosiphon	Rank 1B	Coastal bluff scrub, coastal prairie. Elevation range: 30 – 490 feet. Blooms: April – May.	**Unlikely.** There are no reliable documented occurrences from Marin County; widely considered to be restricted to San Mateo County (Baldwin et al. 2012).	**Not Present.** No further recommendations for this species.
Leptosiphon grandiflorus large-flowered leptosiphon	Rank 4	Coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal dunes, coastal prairie, coastal scrub, valley and foothill grassland; typically on sandy substrate. Elevation range: 15 – 3965 feet. Blooms: April – August.	**Unlikely.** This species is typically situated on loose, coarse sands which are not present in the Study Area.	**Not Present.** No further recommendations for this species.
Leptosiphon rosaceus rose leptosiphon	Rank 1B	Coastal bluff scrub. Elevation range: 0 – 325 feet. Blooms: April – July.	**Unlikely.** The Study Area does not contain scrub habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Lessingia hololeuca 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.	**No Potential.** The Study Area does not contain serpentine substrate to support this species.	**Not Present.** No further recommendations for this species.
Lessingia micradenia var. *micradenia* Tamalpais lessingia	Rank 1B	Chaparral, valley and foothill grassland; typically located in serpentine grassland or serpentine scrub, often on roadsides. Elevation range: 325 – 1625 feet. Blooms: June – October.	**No Potential.** The Study Area does not contain serpentine substrate to support this species.	**Not Present.** No further recommendations for this species.
Lilaeopsis masonii 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.** The Study Area does not contain coastal marsh to support this species.	**Not Present.** No further recommendations for this species.
Lilium maritimum 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.	**No Potential.** The Study Area does not contain forest habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Micropus amphibolus Mt. Diablo cottonweed	Rank 3	Broadleaf upland forest, chaparral, cismontane woodland, valley and foothill grassland; situated on very thin, rocky soils. Elevation range: 145 – 2710 feet. Blooms: March – May.	**No Potential.** The Study Area does not contain thin, rocky soils to support this species.	**Not Present.** No further recommendations for this species.
Microseris paludosa marsh microseris	Rank 1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation range: 5 – 300 feet. Blooms: April – June.	**Unlikely.** The Study Area's management likely precludes the presence of this perennial species.	**Not Observed.** This species was not observed during protocol-level surveys. No further recommendations for this species.
Mielichhoferia elongata elongate copper moss	Rank 2B	Cismontane woodland; located on acidic, metamorphic rock and substrate, often located in higher portions in fens. Elevation range: 1625 – 4225 feet.	**No Potential.** The Study Area does not contain woodland habitat to support this species.	**Not Present.** No further recommendations for this species.
Monardella sinuata ssp. *nigrescens* northern curly-leaved Monardella	Rank 1B	Chaparral, coastal dunes, coastal scrub, lower montane coniferous forest (ponderosa pine forest). Elevation range: 0 – 985 feet. Blooms: sometimes April, May – July, sometimes August – September.	**No Potential.** The Study Area does not contain chaparral, scrub, forest, or dune habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Navarretia leucocephala ssp. *bakeri* 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.** The Study Area does not contain seasonal wetland habitat to support this species.	**Not Present.** No further recommendations for this species.
Navarretia rosulata 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.** The Study Area does not contain serpentine substrate to support this species.	**Not Present.** No further recommendations for this species.
Pentachaeta bellidiflora white-rayed pentachaeta	FE, SE, Rank 1B	Valley and foothill grassland; located on open, dry rocky slopes and grassy areas, often on substrate derived from serpentine. Elevation range: 110 – 2015 feet. Blooms: March – May.	**No Potential.** The Study Area does not contain serpentine substrate to support this species.	**Not Present.** No further recommendations for this species.
Perideridia gairdneri ssp. *gairdneri* Gairdner's yampah	Rank 4	Broadleaf upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools; located in vernally mesic sites. Elevation range: 0 – 1985 feet. Blooms: June – October.	**No Potential.** The Study Area does not contain seasonal wetlands to support this species.	**Not Present.** No further recommendations for this species.
Phacelia insularis var. *continentis* 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.	**Unlikely.** The Study Area does not contain scrub or dune underlain by loose, coarse sandy substrate.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Plagiobothrys glaber hairless popcornflower	Rank 1A	Meadows and seeps, marshes and swamps; located in coastal salt marshes and alkaline meadows. Elevation range: 45 – 585 feet. Blooms: March – May.	**No Potential.** The Study Area does not contain perennial wetland habitat to support this species.	**Not Present.** No further recommendations for this species.
Pleuropogon hooverianus 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.** The Study Area does not contain mesic grassy openings in forest habitat to support this species.	**Not Present.** No further recommendations for this species.
Pleuropogon refractus nodding semaphore grass	Rank 4	Lower montane coniferous forest, meadows and seeps, North Coast coniferous forest, riparian forest; located in mesic settings. Elevation range: 0 – 5200 feet. Blooms: March – August.	**No Potential.** The Study Area does not contain mesic grassy openings in forest habitat to support this species.	**Not Present.** No further recommendations for this species.
Polemonium carneum Oregon polemonium	Rank 2B	Coastal prairie, coastal scrub, lower montane coniferous forest. Elevation range: 0 – 5950 feet. Blooms: April – September.	**Unlikely.** The Study Area does not contain scrub or forest habitat, and the grassland has been substantially altered.	**Not Present.** No further recommendations for this species.
Polygonum marinense Marin knotweed	Rank 3	Salt and brackish coastal marshes. Elevation range: 0 – 35 feet. Blooms: sometimes April, May – August, sometimes October.	**No Potential.** The Study Area does not contain coastal marsh to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Quercus parvula var. *tamalpaisensis* 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.** The Study Area is not situated in a montane setting or contain forest habitat to support this species.	**Not Present.** No further recommendations for this species.
Ranunculus lobbii Lobb's buttercup	Rank 4	Cismontane woodland, North Coast coniferous forest, valley and foothill grassland, vernal pools; located in mesic, vernally wet areas. Elevation range: 45 – 1530 feet. Blooms: February – May.	**No Potential.** The Study Area does not contain seasonal wetland habitat to support this species.	**Not Present.** No further recommendations for this species.
Ribes victoris Victor's gooseberry	Rank 4	Broadleaf upland forest, chaparral; located in shady, mesic sites. Elevation range: 325 – 2440 feet. Blooms: March – April.	**No Potential.** The Study Area does not contain chaparral or forest habitat to support this species.	**Not Present.** No further recommendations for this species.
Sagittaria sanfordii Sanford's arrowhead	Rank 1B	Marshes and swamps; located in assorted shallow freshwater habitats including canals and perennial drainage ditches. Elevation range: 0 – 2115 feet. Blooms: May – October, sometimes November.	**No Potential.** The Study Area does not contain perennial wetland habitat to support this species.	**Not Present.** No further recommendations for this species.
Sidalcea calycosa ssp. *rhizomata* 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.** The Study Area does not contain perennial wetland habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Sidalcea hickmanii ssp. *viridis* 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.** The Study Area does not contain serpentine substrate to support this species.	**Not Present.** No further recommendations for this species.
Silene scouleri ssp. *scouleri* Scouler's catchfly	Rank 2B	Coastal bluff scrub, coastal prairie, valley and foothill grassland; situated on rocky slopes and bluffs. Elevation range: 0 – 1950 feet. Blooms: sometimes March – May, typically June – August, sometimes September.	**No Potential.** The Study Area does not contain rocky slopes or bluffs to support this species.	**Not Present.** No further recommendations for this species.
Stebbinsoseris decipiens Santa Cruz Stebbinsoseris	Rank 1B	Broadleaf upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub; located on open, loose or disturbed substrate derived from sandstone, shale, or serpentine. Elevation range: 30 – 1625 feet. Blooms: April – May.	**No Potential.** The Study Area does not contain forest, chaparral, scrub, or intact prairie habitat to support this species.	**Not Present.** No further recommendations for this species.
Streptanthus batrachopus Tamalpais jewel-flower	Rank 1B	Closed-cone coniferous forest, chaparral; located on serpentine talus slopes. Elevation range: 990 – 2115 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain serpentine substrate to support this species.	**Not Present.** No further recommendations for this species.
Streptanthus glandulosus var. *niger* Tiburon jewel-flower	FE, SE, Rank 1B	Valley and foothill grassland; located on shallow rocky substrates derived from serpentine. Elevation range: 100 – 490 feet. Blooms: May – June.	**No Potential.** The Study Area does not contain serpentine substrate to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Streptanthus glandulosus ssp. *pulchellus* Mt. Tamalpais jewelflower	Rank 1B	Chaparral, valley and foothill grassland; located on serpentine slopes. Elevation range: 490 – 2600 feet. Blooms: May – August.	**No Potential.** The Study Area does not contain serpentine substrate to support this species.	**Not Present.** No further recommendations for this species.
Symphyotrichum lentum Suisun Marsh aster	Rank 1B	Freshwater and brackish marshes and swamps; typically located on slough margins and edges, closely associated with cattail, tules, bulrushes, California rose, and Delta Tule pea. Elevation range: 0 – 10 feet. Blooms: May – November.	**No Potential.** The Study Area does not contain perennial wetland habitat to support this species.	**Not Present.** No further recommendations for this species.
Trifolium amoenum showy rancheria clover	FE, Rank 1B	Valley and foothill grassland, coastal bluff scrub, swales, open sunny sites, sometimes on serpentine. Elevation range: 15 – 1365 feet. Blooms: April – June.	**Moderate Potential.** Although the vegetation of the Study Area has been management, this species may be tolerant of mowing/disking.	**Not Observed.** This species was not observed during protocol-level surveys. No further recommendations for this species.
Trifolium hydrophilum saline clover	Rank 1B	Marshes and swamps, mesic portions of alkali vernal pools, mesic, alkali valley and foothill grassland. Elevation range: 0 – 985 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain seasonal wetland habitat to support this species.	**Not Present.** No further recommendations for this species.
Triphysaria floribunda San Francisco owl's-clover	Rank 1B	Coastal prairie, valley and foothill grassland; located on serpentine and non-serpentine substrate. Elevation range: 30 – 520 feet. Blooms: April – June.	**Unlikely.** The Study Area does not contain intact grassland habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Triquetrella californica 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.** The Study Area is not directly on the coastline.	**Not Present.** No further recommendations for this species.
WILDLIFE				
Mammals				
Antrozous pallidus pallid bat	SSC, WBWG High	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various manmade structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**No Potential.** The Study Area does not contain daily or maternity structures to support this species.	**Not Present.** No further recommendations for this species.
Aplodontia rufa phaea Point Reyes mountain beaver	SSC	Known from the coastal areas of Point Reyes. Located in north-facing slopes of hills and gullies with seeps and springs nearby. Areas typically overgrown with vegetation such as sword fern (*Polystichum munitum*) and thimbleberry (*Rubus parviflorus*).	**No Potential.** The Study Area does not contain slopes and gullies with dense scrub overgrowth.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Corynorhinus townsendii townsendii Townsend's western big-eared bat	SSC, WBWG High	Humid coastal regions of northern and central California. Roost in limestone caves, lava tubes, mines, buildings etc. Will only roost in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to disturbance	**No Potential.** The Study Area does not contain daily or maternity structures to support this species.	**Not Present.** No further recommendations for this species.
Enhydra lutris nereis southern sea otter	FT, SFP	Located in near-shore marine environments from Ano Nuevo to Point Sal (possibly Marin County). Requires canopies of giant kelp and bull kelp for rafting and feeding. Prefers rocky substrates with abundant invertebrates for foraging.	**No Potential.** The Study Area is not on the direct coastline or encompass the Pacific Ocean.	**Not Present.** No further recommendations for this species.
Lasiurus blossevillii western red bat	SSC, WBWG High	Highly migratory and typically solitary, roosting primarily in the foliage of trees or shrubs. It is associated with broad-leaved tree species including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	**No Potential.** The Study Area does not contain daily or maternity structures to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Lasiurus cinereus western red bat	WBWG Medium	Migratory and typically solitary, roosting primarily in the foliage of trees and shrubs. Roosts are usually in broadleaf trees including cottonwoods (*Populus* spp.), sycamores (*Platanus* spp.), alders (*Alnus* spp.), and maples (*Acer* spp.). Day roosts are commonly in edge habitats adjacent to streams, open fields, orchards, and occasionally urban areas.	**No Potential.** The Study Area does not contain daily or maternity structures to support this species.	**Not Present.** No further recommendations for this species.
Reithrodontomys raviventris salt marsh harvest mouse	FE, SE, SFP	Endemic to emergent salt and brackish wetlands of the San Francisco Bay Estuary. Pickleweed marshes are primary habitat; also occurs in various other wetland communities with dense vegetation. Does not burrow, builds loosely organized nests. Requires higher areas for dryland refugia during high tides.	**No Potential.** The Study Area does not contain coastal marsh habitat to support this species.	**Not Present.** No further recommendations for this species.
Taxidea taxus American badger	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**Moderate Potential.** The Study Area is connected to broad expanses of open grassland and scrubs.	**Not Observed.** No mammal burrows were observed on any of the site visits. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Zapus trinotatus orarius Point Reyes jumping mouse	SSC	Known from upland areas in Point Reyes. Typically located in upper margins of bunch grass wetlands, as well as coastal scrub, grassland, and meadows. Primarily forages for grass seeds, with some insects and fruits. Builds grass nests above ground, but burrows in winter.	**No Potential.** The Study Area does not contain bunch grass wetland and coastal scrub margins.	**Not Present.** No further recommendations for this species.
Birds				
Agelaius tricolor tricolored blackbird	SC (E), SSC	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	**No Potential.** The Study Area does not contain freshwater marsh or riparian habitat for this species.	**Not Present.** No further recommendations for this species.
Ammodramus savannarum grasshopper sparrow	SSC	Summer resident. Breeds in open grasslands in lowlands and foothills, generally with low- to moderate-height grasses and scattered shrubs. Well-hidden nests are placed on the ground.	**Unlikely.** The annual management (mowing, disking) of the site likely precludes nesting of this species. May forage over the site.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Aquila chrysaetos golden eagle	BGEPA, SFP	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	**No Potential.** The Study Area does not contain cliffs or large trees to provide nesting habitat. May soar over the site.	**Not Present.** No further recommendations for this species.
Ardea alba great egret	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially, usually in trees, occasionally on the ground or elevated platforms. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	**No Potential.** The Study Area does not contain trees to provide roosting habitat.	**Not Present.** No further recommendations for this species.
Ardea herodias great blue heron	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially in tall trees and cliffs, also sequested terrestrial substrates. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	**No Potential.** The Study Area does not contain trees to provide roosting habitat.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Asio flammeus short-eared owl	SSC	Occurs year-round, but primarily as a winter visitor; breeding very restricted in most of California. Found in open, treeless areas (e.g., marshes, grasslands) with elevated sites for foraging perches and dense herbaceous vegetation for roosting and nesting. Preys mostly on small mammals, particularly voles.	**No Potential.** The Study Area does not contain dense vegetation for nesting.	**Not Present.** No further recommendations for this species.
Asio otus long-eared owl	SSC	Occurs year-round in California. Nests in trees in a variety of woodland habitats, including oak and riparian, as well as tree groves. Requires adjacent open land with rodents for foraging, and the presence of old nests of larger birds (hawks, crows, magpies) for breeding.	**No Potential.** The Study Area does not contain oak woodland to support this species.	**Not Present.** No further recommendations for this species.
Athene cunicularia burrowing owl	SSC	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	**No Potential.** The Study Area's management obliterates burrows to support nesting.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Brachyramphus marmoratus marbled murrelet	FT, SE	Predominantly coastal marine. Nests in old-growth coniferous forests up to 30 miles inland along the Pacific coast, from Eureka to Oregon border, and in Santa Cruz/San Mateo Counties. Nests are highly cryptic, and typically located on platform-like branches of mature redwoods and Douglas firs. Forages on marine invertebrates and small fishes.	**No Potential.** This species is not known from Marin County. Likewise, the Study Area is not old-growth forest habitat.	**Not Present.** No further recommendations for this species.
Buteo swainsoni Swainson's hawk	ST	Summer resident in Central Valley and limited portions of the southern California interior. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	**No Potential.** This species is not known to nest in Marin County.	**Not Present.** No further recommendations for this species.
Charadrius nivosus nivosus western snowy plover	FT, SSC	Federal listing applies only to the Pacific coastal population. Year-round resident and winter visitor. Occurs on sandy beaches, salt pond levees, and the shores of large alkali lakes. Nests on the ground, requiring sandy, gravelly or friable soils.	**No Potential.** The Study Area does not contain beaches and coastal strands to support nesting of this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Circus cyaneus northern harrier	SSC	Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	**No Potential.** The Study Area does not contain dense vegetation to provide nesting habitat.	**Not Present.** No further recommendations for this species.
Coccyzus americanus yellow-billed cuckoo	FT, SE	Summer resident, breeding in dense riparian forests, typically with early successional vegetation. Utilizes densely foliaged deciduous trees and shrubs. Current breeding distribution in California extremely limited. Forages primarily on insect larvae.	**No Potential.** The Study Area does not contain riparian habitat to support this species.	**Not Present.** No further recommendations for this species.
Contopus cooperi olive-sided flycatcher	SSC	Summer resident. Typical breeding habitat is montane coniferous forests. At lower elevations, also occurs in wooded canyons and mixed forests and woodlands. Often associated with forest edges. Arboreal nest sites located well off the ground.	**No Potential.** The Study Area does not contain forest or woodland habitat for this species.	**Not Present.** No further recommendations for this species.
Coturnicops noveboracensis yellow rail	SSC	Summer resident in eastern Sierra Nevada, breeding in shallow freshwater marshes and wet meadows with dense vegetation. A rare winter visitor along the coast and other cismontane areas. Extremely cryptic.	**No Potential.** The Study Area does not contain marsh or wet meadow habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Cypseloides niger black swift	SSC	Summer resident with a fragmented breeding distribution; most occupied areas in California either montane or coastal. Breeds in small colonies on cliffs behind or adjacent to waterfalls, in deep canyons, and sea-bluffs above surf. Forages aerially over wide areas.	**No Potential.** The Study Area does not contain cliffs for nesting.	**Not Present.** No further recommendations for this species.
Egretta thula snowy egret	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees, at times in sequestered beds of dense emergent vegetation (e.g., tules). Rookery sites usually situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	**No Potential.** The Study Area does not contain trees to provide roosting habitat.	**Not Present.** No further recommendations for this species.
Elanus leucurus white-tailed kite	SFP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	**No Potential.** The Study Area does not contain trees or suitable shrubs to provide nesting. May forage over the site.	**Not Present.** No further recommendations for this species.
Falco peregrinus anatum American peregrine falcon	SE, SFP	Year-round resident and winter visitor. Occurs near water, including coastal areas, wetlands, lakes and rivers. Usually nests on sheltered cliffs or tall man-made structures. Preys primarily on waterbirds.	**No Potential.** The Study Area does not contain cliffs for nesting.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Fratercula cirrhata tufted puffin	SSC	Pelagic and coastal marine. Nests near or along the coast on islands, islets, and (rarely) isolated mainland cliffs. Requires sod or earth into which the birds can burrow, or rocky crevices where friable soil is absent. Forages at sea, primarily for fish.	**No Potential.** The Study Area is not a marine island.	**Not Present.** No further recommendations for this species.
Geothlypis trichas sinuosa San Francisco (saltmarsh) common yellowthroat	SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**No Potential.** The Study Area does not contain marsh habitat for this species.	**Not Present.** No further recommendations for this species.
Haliaeetus leucocephalus bald eagle	BGEPA, SE, SFP	Occurs year-round in California, but primarily a winter visitor; breeding population is growing. Nests in large trees in the vicinity of larger lakes, reservoirs, and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	**No Potential.** The Study Area does not contain trees for nesting.	**Not Present.** No further recommendations for this species.
Icteria virens yellow-breasted chat	SSC	Summer resident, occurring in riparian areas with an open canopy, very dense understory, and trees for song perches. Nests in thickets of willow (*Salix* ssp.), blackberry (*Rubus* spp.), and wild grape (*Vitis californicus*).	**No Potential.** The Study Area does not contain riparian habitat for this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Lanius ludovicianus loggerhead shrike	SSC	Year-round resident in open woodland, grasslands, savannah, and scrub. Prefers areas with sparse shrubs, trees, posts, and other suitable perches for foraging. Preys upon large insects and small vertebrates. Nests are well-concealed in densely-foliaged shrubs or trees.	**No Potential.** The Study Area does not contain trees or suitable (thick) shrubs for nesting. May forage over the site.	**Not Present.** No further recommendations for this species.
Laterallus jamaicensis coturniculus California black rail	ST, SFP	Year-round resident in marshes (saline to freshwater) with dense vegetation within four inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	**No Potential.** The Study Area does not contain marsh habitat for this species.	**Not Present.** No further recommendations for this species.
Melospiza melodia samuelis San Pablo song sparrow	SSC	Year-round resident of tidal marshes along the north side of San Francisco and San Pablo Bays. Typical habitat is dominated by pickleweed, with gumplant and other shrubs present in the upper zone for nesting. May forage in areas adjacent to marshes.	**No Potential.** The Study Area does not contain marsh habitat for this species.	**Not Present.** No further recommendations for this species.
Nycticorax nycticorax black-crowned night heron	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees but also in patches of emergent vegetation. Rookery sites are often on islands and usually located adjacent to foraging areas: margins of lakes and bays.	**No Potential.** The Study Area is not a marine island.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Oceanodroma homochroa ashy storm-petrel	SSC	Marine species; nests in rocky crevices on offshore islands and rocks from southern Mendocino County to norther Baja California. Forages over open ocean for invertebrates and larval fishes.	**No Potential.** The Study Area is not a marine island.	**Not Present.** No further recommendations for this species.
Passerculus sandwichensis alaudinus Bryant's savannah sparrow	SSC	Year-round resident associated with the coastal fog belt, primarily between Humboldt and northern Monterey Counties. Occupies low tidally influenced habitats and adjacent areas, including grasslands. Also uses drier, more upland coastal grasslands. Nests near the ground in taller vegetation, including along levees and canals.	**Unlikely.** The annual management (mowing, disking) of the site likely precludes nesting of this species. May forage over the site.	**Not Present.** No further recommendations for this species.
Pelecanus occidentalis californicus California brown pelican	SFP	Colony nester on coastal islands and seastacks. Nest islands tend to be small to medium sized to prevent terrestrial predators.	**No Potential.** The Study Area is not a marine island.	**Not Present.** No further recommendations for this species.
Phoebastria (=*Diomeda*) *albatrus* short-tailed albatross	FE, SSC	Pelagic; only visiting land when breeding. Nests on isolated Pacific islands. A rare non-breeding visitor to the eastern Pacific.	**No Potential.** The Study Area is not directly on the coastline.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Progne subis purple martin	SSC	Summer resident. Inhabits woodlands and low-elevation coniferous forests. Nests in old woodpecker cavities and man-made structures (bridges, utility towers). Nest is often located in tall, isolated tree or snag.	**No Potential.** The Study Area does not contain woodland or forest habitat.	**Not Present.** No further recommendations for this species.
Rallus obsoletus obsoletus California Ridgway's (clapper) rail	FE, SE, SFP	Year-round resident in tidal marshes of the San Francisco Bay estuary. Requires tidal sloughs and intertidal mud flats for foraging, and dense marsh vegetation for nesting and cover. Typical habitat features abundant growth of cordgrass and pickleweed. Feeds primarily on mollusks and crustaceans.	**No Potential.** The Study Area does not contain marsh habitat for this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Progne subis purple martin	SSC	Summer resident. Inhabits woodlands and low-elevation coniferous forests. Nests in old woodpecker cavities and man-made structures (bridges, utility towers). Nest is often located in tall, isolated tree or snag.	**No Potential.** The Study Area does not contain woodland or forest habitat.	**Not Present.** No further recommendations for this species.
Rallus obsoletus obsoletus California Ridgway's (clapper) rail	FE, SE, SFP	Year-round resident in tidal marshes of the San Francisco Bay estuary. Requires tidal sloughs and intertidal mud flats for foraging, and dense marsh vegetation for nesting and cover. Typical habitat features abundant growth of cordgrass and pickleweed. Feeds primarily on mollusks and crustaceans.	**No Potential.** The Study Area does not contain marsh habitat for this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Riparia riparia bank swallow	ST	Summer resident in riparian and other lowland habitats near rivers, lakes and the ocean in northern California. Nests colonially in excavated burrows on vertical cliffs and bank cuts (natural and manmade) with fine-textured soils. Historical nesting range in southern and central areas of California has been eliminated by habitat loss. Currently known to breed in Siskiyou, Shasta, and Lassen Cos., portions of the north coast, and along Sacramento River from Shasta Co. south to Yolo Co.	**No Potential.** The Study Area does not cliff or bank cut habitat to support this species.	**Not Present.** No further recommendations for this species.
Setophaga petechia yellow warbler	SSC	Summer resident throughout much of California. Breeds in riparian vegetation close to water, including streams and wet meadows. Microhabitat used for nesting is variable, but dense willow growth is typical. Occurs widely on migration.	**No Potential.** The Study Area does not contain riparian habitat to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Sterna antillarum browni California least tern	FE, SE, SFP	Summer resident along the coast from San Francisco Bay south to northern Baja California; inland breeding also very rarely occurs. Nests colonially on barren or sparsely vegetated areas with sandy or gravelly substrates near water, including beaches, islands, and gravel bars. In San Francisco Bay, has also nested on salt pond margins.	**No Potential.** The Study Area does not contain expanses of bare sandy to gravelly soils.	**Not Present.** No further recommendations for this species.
Strix occidentalis caurina northern spotted owl	FT,ST, SSC	Year-round resident in dense, structurally complex forests, primarily those with stands of mature conifers. In Marin County, uses both coniferous and mixed (coniferous-hardwood) forests. Nests on platform-like substrates in the forest canopy, including in tree cavities. Documented nest trees in Marin County both conifer and broadleaf. Preys on small forest/woodland mammals.	**No Potential.** The Study Area does not contain forest habitat for this species.	**Not Present.** No further recommendations for this species.
Xanthocephalus xanthocephalus yellow-headed blackbird	SSC	Summer resident. Breeds colonially in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Requires abundant large insects such as dragonflies; nesting is timed for maximum emergence of insect prey.	**No Potential.** The Study Area lacks marsh vegetation suitable for nesting.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Reptiles and Amphibians				
Ambystoma californiense California tiger salamander	FT, ST	Occurs in grasslands, oak savannah, and open woodlands with a mosaic of vernal pools or similar seasonal wetlands. Requires vernal pools or similarly inundated waters for breeding and larvae. Adults are fossorial utilizing small mammal burrows for estivation.	**No Potential.** The Study Area does not contain breeding habitat and the repeated disking damages burrowing habitat. Furthermore, there are no documented occurrences from Marin County, with the possible exception of a record from the 19th Century in the Petaluma Area (CDFW 2018a).	**Not Present.** No further recommendations for this species.
Chelonia mydas green sea turtle	FT	Found in fairly shallow waters inside reefs, bays and inlets with marine grass and algae. Open beaches with a sloping platform and minimal disturbance are required for nesting. This species exhibits high site fidelity.	**No Potential.** The Study Area is not marine nor is it directly on the coastline.	**Not Present.** No further recommendations for this species.
Dicamptodon ensatus California giant salamander	SSC	Occurs in the north-central Coast Ranges. Moist coniferous and mixed forests are typical habitat; also uses woodland and chaparral. Adults are terrestrial and fossorial, breeding in cold, permanent or semi-permanent streams. Larvae usually remain aquatic for over a year.	**No Potential.** The Study Area and directly adjacent areas do not contain any streams.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Emys marmorata Pacific (western) pond turtle	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**No Potential.** The Study Area does not contain breeding habitat.	**Not Present.** No further recommendations for this species.
Rana boylii foothill yellow-legged frog	SC (T), SSC	Found in or near rocky streams in a variety of habitats; highly aquatic. Prefers partially-sunlit, 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 invertebrates (aquatic and terrestrial).	**No Potential.** The Study Area does not contain riverine waters.	**Not Present.** No further recommendations for this species.
Rana draytonii California red-legged frog	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense emergent and/or overhanging riparian vegetation. Favors perennial to intermittent ponds, marshes, and stream pools. Requires 11 to 20 weeks of continuous inundation for larval development. Disperses through upland habitats during and after rains.	**No Potential.** The Study Area does not contain breeding habitat and the repeated disking damages burrowing habitat.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Fishes				
Eucyclogobius newberryi tidewater goby	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. Requires fairly still but not stagnant water and high oxygen levels.	**No Potential.** The Study Area does not contain anadromous or estuarine waters.	**Not Present.** No further recommendations for this species.
Hypomesus transpacificus Delta smelt	FT, SE	Resident to the Sacramento-San Joaquin estuary in areas where salt and freshwater systems coalesce. Occurs seasonally in Suisun and San Pablo bays. Seldom found in salinities >10ppt, typically in waters of <2ppt.	**No Potential.** The Study Area does not encompass the Delta, Suisun Bay, or San Pablo Bay.	**Not Present.** No further recommendations for this species.
Lavinia symmetricus ssp. 2 Tomales roach	SSC	Habitat generalist. Found in well aerated perennial and tributaries to Tomales Bay. Feed primarily on algae supplemented with crustaceans and insects.	**No Potential.** The Study Area does not contain estuarine waters.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Oncorhynchus kisutch coho salmon – central CA coast ESU	FE, SE	Occurs in inland and coastal rivers, and marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also requires riparian cover to contribute to cool, well-aerated water. Federal listing applies to populations between Punta Gorda and San Lorenzo River. State listing applies populations south of San Francisco Bay only.	**No Potential.** The Study Area does not contain anadromous or estuarine waters.	**Not Present.** No further recommendations for this species.
Oncorhynchus mykiss irideus steelhead - central CA coast DPS	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.** The Study Area does not contain anadromous or estuarine waters.	**Not Present.** No further recommendations for this species.
Spirinchus thaleichthys longfin smelt	FC, ST, SSC	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	**No Potential.** The Study Area does not contain riverine or estuarine waters.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Invertebrates				
Callophrys mossii bayensis San Bruno elfin butterfly	FE	Known from San Bruno Mountain, Milagra Ridge, and Montara Mountain. Host plant is Pacific stonecrop (*Sedum spathulifolium*). Adult nectar resources include manzanita (*Arctostaphylos* spp.) and evergreen huckleberry (*Vaccinium ovatum*).	**No Potential.** The Study Area does not contain larval host or adult nectar resources to support this species. Furthermore, the Study Area is out of the known range of this species.	**Not Present.** No further recommendations for this species.
Danaus plexippus monarch butterfly	roosting sites protected by CDFW	Winter roost sites along the coast from Baja California north to Mendocino County. Roosts are wind-protected tree groves, typically of eucalyptus (*Eucalyptus* spp.), Monterey pine (*Pinus radiata*), and Monterey cypress (*Hesperocyparis macrocarpa*).	**No Potential.** The Study Area not contain trees to provide roosting sites.	**Not Present.** No further recommendations for this species.
Plebejus icarioides missionensis Mission blue butterfly	FE	Known from Twin Peaks and Marin Headlands. Hosts on three perennial lupines (*Lupinus variicolor, L. albifrons, L. formosus*). Nectars on a variety of flowers.	**No Potential.** The Study Area does not contain larval host or adult nectar resources to support this species. Furthermore, the Study Area is out of the known range of this species.	**Not Present.** No further recommendations for this species.
Speyeria zerene myrtleae Myrtle's silverspot butterfly	FE	Historic populations from Russian River to San Mateo County; currently known only from western Marin and southwestern Sonoma counties. Host plant is dog violet (*Viola adunca*); nectar plants are varied.	**No Potential.** The Study Area does not contain larval host or adult nectar resources to support this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Syncaris pacifica California freshwater shrimp	FE, SE	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main stream flow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	**No Potential.** The Study Area does not contain riverine waters.	**Not Present.** No further recommendations for this species.

***Key to status codes:**

FC	Federal Candidate for Listing
FE	Federal Endangered
BGEPA	Bald and Golden Eagle Protection Act Species
FT	Federal Threatened
SC (E/T)	State Candidate for Listing (Endangered/Threatened)
SE	State Endangered
SFP	State Fully Protected Animal
SR	State Rare
SSC	State Species of Special Concern
ST	State Threatened
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 2A	CNPS Rank 2A: Plants presumed extirpated in California, but more common elsewhere
Rank 2B	CNPS Rank 2B: 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)
Rank 4	CNPS Rank 4: Plants of limited distribution (a watch list)
WBWG	Western Bat Working Group High or Medium-high Priority Species

Potential to Occur:

No Potential: Habitat on and adjacent to the site is clearly unsuitable for the species requirements (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.

Results and Recommendations:

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

Assumed Present: Species is assumed to be present on-site based on the presence of key habitat components.

Assumed Present without Impact: Species assumed present; however, project activities will not have an impact on the species.

Presumed Absent: Species is presumed to not be present due to a lack of key habitat components.

Not Present: Species is considered not present due to a clear lack of any suitable habitat and/or local range limitations.

Not Observed: Species was not observed during dedicated/formal surveys.

Presence Unknown: Species has the potential to be present, but no dedicated surveys to determine absence/presence were performed.

Appendix C

Species Observed in the Study Area

Table C-1. Plants observed in the Study Area, October 4, 2017. April 5 and July 26, 2018

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Anacardiaceae	*Toxicodendron diversilobum*	poison oak	deciduous shrub	native	-	-	NL
Asteraceae	*Achillea millefolium*	common yarrow	perennial forb	native	-	-	FACU
Asteraceae	*Baccharis pilularis*	coyote brush	evergreen shrub	native	-	-	NL
Asteraceae	*Carduus pycnocephalus*	Italian thistle	annual forb	non-native	-	moderate	NL
Asteraceae	*Hypochaeris radicata*	rough cat's-ear	perennial forb	non-native	-	moderate	FACU
Asteraceae	*Sonchus oleraceus*	common sow thistle	annual forb	non-native	-	-	NL
Brassicaceae	*Raphanus sativus*	wild radish	perennial forb	non-native	-	limited	NL
Fabaceae	*Genista monspessulana*	French broom	evergreen shrub	non-native	-	high	NL
Fabaceae	*Medicago polymorpha*	bur medic	annual forb	non-native	-	limited	FACU
Fabaceae	*Cytisus scoparius*	Scotch broom	evergreen shrub	non-native	-	high	NL
Juncaceae	*Juncus patens*	common rush	perennial graminoid	native	-	-	FACW
Myrsinaceae	*Lysimachia arvensis*	scarlet pimpernel	annual forb	non-native	-	-	NL
Oxalidaceae	*Oxalis pes-caprae*	Bermuda buttercup	perennial forb	non-native	-	moderate	NL
Poaceae	*Bromus diandrus*	ripgut brome	annual graminoid	non-native	-	moderate	NL
Poaceae	*Festuca perennis*	Italian rye grass	annual graminoid	non-native	-	moderate	FAC
Poaceae	*Holcus lanatus*	common velvet grass	perennial graminoid	non-native	-	moderate	FAC
Poaceae	*Poa annua*	annual bluegrass	annual graminoid	non-native	-	-	FACU
Polygonaceae	*Rumex acetosella*	sheep sorrel	perennial forb	non-native	-	moderate	FACU
Rosaceae	*Rubus ursinus*	California blackberry	evergreen shrub	native	-	-	FACU

All species identified using the *Jepson Manual, 2nd Edition* (Baldwin et al. 2012) and *Marin Flora* (Howell et al. 2007); nomenclature follows *The Jepson Flora Project* (eFlora 2018) unless otherwise noted

[1]Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2018)

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
Rank 1A:	Plants presumed extirpated in California and either rare or extinct elsewhere
Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere
Rank 2A:	Plants presumed extirpated in California, but more common elsewhere
Rank 2B:	Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3:	Plants about which we need more information – a review list
Rank 4:	Plants of limited distribution – a watch list

[2]Invasive Status: California Invasive Plant Inventory (Cal-IPC 2006)

High:	Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.
Moderate:	Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited moderate distribution ecologically
Limited:	Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically
Assessed:	Assessed by Cal-IPC and determined to not be an existing current threat

[3]Wetland Status: National List of Plant Species that Occur in Wetlands, Arid West Region (Lichvar et al. 2016)

OBL:	Almost always a hydrophyte, rarely in uplands
FACW:	Usually a hydrophyte, but occasionally found in uplands
FAC:	Commonly either a hydrophyte or non-hydrophyte
FACU:	Occasionally a hydrophyte, but usually found in uplands
UPL:	Rarely a hydrophyte, almost always in uplands
NL:	Rarely a hydrophyte, almost always in uplands
NI:	No information; not factored during wetland delineation