

Biotic Report

for

Habitat for Humanity Monterey Bay

Application #181094
2340 Harper Street, Santa Cruz, CA
APN 029-171-05(s)
Santa Cruz County



Prepared for

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As a County approved biologist, I hereby certify that this Biotic Report was prepared according to the Guidelines established by the County of Santa Cruz Planning Department and that the statements furnished in the report and associated maps are true and correct to the best of my knowledge and belief; and I further certify that I was present throughout the site visit(s) associated with this report.



Signature

June 27, 2018

Date

Table of Contents

Synopsis	v
1 Introduction.....	1
1.1 Purpose	1
1.2 Location.....	1
1.3 Project Description	1
1.3.1 Habitat Restoration	2
1.4 Regulatory Framework	2
1.4.1 Federal Law and Regulations.....	2
1.4.2 State Law and Regulations.....	3
1.4.3 Local Law and Regulations.....	4
2 Methods.....	5
2.1 Literature Review	5
2.2 Mapping.....	6
2.3 Surveys	6
2.3.1 Botanical	6
2.3.2 Wildlife	7
2.4 Soils	7
3 Results.....	8
3.1 Regional Context.....	8
3.2 Existing Conditions	8
3.3 Habitat Types.....	8
3.3.1 Annual Brome Grassland.....	9
3.3.2 Ruderal.....	9
3.3.3 Eucalyptus-Oak Woodland.....	10
3.4 Potential Wetlands and Jurisdictional Waters	10
3.5 Habitat Connectivity and Wildlife Movement	10
3.6 Special Status Plant Species	11
3.6.1 Introduction to California Rare Plant Ranks.....	11
3.6.2 Introduction to CNDDDB Definitions.....	11
3.6.3 Potential Special Status Plant List	11
3.6.4 Discussion.....	17
3.7 Special Status Animal Species	20
3.7.1 Introduction to CNDDDB Definitions.....	20
3.7.2 Potential Special Status Animals List.....	21
3.7.3 Discussion.....	25
3.8 Botanical Survey Results.....	30

3.9	Wildlife Survey Results.....	32
4	Potential Impacts.....	36
4.1	Habitats.....	36
4.1.1	Annual Brome Grassland.....	36
4.1.2	Ruderal.....	36
4.1.3	Eucalyptus-Oak Woodland.....	36
4.2	Potential Wetlands and Jurisdictional Waters.....	37
4.3	Nesting Birds.....	37
4.4	Special Status Species.....	37
4.4.1	Plants.....	37
4.4.2	Reptiles.....	37
4.4.3	Birds.....	37
4.4.4	Mammals.....	38
4.4.5	Insects.....	38
4.4.6	Fish.....	38
4.5	Habitat Connectivity and Wildlife Movement.....	38
5	Mitigation Recommendations.....	39
5.1	Habitats.....	39
5.1.1	Annual Brome Grassland.....	39
5.1.2	Ruderal.....	39
5.1.3	Eucalyptus-oak Woodland.....	39
5.2	Potential Wetlands and Jurisdictional Waters.....	40
5.3	Nesting Birds.....	40
5.4	Special Status Species.....	41
5.4.1	Plants.....	41
5.4.2	Northern California legless lizard.....	41
5.4.3	Birds.....	41
5.4.4	Bats.....	42
5.4.5	Other Mammals.....	42
5.4.6	Monarch Butterflies.....	43
5.4.7	Tidewater Goby.....	43
5.5	Habitat Connectivity and Wildlife Movement.....	43
6	Photographs.....	44
7	Figures.....	50
8	References.....	58
9	Appendices.....	61

List of Tables

Table 1. Biological Surveys.....	6
Table 2. Habitat Types.....	9
Table 3. Special Status Plant List.....	12
Table 4. Special Status Animal List.....	22
Table 5. Vascular Plant List.....	30
Table 6. Wildlife List.....	33
Table 7. Potential Habitat Impacts.....	36

List of Figures

Figure 1. USGS Topographic Map.....	51
Figure 2. Aerial Photograph.....	52
Figure 3. Biological Resource Map.....	53
Figure 4. CNDDDB Plant Records.....	54
Figure 5. CNDDDB Animal Records.....	55
Figure 6. USFWS Critical Habitat.....	56
Figure 7. Impact Map.....	57

Appendices

Appendix A: Proposed Site Plans

Appendix B. USDA Custom Soil Resource Report

Appendix C. California Natural Diversity Database and California Native Plant Society Plant Records (Full)

Appendix D. California Natural Diversity Database Animal Records (Full)

Cover Page: View of annual grassland with scattered coast live oaks. Photo taken from northeast corner looking south. Photo taken January 31, 2018.

SYNOPSIS

- This biotic report examines a 1.57-acre Study Area located at 2340 Harper Street in Unincorporated Santa Cruz County, California. The Study Area includes Assessor's Parcel Number (APN 029-171-05).
- The proposed project is an affordable housing complex consisting of 11 two and three-bedroom units grouped into six buildings. There will also be a parking lot, a recreation area, and a community garden. The footprint of the proposed project is approximately 0.92 acres.
- Habitat types identified and mapped in the Study Area consist of annual brome grassland, eucalyptus-oak woodland, and ruderal. An ephemeral drainage in an arroyo borders the southern edge of the Study Area. Approximately 0.62 acres of annual grassland and 0.30 acres of ruderal habitat would be impacted by the proposed project. No sensitive habitat would be impacted.
- Botanical surveys conducted in May 2018 identified 58 species, subspecies, and varieties of vascular plants in the Study Area. Four special status plant species have moderate potential to occur, and twelve special status plant species have low potential to occur in the Study Area. Special status plant species were not detected during the May 2018 botanical survey. A late season botanical will be conducted in July 2018 to determine the presence/absence of special status plant species Santa Cruz tarplant, which has a late season flowering period. No impacts to special status plants are expected.
- Wildlife species detected in the Study Area include 20 birds and 5 mammals. One special status animal species has high potential to occur, four special status animal species have moderate potential to occur, and seven special status animal species have low potential to occur in the Study Area. No state or federally listed animals have been detected in the Study Area. No impacts to special status wildlife species are expected.
- Mitigation measures are provided to avoid or reduce potential impacts to sensitive habitats, nesting birds and special status species. Habitat restoration of the eucalyptus-oak woodland will involve removing select eucalyptus trees, installing a short walking path, and removal of non-native vegetation and installation of native plants around the path and around the coast live oak trees within the woodland.

1 INTRODUCTION

1.1 Purpose

This report provides information regarding biological resources associated with an approximately 1.57-acre site (Study Area) in Santa Cruz County, California. Results are reported for botanical and wildlife surveys of the Study Area conducted from January through May 2018. A habitat inventory and results of database and literature searches of special status species reports within a seven 7.5-minute quadrangle search area of the Study Area are also included. Special status species that could occur in the Study Area or be affected by the proposed project are discussed and lists of plant and animal species that were identified or are expected in the Study Area are provided. An evaluation of the effect of the proposed project on biological resources is included, and mitigation recommendations are outlined.

1.2 Location

The 1.57-acre parcel (APN 029-171-05) is located at 2340 Harper Street about 0.25 miles east of 17th Avenue (Figures 1 and 2). Approximate coordinates for the center of the Study Area are 36°58'21.272" N / 121°58'43.527" W (NAD84) in the United States Geological Survey (USGS) 7.5-minute topographic quadrangle Soquel. Elevation ranges from approximately 56 to 78 feet above mean sea level. The Study Area is located in the Live Oak area of unincorporated Santa Cruz County, in an area zoned as Urban Residential, Low Density by the Santa Cruz County General Plan Land Use Element. See Section 3 for detailed descriptions of habitat types and vegetation communities and assessment of potential sensitive species.

1.3 Project Description

The proposed project has a footprint of approximately 0.92 acres and includes affordable housing consisting of 11 two and three-bedroom units, grouped into five duplexes and one single building. There would also be a parking lot, a recreation area, and a community garden. Site Plans are included as Appendix A. The major components of the project include:

- Eight two-story three-bedroom units, each with a yard, in four duplex buildings.
- Two single-story two-bedroom units, each with a yard, in one duplex building.
- One single-story three-bedroom unit, with a yard, in a single unit building.
- One of the three-bedroom units and one of the two-bedroom units will meet full ADA accessibility standards
- A recreation area which would consist of a lawn and a small climbing structure area atop sand or tan bark chips.
- A driveway from Harper Street into a parking lot with 30 parking spaces, including 2 accessible spaces. The parking would be clustered to minimize the need for individual driveways.
- A community garden.

1.3.1 Habitat Restoration

Santa Cruz County General Plan Policy 5.1.12 requires habitat restoration as a condition of development approval. The policy states:

Require as a condition of development approval, restoration of any area of the subject property which is an identified degraded sensitive habitat, with the magnitude of restoration to be commensurate with the scope of the project. Such conditions may include erosion control measures, removal of non-native or invasive species, planting with characteristic native species, diversion of polluting run-off, water impoundment, and other appropriate means. The object of habitat restoration activities shall be to enhance the functional capacity and biological productivity of the habitat(s) and whenever feasible, to restore them to a condition which can be sustained by natural occurrences, such as tidal flushing of lagoons.

In order to comply with this policy, the eucalyptus-oak woodland at the south end of the Study Area (see Section 3.3) will undergo non-native plant removal and habitat restoration. This will involve removing select eucalyptus trees, installing a short walking path, and removal of non-native vegetation and installation of native plants around the path and around the coast live oak trees within the woodland. See Section 5.1.3 for a more detailed description of the proposed habitat restoration.

1.4 Regulatory Framework

1.4.1 Federal Law and Regulations

Endangered Species Act. The Federal Endangered Species Act (FESA) provides the legal framework for the listing and protection of species (and their habitats) identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered a ‘take’ under the Endangered Species Act. Take of a federally listed threatened or endangered species is prohibited without a special permit. The Endangered Species Act allows for take of a threatened or endangered species incidental to development activities once a habitat conservation plan has been prepared to the satisfaction of the United States Fish and Wildlife Service (USFWS) and an incidental take permit has been issued. The Endangered Species Act also allows for the take of threatened or endangered species after consultation has deemed that development activities will not jeopardize the continued existence of the species. The federal Endangered Species Act also provides for a Section 7 Consultation when a federal permit is required, such as a Clean Water Act Section 404 permit.

“Critical Habitat” is a term within the federal Endangered Species Act designed to guide actions by federal agencies (as opposed to state, local, or other agency actions) and defined as “an area occupied by a species listed as threatened or endangered within which are found physical or geographical features essential to the conservation of the species, or an area not currently occupied by the species which is itself essential to the conservation of the species.”

Section 404 Clean Water Act Regulations. The Clean Water Act provides wetland regulation at the federal level and is administered by the USACE. The purpose of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of all waters of the U.S. Permitting is required for filling waters of the U.S. (including wetlands). Permits may be issued on an individual basis or may be covered under approved nationwide permits.

Migratory Bird Treaty Act. All migratory bird species that are native to the U.S. or its territories are protected under the federal Migratory Bird Treaty Act, as amended under the Migratory Bird Treaty Reform Act of 2004. The Migratory Bird Treaty Act is generally protective of migratory birds.

1.4.2 State Law and Regulations

California Environmental Quality Act (CEQA). CEQA requires that biological resources be considered when assessing the environmental impacts that are the result of proposed actions. The lead agencies determine the scope of what is considered an impact and what constitutes an “adverse effect” on a biological resource.

California Fish and Game Code. The California Fish and Game Code regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as natural resources such as wetlands and waters of the state. It includes but is not limited to the California Endangered Species Act, Lake and Streambed Alteration Agreements, and the California Native Plant Protection Act.

Nesting Birds. Fish and Game Code, Section 3503, states that it is “unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto,” and “unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird” unless authorized.

California Endangered Species Act. The California Endangered Species Act (CESA), similar to the federal Endangered Species Act, contains a process for listing of species and regulating potential impacts to listed species. State threatened and endangered species include both plants and wildlife, but do not include invertebrates. The designation “rare species” applies only to California native plants. State threatened and endangered plant species are regulated largely under the Native Plant Preservation Act in conjunction with the California Endangered Species Act. State threatened and endangered animal species are legally protected against “take.” The CESA authorizes the California Department of Fish and Wildlife (CDFW) to enter into a memorandum of agreement for take of listed species to issue an incidental take permit for a state-listed threatened and endangered species only if specific criteria are met. Section 2080 of the CESA prohibits the take of species listed as threatened or endangered pursuant to the Act. Section 2081 allows CDFW to authorize take prohibited under Section 2080 provided that: 1) the taking is incidental to an otherwise lawful activity; 2) the taking will be minimized and fully mitigated; 3) the applicant ensures adequate funding for minimization and mitigation; and 4) the authorization will not jeopardize the continued existence of the listed species.

California Native Plant Protection Act. Section 1900-1913 of the California Fish and Game Code contains the regulations of the Native Plant Protection Act of 1977. The intent of this act is to help conserve and protect rare and endangered plants in the state.

Regional Water Quality Control Board. The RWQCB not only regulates impacts to water quality in federal waters of the U.S. under Section 401 of the Clean Water Act, but they also regulate any isolated waters that are impacted under the state Porter Cologne Act utilizing a Waste Discharge Requirement. Discharge of fill material into waters of the State not subject to the

jurisdiction of the USACE pursuant to Section 401 of the Clean Water Act may require authorization pursuant to the Porter Cologne Act through application for waste discharge requirements or through waiver of waste discharge requirements.

Natural Community Conservation Planning (NCCP) Act of 1991. The NCCP Act is designed to conserve natural communities at the ecosystem scale while accommodating compatible land use. CDFW is the primary state agency that implements the NCCP. The NCCP plan provides for the comprehensive management and conservation of multiple wildlife species. It identifies and provides for regional protection of natural wildlife diversity while allowing for compatible and appropriate development and growth.

California Oak Woodland Conservation Act. This act established the Oak Woodland Conservation Program, administered by the Wildlife Conservation Board, to help local jurisdictions protect and enhance their oak woodland resources. It offers landowners, conservation groups, and cities/counties an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands.

1.4.3 Local Law and Regulations

Santa Cruz County General Plan Conservation and Open Space Element. Chapter 5 of the General Plan is a combined Conservation and Open Space Element. This chapter provides guiding principles for the conservation and utilization of biotic resources within the County. The goals, objectives, policies and programs of this chapter recognize the need to balance conservation and preservation of natural and cultural resources with their productive use and stewardship. Policies relevant to this biotic report are specified in sections pertaining to Biological Diversity and Water Resources.

Santa Cruz County Code Title 16. The purpose of Title 16 of County Code (Environmental and Resource Protection) is “to preserve and enhance the environment of the County of Santa Cruz by providing for the adoption of County environmental review guidelines setting forth regulations and procedures implementing the California Environmental Quality Act (CEQA) and State Environmental Impact Report Guidelines promulgated pursuant thereto.” Chapters relevant to this biotic report include Chapter 16.30 (Riparian Corridor and Wetlands Protection) and Chapter 16.32 (Sensitive Habitat Protection). Section 16.30.040 states that “The buffer shall always extend 50 feet from the edge of riparian woodland and 20 feet beyond the edge of other woody vegetation as determined by the drip-line, except as provided for in SCCC 16.30.060. Once the buffer is determined, a 10-foot setback from the edge of the buffer is required for all structures, to allow for construction equipment and use of yard area.”

2 METHODS

2.1 Literature Review

Relevant literature, including relevant plans, policies, and biological information, was reviewed to determine what biological resources may occur near or in the project area. Research included:

- Review of agency plans pertaining to sensitive and special-status species;
- Queries of special-status species occurrence records;
- Review of literature on sensitive species and biological resources in the project area and region;

A summary of the sources reviewed is provided below.

We conducted a search of the California Natural Diversity Database (CNDDDB May 2018 data) and the California Native Plant Society (CNPS) On-line Inventory of Rare and Endangered Plants of California for special status species known to occur in the seven USGS 7.5-minute quadrangles surrounding the Study Area: Santa Cruz, Soquel, Watsonville West, Felton, Laurel, Loma Prieta, and Moss Landing.

Additional special status species research consisted of reviewing previous biological reports for the area and searching online museum and herbarium specimen records for locality data within Santa Cruz County. We reviewed online databases of specimen records maintained by the Consortium of California Herbaria. Additional special status species with potential to occur on or near the Study Area were added to our special status species list (refer to Table 3 and Table 4).

Special status species lists produced by database and literature searches were cross-referenced with the described habitat types in the Study Area to identify all potential special status species that could occur on or near the Study Area. Each special status species that could occur on or near the Study Area is individually discussed (refer to Sections 3.6 and 3.7).

After review of the literature, the following criteria were used to determine the potential for special-status species to occur within the project area:

- **Present:** The species was observed in the project area during field surveys.
- **High Potential:** High habitat quality combined with CNDDDB occurrences or other records indicate the species is likely to occur on the project site. Individuals may not have been observed in the project area during field surveys; however, the species likely occurs in the project vicinity and could move into the project site in the future.
- **Moderate Potential:** CNDDDB occurrences or surveys have recorded the species within 10 miles of the project area and suitable habitat is present. The species could be present, at least seasonally or as a transient.
- **Low Potential:** Marginally suitable habitat may occur in the project area, but individuals were not observed during surveys and are not expected to be present.
- **No Potential:** Species, sign, or habitat were not observed on the site during surveys and suitable habitat is not present.

2.2 Mapping

Mapping efforts utilized Samsung Galaxy Tab 4 tablets equipped with Garmin GLO GPS Receivers and a third-party mapping application. Biological resource constraints were mapped in the field on site. Hand notation of habitats on high resolution aerials were digitized into polygon layers. Maps were created using aerial photo interpretation, field notation, and spatial data imported to Esri ArcGIS, a Geographic Information System (GIS) software program. Data were overlaid on a 2016 National Agriculture Imagery Program (NAIP) aerial of Santa Cruz County (NAIP 2016).

2.3 Surveys

The Study Area was surveyed for biological resources on January 31 and May 20, 2018 (Table 1). A preliminary site assessment and wildlife survey was conducted by biologist Jessica Griffiths on January 31, 2018. A spring botanical survey and wildlife survey was conducted on May 20, 2018 by biologist Kristen Andersen. Surveys were conducted on foot to compile species lists, search for special status plants and animals, map habitats, and to photograph the Study Area. The entire Study Area (see Figure 2) was surveyed during each site visit.

TABLE 1. BIOLOGICAL SURVEYS.

Survey Date	Biologist(s)	Weather Observations	Activities
January 31, 2018	Jessica Griffiths	60°F, sunny, no wind	Habitat and project impact assessment; wildlife survey
May 20, 2018	Kristen Andersen	58-62 °F, cloudy, cool	Botanical and wildlife surveys; rare plant reference site visits

2.3.1 Botanical

Each habitat type occurring in the Study Area was inspected, described, and catalogued (Section 3.3). All plant species observed in the Study Area were identified and recorded by a qualified botanist (Section 3.8). This survey was floristic in nature and followed a complete survey protocol which consists of a 100 percent visual examination of the Study Area using pedestrian transects. Transects were oriented west-east, with the surveyor examining a 10-foot-wide area. A species list was compiled while traversing the Study Area, and fluctuations in plant communities or habitat types were noted. Reconnaissance transects were meandering with an emphasis on targeting special status plant species. Transects were utilized to map boundaries of different vegetation types, describe general conditions and dominant species, compile species lists, and evaluate potential habitat for special status species. Identification of botanical resources included field observations and laboratory analysis of collected material (Table 5). Botanical surveys were conducted in May according to agency guidelines (USFWS 2000, CDFG [CDFW] 2009, and CNPS 2001). Botanical surveys are timed to identify all special status plant species known from the region (refer to Section 3.6 and Table 3) that have potential to occur in the Study Area. A second botanical survey conducted using the same guidelines is planned in summer in order to capture potential late-blooming sensitive plant species including Santa Cruz tarplant. In May,

three different reference sites within a five-mile radius were visited where known occurrences of Santa Cruz tarplant have been documented (see Section 3.8); these sites will be visited in advance of the late summer botanical survey. Botanical nomenclature used in this document follows the Jepson Manual, Second Edition (Baldwin et al. 2012). We also provide Jepson Manual First Edition names in brackets where nomenclature has recently changed (Jepson 1993).

2.3.2 Wildlife

Wildlife documentation included observations of animal presence and wildlife sign such as nests, tracks, and scat. Observations of wildlife were recorded during field surveys in all areas of the Study Area (refer to Section 3.9 and Table 6). Birds were identified by sight, using 10-power binoculars, or by vocalizations. Reptiles and amphibians were identified by sight, often using binoculars; traps were not used. Mammals recorded in the Study Area were identified by sight and tracks.

2.4 Soils

One individual soil map unit from the Natural Resource Conservation Service (NRCS) Soil Survey Geographic Database (SSURGO) overlaps the Study Area: Watsonville loam, 0 to 2 percent slopes (Soil Survey Staff 2018).

A custom soil report for the Study Area can be found as Appendix B.

3 RESULTS

3.1 Regional Context

The property is located approximately a mile east of the city of Santa Cruz, in unincorporated Santa Cruz County. Dense residential and urban development surrounds the property on all sides. The project site is just over a mile from the coast and is approximately 1.5 miles south of the foothills of the Santa Cruz Mountains. Rodeo Gulch, which empties into Corcoran Lagoon, lies approximately 0.17 miles to the east and Arana Gulch, which empties into Woods Lagoon, lies approximately one mile to the west. Both creeks flow down from the Santa Cruz Mountains to the north and empty into the Pacific Ocean.

3.2 Existing Conditions

The property is approximately 1.57 acres, and is bordered by Harper Street to the north, residential lots to the east and west, and an unnamed ephemeral drainage to the south. This drainage is contained within an arroyo and is approximately a quarter mile long. It flows into Rodeo Gulch, located approximately 0.17 miles east of the property, which in turn flows into Corcoran Lagoon. There is an occupied single-story house and storage shed on the northern end of the property, where a row of Monterey cypress (*Hesperocyparis macrocarpa*) borders Harper Street. Surrounding the house are Bailey acacias (*Acacia baileyana*) and coast live oaks (*Quercus agrifolia*). Southeast of the house is an old garden, which is now overgrown with non-native forbs such as cape ivy (*Delairea odorata*), wild radish (*Raphanus sativus*), and mustard (*Brassica* sp.)

The majority of the property is comprised of an open field mowed at least once a year by Santa Cruz County. The field is dominated by non-native annual grasses including ripgut brome (*Bromus diandrus*) and non-native forbs including Bermuda buttercup (*Oxalis pes-caprae*) and wild radish. Within the field are patches of Himalayan blackberry (*Rubus armeniacus*) and coyote brush (*Baccharis pilularis*). To the south, coyote brush is more abundant, interspersed with small coast live oaks.

The ephemeral drainage which forms the southern boundary of the property is bordered by woodland comprised of tall mature blue gum eucalyptus (*Eucalyptus globulus*) and smaller coast live oaks. This eucalyptus-oak woodland covers the southern portion of the property. The woodland has a dense understory comprised primarily of non-native shrubs and forbs including cape ivy, English ivy (*Hedera helix*), and Himalayan blackberry. Native shrubs such as California blackberry (*Rubus ursinus*) and poison oak (*Toxicodendron diversilobum*) are present in patches. Large amounts of woody debris, including entire downed eucalyptus trees, lay in the drainage, potentially blocking storm flows.

3.3 Habitat Types

Table 2 lists three habitat types described and mapped within the Study Area (see Figure 3). Most of the Study Area, approximately 0.75 acres, is mapped as annual brome grassland habitat. The remaining area consists of approximately 0.52 acres of eucalyptus-oak woodland, with a small portion of approximately 0.3 acres of ruderal habitat in the northwest portion of the Study Area.

TABLE 2. HABITAT TYPES.

Habitat Type	Location	Approximate Acreage
Annual brome grassland	Central area extending into northeast portion of Study Area	0.75
Ruderal	Northwest portion of Study Area	0.30
Eucalyptus-oak woodland	Southern portion of Study Area	0.52

3.3.1 Annual Brome Grassland

Most of the Study Area is comprised of annual brome grassland habitat dominated by non-native grasses such as bromes (*Bromus diandrus*, *B. hordeaceus*) and wild oats (*Avena barbata*, *A. fatua*), with common associate grasses such as Italian rye grass (*Festuca perennis*) and false brome (*Brachypodium distachyon*). The annual brome grassland habitat type comprises approximately 0.75 acres (48%) of the Study Area. A variety of annual forbs were scattered throughout the grassland, including cat's-ear (*Hypochaeris glabra*, *H. radicata*), spring vetch (*Vicia sativa*), various filaree (*Erodium* ssp.), and California poppy (*Eschscholzia californica*). Herbaceous cover was intermittent to continuous and less than 75 cm in height, overall. Emergent trees and shrubs, such as immature coast live oaks, coyote brush, and Himalayan blackberry, were present at low cover toward the central and southern portion of the grassland habitat. Vegetation was recently disturbed from annual mowing, which had occurred within thirty days prior to our spring 2018 site visit, contributing to the presence of some immature grasses and forbs throughout the Study Area.

The annual brome grassland provides foraging habitat for birds and small mammals. Gopher mounds were observed within patchy areas of grassland habitat, particularly near the residential property at the northwest end of the site. The grassland could potentially provide habitat for ground nesting birds, however is unlikely due to the small size of this habitat, and the disturbance of annual mowing and residential use of the property.

3.3.2 Ruderal

Ruderal habitat occurs predominantly at the northern edge of the Study Area, where the property borders Harper Street, and extends to just south of the occupied single-story home and the surrounding garden on the southeast side of the house. It comprises approximately 0.30 acres (19%) of the Study Area. Several trees occur around the residential property, such as Bailey acacias and coast live oaks. A row of Monterey cypress grows along the street. Most of the understory consists of non-native weedy forbs such as cape ivy, wild radish, and mustard, along with non-native ground cover species such as scarlet pimpernel (*Anagallis arvensis*) and California burclover (*Medicago polymorpha*). The herbaceous vegetation layer is less than 1.5 meters tall with a canopy that is open to intermittent.

Ruderal habitat provides foraging habitat for observed mammals such as western gray squirrels (*Sciurus griseus*) and pocket gophers (*Thomomys bottae*), and for several of the observed bird species.

3.3.3 Eucalyptus-Oak Woodland

The southern portion of the Study Area is comprised of eucalyptus-oak woodland habitat, which incorporates the riparian corridor at the far southern end of the property. It comprises 0.52 acres (33%) of the Study Area. This woodland habitat consists of a grove of mature planted blue gum eucalyptus trees along the southern riparian corridor, interspersed with coast live oak trees which are less than 25 feet in height. The canopy is open to continuous, the shrub layer is dense to intermittent, and the herbaceous layer is sparse to intermittent or grassy (CNPS 2018).

The understory increases in density toward the south, with dense blackberry shrubs and English ivy in the shrub canopy of the woodland habitat. Patches of variable forbs such as crimson wood-sorrel (*Oxalis incarnata*), miner's lettuce (*Claytonia parviflora*, *C. perfoliata*), calla-lily (*Zantedeschia aethiopica*), chickweed (*Cerastium glomeratum*, *Stellaria media*), and sheep sorrel (*Rumex acetosella*) are intermittent throughout the shaded, herbaceous layer; many of which are typical understory woodland species requiring shade and moist conditions.

Santa Cruz County Code Section 16.30.040 requires a buffer zone and setback for arroyos in urban areas from the edge of riparian or other woody vegetation. The dripline of woody vegetation was surveyed and mapped by EcoWest during a site visit in November 2016. This dripline encompasses most of the woodland but does not include the eucalyptus trees on the northeast portion of the woodland as they are not stream-dependent and do not provide cover for the riparian corridor. The woody vegetation dripline is shown on Figure 3.

This eucalyptus-oak woodland provides roosting and potential nesting habitat for several observed bird species. Monarch butterflies were also observed during both January and May 2018 site visits. Though these eucalyptus groves are not known to be a large migration roost for monarchs, they may provide temporary habitat for transient monarch butterflies during migration periods.

3.4 Potential Wetlands and Jurisdictional Waters

The unnamed drainage that borders the Study Area to the south is an ephemeral drainage that flows after seasonal rains. The drainage is an arroyo, and the northern bank has an average slope of 8% within 30 feet of the edge. At the time of the January site visit, the drainage contained water a few inches deep. The western terminus of this seasonal drainage is located on the property to the west of the Study Area. This drainage is approximately a quarter mile long, and flows into Rodeo Gulch, located approximately 0.17 miles east of the property, which in turn flows approximately 0.7 miles south into Corcoran Lagoon.

The arroyo is surrounded by eucalyptus-oak woodland (see Section 3.3.3). County Code Section 16.30.040 states that a buffer must extend “20 feet beyond the edge of other woody vegetation as determined by the drip-line” while “a 10-foot setback from the edge of the buffer is required for all structures”. The dripline of woody vegetation bordering the arroyo was mapped, as were the required buffer of 20 feet and setback of 10 feet (Figure 3).

No wetland habitat is present within the Study Area.

3.5 Habitat Connectivity and Wildlife Movement

The riparian habitat on the south portion of the property provides a contiguous habitat corridor which allows wildlife to move east and west along the unnamed drainage to and from Rodeo

Gulch, which in turn provides a wildlife corridor north to the Santa Cruz Mountains or south to Corcoran Lagoon. The remainder of the Study Area is not a corridor for wildlife movement because it is fenced on the east and west sides and bordered by Harper Street to the north, and surrounded on the east, west, and north sides by residential development.

3.6 Special Status Plant Species

Research on special status plant occurrences conducted within the designated search area (see Methods) determined 67 special status plant species are known to occur in the region (refer to Appendix C). Appropriate habitat and soil conditions are present in the Study Area for 16 special status plants (Table 3). Figures 4 and 6 in Section 7 depict the current GIS data for special status species and critical habitat mapped near the Study Area by the CNDDDB and the USFWS.

3.6.1 Introduction to California Rare Plant Ranks

Plant species are considered rare when their distribution is confined to localized areas, when there is a threat to their habitat, when they are declining in abundance, or are threatened in a portion of their range. The California Rare Plant Rank (CRPR) categories range from species with a low threat (CRPR 4) to species that are presumed extinct (CRPR 1A). The plants of CRPR 1B are rare throughout their range. All but a few species are endemic to California. All of them are judged to be vulnerable under present circumstances, or to have a high potential for becoming vulnerable.

3.6.2 Introduction to CNDDDB Definitions

"Special Plants" is a broad term used to refer to all the plant taxa inventoried by the CNDDDB, regardless of their legal or protection status (CDFW 2018a). Special plants include vascular plants, high priority bryophytes (mosses, liverworts, and hornworts), and lichens.

3.6.3 Potential Special Status Plant List

Table 3 lists 16 special status plant species that could potentially occur in the Study Area. Federal and California State status, global and State rank, and CNPS rank status for each species are given. Also included are typical blooming periods, habitat preference, potential to occur on site, whether the species was detected in the Study Area, and effect of proposed activity. A comprehensive list of special status plant species reviewed is included as Appendix C.

TABLE 3. SPECIAL STATUS PLANT LIST. List of species with potential to occur within the Study Area. A complete list of species reviewed is included as Appendix C.

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected Within Study Area?	Effect of Proposed Activity
1.	Brewer’s Calandrinia <i>Calandrinia breweri</i>	None/None G4/S4 4.2	(January) March – June	Chaparral, Northern Coastal Scrub, Coastal Sage Scrub; sandy to loamy soil, disturbed sites, burns; <1200m. NCoR, c SNF, SnFrB, SCoRO, SCo, WTR; n Baja CA	Moderate. Appropriate loamy soil is present in the Study Area, with limited elements of coastal scrub habitat.	No.	No Effect.
2.	Deceiving Sedge <i>Carex saliniformis</i>	None/None G2/S2 1B.2	June (July)	Coastal Prairie, Northern Coastal Scrub, wetland-riparian, marshes, pond shores, wet openings; < 250 m. NCo, SnFrB (extirpated)	Low. A riparian corridor borders the southern portion of the Study Area, which could potentially support this species.	No.	No Effect.
3.	Johnny-nip <i>Castilleja ambigua</i> subsp. <i>ambigua</i>	None/None G4T5/S4 4.2	May – August	Grassy coastal bluffs, grassland; <500 m. NCo, s NCoR, n&c CCo	Low. Coastal grassland habitat occurs in the Study Area.	No.	No Effect.

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected Within Study Area?	Effect of Proposed Activity
4.	San Francisco Collinsia <i>Collinsia multicolor</i>	None/None G2/S2 1B.2	March – May	Moist, ± shady scrub, forest; < 300 m. n&c CCo, SnFrB (San Mateo Co.)	Low. Moist areas of shaded woodland occur in the southern portion of the Study Area.	No.	No Effect.
5.	Seaside Bird's-beak <i>Cordylanthus rigidus</i> subsp. <i>littoralis</i>	None/Endangered G5T2/S2 1B.1	April – October	Closed-cone coniferous forest, chaparral, coastal scrub, coastal dunes. Sandy, often disturbed sites; 0-215 m. s CCo, CCo	Low. Disturbed elements of coastal scrub occur in the Study Area but there are no known occurrences of this species in the county.	No.	No Effect.
6.	Loma Prieta Hoita <i>Hoita strobilina</i>	None/None G2/S2 1B.1	May – August (August - October)	Chaparral, oak woodland, Mixed Evergreen Forest; < 600 m. SnFrB.	Moderate. Oak woodland elements occur in the southern portion of the Study Area.	No.	No Effect.
7.	Santa Cruz Tarplant <i>Holocarpha macradenia</i>	Threatened/Endangered G1/S1 1B.1	June – November	Coastal Prairie, Valley Grassland, grassy areas, clay soil; < 200 m. CCo (n&c Monterey Bay, extirpated elsewhere), sw SnFrB (introduced e SnFrB)	Moderate. Grassland elements occur but lack the clay soil characteristics necessary to support Santa Cruz tarplant.	No.	No Effect.
8.	Perennial Goldfields <i>Lasthenia californica</i> subsp. <i>macrantha</i>	None/None G3T2/S2 1B.2	January – November	Grassland, coastal dunes; <500 m.	Low. Grassland habitat occurs in the Study Area.	No.	No Effect.

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected Within Study Area?	Effect of Proposed Activity
9.	Marsh Microseris <i>Microseris paludosa</i>	None/None G2/S2 1B.2	April – June (July)	Moist grassland or open woods; <300 m. CCo, SnFrB	Low. Grassland habitat in the Study Area is predominantly dry, with ephemeral moist areas near the southern riparian corridor.	No.	No Effect.
10.	White-rayed Pentachaeta <i>Pentachaeta bellidiflora</i>	Endangered/Endangered G1/S1 1B.1	March – May	Grassy or rocky areas, often serpentine soil; < 620 m. n CCo, SnFrB	Low. Grassland habitat is present in the Study Area but lacks elements of rock or serpentine soil.	No.	No Effect.
11.	Choris' Popcornflower <i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	None/None G3T2Q/S2 1B.2	March – June	Grassy, moist places, ephemeral drainages, coastal scrub, chaparral; < 650 m. KR, NCoRO, n CCo, w SnFrB	Low. Grassland habitat and an ephemeral drainage occur in the Study Area.	No.	No Effect.
12.	San Francisco Popcornflower <i>Plagiobothrys diffusus</i>	None/Endangered G1Q/S1 1B.1	March – June	Coastal Prairie, Valley Grassland moist places, seeps; 30--150 m. c CCo, w-c SnFrB.	Low. Grassland habitat occurs in the Study Area, however it is predominantly dry.	No.	No Effect.

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected Within Study Area?	Effect of Proposed Activity
13.	Lobb's Aquatic Buttercup <i>Ranunculus lobbii</i>	None/None G4/S3 4.2	February - May	Valley grassland, foothill woodland, redwood forest, freshwater wetlands, wetland-riparian ponds; < 500 m. NCoR, SnFrB, British Columbia.	Low. Grassland and limited riparian elements occur in the Study Area.	No.	No Effect.
14.	Maple-leaved Checkerbloom <i>Sidalcea malachroides</i>	None/None G3/S3 4.2	(March) April - August	Coastal prairie, mixed evergreen forest, redwood forest, woodland, clearings near coast; < 700 m. NCo, NCoRO, n&c CCo, SnFrB, n SCoRO, western Oregon	Low. Grassland habitat in the Study Area contains elements of coastal prairie habitat.	No.	No Effect.
15.	San Francisco Champion <i>Silene verecunda</i> subsp. <i>verecunda</i>	None/None G5T1/S1 1B.2	(February) March – June (August)	Sandy soils in coastal scrub, chaparral, coastal prairie, or valley or foothill grassland. <650 m. (Santa Cruz, San Francisco, San Mateo cos.)	Low. Open grassland habitat occurs in the Study Area.	No.	No Effect.

Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected Within Study Area?	Effect of Proposed Activity
16. Santa Cruz Clover <i>Trifolium buckwestiorum</i>	None/None G2/S2 1B.1	April – October	Coastal prairie, mixed evergreen forest, grassy or disturbed areas; < 710 m. sw SnFrB (Mendocino, Monterey, Santa Cruz cos.).	Moderate. The Study Area consists of grassland and disturbed ruderal habitat within the elevational range known to support Santa Cruz Clover.	No	No Effect

California Geographic Subregion Abbreviations:

CCo: Central Coast	SnFrB: San Francisco Bay	NCoRO: Outer North Coast Ranges	CW: Central West
SCoRO: Outer South Coast Ranges	KR: Klamath Ranges	NCoR: North Coast Ranges	SW: South West
DMtns: Desert Mountains	W&I: White and Inyo Mountains		

California Rare Plant Ranks:

CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere
 CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
 CRPR 2A: Plants presumed extirpated in California, but common elsewhere
 CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
 CRPR 4: Plants of limited distribution - a watch list

CRPR Threat Ranks:

0.1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
 0.2 - Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
 0.3 - Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

3.6.4 Discussion

Based on an analysis of known ecological requirements for the special status plant species reported from the region (see Appendix C), and the habitat conditions that were observed in the Study Area, it was determined that four special status plant species have moderate potential to occur in the Study Area (Brewer's calandrinia, Loma Prieta hoita, Santa Cruz tarplant, and Santa Cruz clover), and twelve species have low potential to occur (Deceiving sedge, Johnny-nip, maple-leaved checkerbloom, San Francisco collinsia, seaside bird's-beak, perennial goldfields, marsh microseris, white-rayed pentachaeta, Choris' popcornflower, San Francisco popcornflower, Lobb's aquatic buttercup, and San Francisco campion). We discuss a total of 16 species below and describe habitat, range restrictions, known occurrences, and survey results for the Study Area.

The following four special status plant species have *moderate* potential to occur within the Study Area due to probable and appropriate ecological requirements:

- A. Brewer's Calandrinia** (*Calandrinia breweri*) is a CRPR 4.2 species that is found from the North Coast Ranges south to Baja California. It is known to occur on sandy or loamy soils in disturbed chaparral and coastal scrub habitats between 10 and 1,220 meters elevation. It is an annual herb that typically blooms between March and June but may bloom as early as January. The closest known record is approximately 14 miles northwest of the Study Area (Consortium of California Herbaria Berkeley [CCH] Specimen #CAS-BOT-BC233937). The disturbed condition and appropriate loamy soil, along with elements of coastal scrub in the Study Area, make for moderately suitable habitat for this species. Brewer's calandrinia was not detected in the Study Area during the May 2018 survey.
- B. Loma Prieta Hoita** (*Hoita strobilina*) is a CRPR 1B.1 listed species endemic to California, where it is known from occasional occurrences in the San Francisco Bay Area. It can be found in chaparral and woodland habitat, and often on serpentine soil. Its bloom period occurs between May and July and is also distinguishable by its large leaves which are divided into three leaflets, each up to 8 centimeters long and lance-shaped to nearly round. The closest known record is approximately 5 miles north of the Study Area (CCH Specimen #UC84463), though several observations have been made more locally (within the Soquel Quad) using plant identification apps such as iNaturalist (iNat 2018). The woodland habitat in the Study Area is suitable for this species, however this species has a weak affinity for serpentine soils (2.5 weak indicator), which are not present in the Study Area. Loma Prieta hoita was not detected in the Study Area during the May 2018 survey.
- C. Santa Cruz Tarplant** (*Holocarpha macradenia*) is listed Endangered by the California Endangered Species Act (CESA) and Threatened under the Federal Endangered Species Act (FESA). Santa Cruz tarplant is a CRPR 1B.1 that is typically found on coastal prairies or valley grasslands below 400 feet in elevation in and near Santa Cruz County. This special status species is mostly threatened with habitat loss or change and invasions of non-native plants. It typically grows on deep loam and sandy loam soils with a subsurface clay component, which hold moisture longer in the growing season compared to the surrounding sandy soils. Santa Cruz tarplant, like most tarplants, has a late bloom period occurring between June and October. The closest known record is approximately 1 mile southwest of the Study Area at Twin Lakes State Beach, in fields in the back of Schwan Lake in 2007 (CNDDDB #2). The elevational range and open grassland habitat in the Study Area is suitable for this species; however, clay soils

are not present to aid in water retention in the soil, therefore this species has only moderate potential to occur. Santa Cruz tarplant was not detected in the Study Area during the May 2018 survey. Due to the late bloom period of this special status species, it is recommended that a late season survey be conducted to determine presence/absence of this species within the Study Area.

D. Santa Cruz Clover (*Trifolium buckwestiorum*) is a CRPR 1B.1 plant species with a pinkish white corolla within the clover family (Fabaceae). It is found in habitat ranging from vernal moist swales to saturated, clay-rich upland soils in coastal prairie, vernal moist dune hollows, and edges of humic-soil meadow openings in forest (Elkhorn Slough 2015). The closest known record is approximately 2.8 miles northeast of the Study Area (CNDDDB #14), however the date last seen was not recorded. Reference populations have been reported in Pogonip Park (Santa Cruz County) and Fort Ord National Monument (Monterey County) (Elkhorn Slough 2015), both of which have similar habitat to the Study Area. The coastal prairie habitat and clay soil characteristics in the Study Area are moderately suitable for this species. Santa Cruz clover was not detected in the Study Area during the May 2018 survey.

The following twelve special status plant species have *low* potential to occur within the Study Area. Various factors contribute to these species being less likely to occur, including (but not limited to) outdated occurrences in the area, less suitable habitat, and/or fewer ecological requirements present:

E. Deceiving Sedge (*Carex saliniformis*) is a CRPR 1B.2 species found on open sloped or flat areas near the coast with moist or wet soil, within coastal prairie, coastal salt marsh, and northern coastal scrub communities. It typically blooms between May and July. The closest known record is approximately 6 miles northwest of the Study Area (CNDDDB #1), however the most recent occurrence was in 1944 and has been presumed to be extirpated from this location. Though the coastal prairie and open flat area characteristics in the Study Area are suitable for this species, the lack of any recent observations in the area make it less likely to occur. Deceiving sedge was not detected in the Study Area during the May 2018 survey.

F. Johnny-nip (*Castilleja ambigua* subsp. *ambigua*) is a CRPR 4.2 species found on coastal bluffs and in grassland below 500 meters elevation along the North Coast and in the North and Central Coast Ranges. The closest known record is approximately 5 miles northwest of the Study Area, recorded in 1983 (CCH Specimen #JEPS82395). The coastal grassland habitat in the Study Area is suitable for this species, however the lack of recent occurrences in the area make it less likely to occur in the Study Area. Johnny-nip was not detected in the Study Area during the May 2018 survey.

G. Maple-leaved Checkerbloom (*Sidalcea malachroides*) is a CRPR 4.2 species that is found in woodlands and clearings near the coast below 700 meters. It occurs throughout the North and South Coast Ranges, and the San Francisco Bay area. It has a bloom period of April through August. The closest known record is approximately 3 miles west of the Study Area (CNDDDB #4), where it was last seen in 1932. Maple-leaved checkerbloom is possibly extirpated for the area but has a low potential to occur due to the potentially suitable woodland habitat of the Study Area. Maple-leaved checkerbloom was not detected in the Study Area during the May 2018 survey.

- H. San Francisco Collinsia** (*Collinsia multicolor*) is a CRPR 1B.2 species endemic to San Francisco Bay Area, where it is known from San Francisco to Santa Cruz. The corolla is has two white upper lobes sometimes dotted with purple and three lavender to purple lower lobes, with a bloom period occurring between March and May. It occurs in moist, shady scrub below 300 meters elevation. The closest known record is approximately 17 miles northwest of the Study Area (CNDDDB #3) reported in 2017. The woodland in the Study Area is potentially suitable for this species, but the distance of the nearest known occurrence means this species has low potential to occur. San Francisco collinsia was not detected in the Study Area during the May 2018 survey.
- I. Seaside Bird's Beak** (*Cordylanthus rigidus* subsp. *littoralis*) is listed as Endangered under the CESA and is a CRPR 1B.1 species found in dunes, coastal scrub, chaparral, and woodland habitat along the Central Coast. It has a late flowering season, with its bloom time occurring between July and August. The closest known record was reported in 1930 and is approximately 16 miles southeast of the Study Area (CCH Specimen #UC672489), with no known occurrences in Santa Cruz County. The grassland habitat in the Study Area is a somewhat disturbed site with elements of coastal scrub, which could be suitable habitat for this species; however, there are no known occurrences in the county and the closest known occurrence was in 1930, indicating that this species has low potential to occur in the Study Area. Seaside bird's beak was not detected in the Study Area during the May 2018 survey.
- J. Perennial Goldfields** (*Lasthenia californica* subsp. *macrantha*) is a CRPR 1B.2 species found in coastal scrub or coastal grassland habitat along the immediate coast of California and into Oregon, occurring below 500 meters in elevation. The closest known record is from 1955 and is approximately 4 miles southeast of the Study Area (CNDDDB #42), with no other known records within the CNDDDB nine quad search. The grassland habitat in the Study Area is potentially suitable for this species, however it is unlikely to occur due to an outdated occurrence record. Perennial goldfields were not detected in the Study Area during the May 2018 survey.
- K. Marsh Microseris** (*Microseris paludosa*) is a CRPR 1B.2 species found in moist grassland and open woodland below 300 meters in elevation. The closest known record is approximately 4 miles northwest of the Study Area, reported in 1957 (CNDDDB #7); whereas the most recent known record is approximately 17 miles northwest of the Study Area (CNDDDB #9) reported in 1983 where marsh microseris was observed in a grassland-scrub habitat margin. The low, coastal grassland habitat in the Study Area is suitable for this species, however is less likely to occur due to the outdated source of information of the nearest occurrence. Marsh microseris was not detected in the Study Area during the May 2018 survey.
- L. White-rayed Pentachaeta** (*Pentachaeta bellidiflora*) is listed Endangered under the FESA and the CESA. White-rayed pentachaeta is a CRPR 1B.1 species typically found in grassy or rocky areas, often with serpentine soils. The closest known record is approximately 4 miles northwest of the Study Area (CNDDDB #11), recorded in 1933 and its presence has been noted as possibly extirpated. The most recent known occurrence is approximately 17 miles northwest of the Study Area at the north end of Ben Lomond Mountain (CNDDDB #9). The grassland habitat in the Study Area is potentially suitable for this species, however rocky areas with serpentine soils are more optimal, and these are lacking in the Study Area. White-rayed pentachaeta was not detected in the Study Area during the May 2018 survey.

- M. Choris' Popcornflower** (*Plagiobothrys chorisianus* var. *chorisianus*) is a CRPR 1B.2 species that is endemic to California. The five-lobed white flower is 6-10 mm in diameter with a center of bright yellow appendages. The closest known record is approximately 7 miles northwest of the Study Area (CNDDDB #17). The grassland habitat and ephemeral drainage in the Study Area are potentially suitable for this species, however the dense canopy surrounding the drainage make it less likely to occur. Choris' popcornflower was not detected in the Study Area during the May 2018 survey.
- N. San Francisco Popcornflower** (*Plagiobothrys diffusus*) is listed Endangered under the CESA and is a CRPR 1B.1 species found in coastal prairie, valley grassland and often in moist places. The closest known record is approximately 5 miles west of the Study Area (CNDDDB #9). The grassland habitat in the Study Area is suitable for this species, but it is predominantly dry. Moist areas occurring in the Study Area are mostly shaded by dense blackberry shrub, where this species would be less likely to occur. San Francisco popcornflower was not detected in the Study Area during the May 2018 survey.
- O. Lobb's Aquatic Buttercup** (*Ranunculus lobbii*) is a CRPR 4.2 species found in vernal pool habitat within the North Coast Ranges to San Francisco Bay area. Lobb's aquatic buttercup has a habit of floating without roots, or creeping on mud, with roots shooting from the nodes. Its flower has five petals that are white or white with yellow claws. The closest known record is approximately 10 miles north of the Study Area (CCH Specimen #POM281564), recorded in 1952. The second nearest occurrence was reported in 1903 and is over 25 miles north of the Study Area (CCH Specimen #SBBG33475). The grassland and riparian habitat in the Study Area is potentially suitable for this species, however optimal vernal pool conditions do not occur in the Study Area. Lobb's aquatic buttercup was not detected in the Study Area during the May 2018 survey.
- P. San Francisco Champion** (*Silene verecunda* subsp. *verecunda*) is a CRPR 1B.2 species endemic to California, found in select areas from the coastal North coast Ranges to the Desert Mountains. This species has an elevational range of up to 3400 meters. Its flower is fused at the base with five petals pinked at the tip; typical of its plant family, Caryophyllaceae. The closest known record is approximately 17 miles northwest of the Study Area (CNDDDB #4), reported in 1988. The open grassland habitat in the Study Area is suitable for this species, however the distance of the closest known occurrence makes it less likely to occur in the Study Area. San Francisco champion was not detected in the Study Area during the May 2018 survey.

3.7 Special Status Animal Species

Research on special status animal occurrences conducted within the designated search area (see Methods) determined 55 special status animal species are known to occur in the region (refer to Appendix D). Appropriate habitat conditions are present in the Study Area for 12 special status animals (Table 4). Figures 5 and 6 in Section 7 depict the current GIS data for special status species and critical habitat mapped in the vicinity of the Study Area by the CNDDDB and the USFWS.

3.7.1 Introduction to CNDDDB Definitions

"Special Animals" is a general term that refers to all of the animal taxa inventoried by the CNDDDB, regardless of their legal or protection status (CDFW 2018b). The Special Animals list is also

referred to by CDFW as the list of “species at risk” or “special status species.” These taxa may be listed or proposed for listing under the California and/or Federal Endangered Species Acts, but they may also be species deemed biologically rare, restricted in range, declining in abundance, or otherwise vulnerable.

Animals listed as California Species of Special Concern (SSC) may or may not be listed under California or Federal Endangered Species Acts. They are considered rare or declining in abundance in California. The Special Concern designation is intended to provide the California Department of Fish and Wildlife, biologists, land planners and managers with lists of species that require special consideration during the planning process to avert continued population declines and potential costly listing under federal and state endangered species laws. For many species of birds, the primary emphasis is on the breeding population in California. For some species that do not breed in California but winter here, emphasis is on wintering range. The SSC designation thus may include a comment regarding the specific protection provided such as nesting or wintering.

Animals listed as Fully Protected are those species considered by CDFW as rare or faced with possible extinction. Most, but not all, have subsequently been listed under the CESA or the FESA. Fully Protected species may not be taken or possessed at any time and no provision of the California Fish and Game code authorizes the issuance of permits or licenses to take any Fully Protected species.

3.7.2 Potential Special Status Animals List

Table 4 lists 12 special status animal species reported from the region. Federal and California State status, global and State rank, and CDFW listing status for each species are given. Typical nesting or breeding period, habitat preference, potential habitat on site, whether the species was detected in the Study Area, and effect of proposed activity are also provided. A comprehensive list of special status animal species reviewed is included as Appendix D.

TABLE 4. SPECIAL STATUS ANIMAL LIST. List of species with potential to occur within the Study Area. A complete list of species reviewed is included as Appendix D.

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected Within Study Area?	Effect of Proposed Activity
1.	Cooper’s Hawk <i>Accipiter cooperii</i>	None/None G5/S4 SA (Nesting)	March 15 through August 15	Oak woodland, riparian, open fields. Nests in dense trees, esp. coast live oak.	Moderate. Marginally suitable nesting habitat is present in Study Area.	No.	No Effect.
2.	Northern California Legless Lizard <i>Anniella pulchra</i>	None/None G3/S3 SSC	May - September	Sandy or loose loamy soils under coastal scrub or oak trees. Soil moisture essential.	Low. Marginally suitable soils are present in the Study Area, as are coast live oaks.	No.	No Effect.
3.	Pallid Bat <i>Antrozous pallidus</i>	None/None G5/S3 SSC	Spring - Summer	Rock crevices, caves, tree hollows, mines, old buildings, and bridges.	Low. Potential roosting habitat is present in eucalyptus- oak woodland.	No.	No Effect.
4.	Oak Titmouse* <i>Baeolophus inornatus</i>	None/None SA (Nesting)	March 1 through August 31	Nests in cavities in oak woodland habitat. Non-migratory.	High. Potential nesting habitat is present and this species was observed in the Study Area.	Yes.	No Effect.
5.	Obscure Bumble Bee <i>Bombus caliginosus</i>	None/None G4?/S1S2 SA	Spring	Open coastal grasslands and meadows.	Low. Marginal habitat is present in the Study Area.	No.	No Effect.
6.	Western Bumble Bee <i>Bombus occidentalis</i>	None/None G2G3/S1 SA	n/a	Wide variety of natural, agricultural, urban, and rural habitats. Flower-rich meadows of forests and subalpine zones.	Low. Marginal habitat is present in the Study Area.	No.	No Effect.

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected Within Study Area?	Effect of Proposed Activity
7.	Monarch Butterfly <i>Danaus plexippus</i>	None/None G4T2T3/S2S3 SA	September - March (aggregations)	Roosts located in wind-protected tree groves with nectar and water nearby.	Moderate. Study Area is in proximity to known or historic monarch overwintering sites. Potentially suitable roosting habitat is present in eucalyptus trees.	No.	No Effect.
8.	White-tailed Kite <i>Elanus leucurus</i>	None/None G5/S3S4 FP	March 15 through August 15	Nests in dense tree canopy near open foraging areas	Low. Marginally suitable nesting habitat is present in Study Area, but Study Area is not in proximity to suitable foraging areas.	No.	No Effect.
9.	Tidewater Goby <i>Eucyclogobius newberryi</i>	Endangered/None G3/S3 SSC	n/a	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Low. No habitat in the drainage adjacent to the Study Area, but this species is present in Rodeo Gulch and Corcoran Lagoon, downstream of the Study Area.	No.	No Effect.
10.	Hoary Bat <i>Lasiurus cinereus</i>	None/None SSC	Spring-Fall	Forages in open habitats or habitat mosaics with trees. Roosts in dense foliage of medium to large trees. Feeds on moths. Requires water.	Moderate. Potentially suitable roosting habitat is present in the Study Area in the riparian corridor.	No.	No Effect.

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected Within Study Area?	Effect of Proposed Activity
11.	San Francisco Dusky- Footed Woodrat <i>Neotoma fuscipes annectens</i>	None/None G5T2T3/S2S3 SSC	n/a	Grasslands, scrub, and wooded areas, especially those with live oaks or other thick-leaved trees and shrubs.	Moderate. Potentially suitable habitat is present in riparian corridor in Study Area.	No.	No Effect.
12.	American Badger <i>Taxidea taxus</i>	None/None G5/S3 SSC	February – May	Needs friable soils in open ground with abundant food source such as California ground squirrels.	Low. Only marginally suitable habitat is present. Ground squirrels are not abundant within Study Area.	No.	No Effect.

Habitat characteristics are from the Jepson Manual and the CDNNB.

*Not listed in the CNDDDB or CNPS for the search area, but possibly for the location.

Abbreviations:

SA: CDFW Special Animal

SSC: CDFW Species of Special Concern

FP: CDFW Fully Protected Species

3.7.3 Discussion

Based on an analysis of known ecological requirements for the 55 special-status wildlife species reported or known from the region (see Appendix D), and the habitat conditions that were observed in the Study Area, it was determined that one species has high potential to occur (oak titmouse), four species have moderate potential to occur (Cooper's hawk, monarch butterfly, hoary bat, and San Francisco dusky woodrat), and seven species have low potential to occur in the Study Area (Northern California legless lizard, pallid bat, obscure bumblebee, Western bumblebee, white-tailed kite, tidewater goby, and American badger). We discuss a total of 12 species below and describe habitat, range restrictions, known occurrences, and survey results for the Study Area.

The following species has *high* potential to occur within the Study Area due to the presence of suitable habitat and/or ecological requirements:

- A. Oak titmouse** (*Baeolophus inornatus*) is a Special Animal that is an oak woodland obligate, nesting in cavities in oak trees. It is a common species in oak woodlands on the central coast but is tracked by CDFW due to state-wide losses of oak woodland habitat. There is no oak woodland habitat at the site, but there are oak trees scattered in the ruderal and grassland habitats, and in the understory of the eucalyptus-oak woodland. Oak titmouse could potentially nest in oak trees within the Study Area. Oak titmouse was observed foraging in oak trees around the house in the northwest portion of the Study Area during site surveys.

The following four special status species have *moderate* potential to occur within the Study Area due to the presence of suitable habitat and/or ecological requirements:

- B. Cooper's hawk** (*Accipiter cooperii*) is a CDFW Watch List species (for nesting occurrences only) that occurs regularly in California during the winter months and during spring and fall migration. It is an uncommon but increasing nesting species in urban areas of Santa Cruz County (Suddjian 2013). Cooper's hawks frequent oak and riparian woodland habitats, and increasingly urban areas, where they prey primarily upon small birds (Curtis et al. 2006). The closest reported occurrence of nesting Cooper's hawk is located approximately 6 miles northwest of the project (CNDDDB #65), in coast live oak woodland less than a mile east of Henry Cowell Redwoods State Park. Potentially suitable nesting habitat is present in the coast live oak and eucalyptus trees on the southern end of the Study Area, and this species has moderate potential to occur. Cooper's hawk was not detected in the Study Area during site surveys.
- C. Monarch butterfly** (*Danaus plexippus*) is a CDFW Special Animal (for winter aggregations only) that migrates in the fall to wintering locations along the coast of central and southern California, and on mainland Mexico. There are 31 known and historic wintering sites in Santa Cruz County (Xerces 2017). The nearest known monarch aggregation site is approximately 0.8 miles to the southeast of the Study Area at Moran Lake. Moran Lake is one of the most important overwintering sites in Santa Cruz County, with 5,400 monarchs recorded in November 2017. A second, smaller overwintering site is located approximately 0.8 miles to the southwest, at the Lifeguard Headquarters on 14th Ave. This site had only 8 monarchs

present in November 2017, but it has had small clusters of monarchs in the past. The eucalyptus grove along the unnamed ephemeral drainage has been noted as potentially suitable habitat in past years (Xerces 2017). No monarch aggregations were observed during the January 2018 site visit, though two to three individual monarchs were observed patrolling the edge of the eucalyptus woodland, moving through the Study Area into neighboring properties as they moved up and down the riparian corridor. Individual monarchs were also observed in the Study Area during the May 2018 site visit.

D. Hoary bat (*Lasiurus cinereus*) is a Special Animal tracked by CDFW. It is widely distributed throughout most of California, though it is uncommon in southeastern deserts. Roosting habitat is primarily woodlands and forests, and it forages for moths in open areas and along habitat edges (CDFW 2014). Hoary bats roost mainly in dense foliage of medium to large deciduous or coniferous trees, near the ends of branches, typically in trees at the edge of a clearing. Roosting has also been documented in caves, under rock ledges, and in tree hollows (Bolster 2005). The closest reported occurrence of hoary bat is located approximately 3 miles west from the Study Area (CNDDB #101) in 1935. Potentially suitable roosting habitat is present in the eucalyptus-oak woodland in the Study Area, this species has moderate potential to occur. Hoary bat was not detected in the Study Area during surveys, though a focused survey for bat roosts was not conducted as part of this study.

E. San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) is a California Species of Special Concern found only in the San Francisco Bay area and Santa Cruz Mountains and foothills. They inhabit grasslands, scrub, and wooded areas, especially those with live oaks or other thick-leaved trees and shrubs (Hall 1981). They prefer areas with moderate canopy cover and moderate to dense understory (CDFW 2014). They consume a wide variety of woody plants, fruits, fungi, nuts, and flowers. They construct elaborate stick houses for nesting, which may measure up to 2.4 meters in height. The closest reported occurrence of San Francisco dusky-footed woodrat is approximately 5.2 miles north of the Study Area (CNDDB #15) in the Santa Cruz Mountains near Laurel Glen Road. Potentially suitable habitat is present in the eucalyptus-oak woodland in the Study Area, and this species has moderate potential to occur. No San Francisco dusky-footed woodrats or nests were observed in the Study Area during site surveys.

The following seven special status species have *low* potential to occur within the Study Area. Various factors contribute to these species being less likely to occur, including (but not limited to) outdated occurrences in the area, less suitable habitat, and/or fewer ecological requirements present:

F. Northern California legless lizard (*Anniella pulchra*) is a California Species of Special Concern that occurs from Contra Costa to Santa Barbara County. This species includes the subspecies formerly treated as *A. pulchra nigra* and *A. pulchra pulchra* which was shown to be an invalid designation (Pearse and Pogson 2000). Northern California legless lizard inhabits friable soils in a variety of habitats from coastal dunes to oak woodlands and chaparral. Adapted to subterranean life, this species thrives near native coastal shrubs that produce an abundance of leaf litter and have strong roots systems (Kuhn et al. 2005). Areas of exotic vegetation and open grassland do not provide suitable habitat for the Northern

California legless lizard since these plant communities support smaller populations of insect prey and offer little protection from higher ground temperatures and soil desiccation (Slobodchikoff and Doyen 1977; Jennings and Hayes 1994). The closest reported occurrence of the northern California legless lizard is located approximately 10 miles southeast from the Study Area at Sunset State Beach. The soils in the Study Area are potentially suitable for this species, but the shrubs are located in dry grassland, and the coast live oak trees are either out in dry grassland or in eucalyptus-oak woodland where non-native vegetation dominates the understory. Due to these conditions, the Study Area is unlikely to support the northern California legless lizard. No northern California legless lizards were observed in the Study Area during 2018 surveys.

G. **Pallid bat** (*Antrozous pallidus*) is a California Species of Special Concern. The pallid bat is a large long-eared bat that occurs throughout the state and occupies a wide variety of habitats. Although most common in open, dry areas ideal for foraging with rocky outcrops for roosting, pallid bats are also found regularly in oak and pine woodlands where they roost in caves, mines, rock crevices, hollow trees and buildings (Nowak and Walker 1994). Bridges are also frequently used by pallid bats, often as night roosts between foraging periods (Pierson et al. 1996). The closest reported occurrence of the pallid bat is approximately 0.17 miles east of the Study Area (CNDDDB #258) in the vicinity of Rodeo Gulch in 1928. Marginally suitable roosting habitat is present within the Study Area in cavities in coast live oak trees, but there are no large hollow trees, and oak woodland habitat is not present. The only buildings present are an occupied single-story house and a garden shed. Therefore, pallid bat has a low potential for occurrence. Pallid bat was not detected in the Study Area during surveys, though a focused survey for bat roosts was not conducted as part of this study.

H. **Obscure bumblebee** (*Bombus caliginosus*) is designated by CDFW as a Special Animal. It is considered uncommon throughout its range, which stretches along the Pacific Coast from southern British Columbia to southern California with scattered occurrence records from the east side of California's Central Valley. Obscure bumble bee inhabits open coastal grasslands and meadows with colonies occurring underground and/or in abandoned bird's nests. The closest reported occurrence of Obscure bumble bee was in 1950 approximately 1.6 miles northeast of the Study Area (CNDDDB #122) in Soquel. There is coastal grassland present within the Study Area, though it is dominated by non-native grasses and does not have abundant nectar resources. Due to the marginal habitat present, and the age of the nearest record, this species has low potential to occur. Obscure bumblebee was not observed during site surveys, though focused insect surveys were not conducted as part of this study.

I. **Western bumblebee** (*Bombus occidentalis*) is designated by CDFW as a Special Animal. Though once widespread, disease is stipulated to be the cause of the precipitous decline in this species from southern British Columbia to central California. Western bumblebee is found in a wide variety of natural, agricultural, urban, and rural habitats, as well as flower-rich meadows of forests and subalpine zones. The closest reported occurrence of Western bumblebee was in 1935 approximately 1.5 miles east of the Study Area (CNDDDB #264) in Capitola. There is potentially suitable habitat in the Study Area in the old gardens around the house. Due to the age of the nearest record and the uncertain status of obscure bumblebee in

the area, this species has low potential to occur. Obscure bumblebee was not observed during site surveys, though focused insect surveys were not conducted as part of this study.

J. White-tailed kite (*Elanus leucurus*) is a CDFW Fully Protected species that can be found throughout California. The species nests primarily in evergreen trees, especially coast live oaks, near meadows, marshes, farmlands or grasslands where it forages on small animals, especially voles (Dunk 1995). Communal nocturnal roosts sites, which may shift in location, are often used from early fall to early winter. The closest reported occurrence of white-tailed kite is located approximately 5 miles from the Study Area (CNDDDB #83) on US Santa Cruz Environmental Reserve Lands. The eucalyptus-oak woodland offers marginal nesting habitat for white-tailed kites, and the Study Area is not in close proximity to any suitable foraging sites, therefore this species has a low likelihood of occurrence. White-tailed kite was not observed in the Study Area during 2018 site surveys.

K. Tidewater goby (*Eucyclogobius newberryi*) is a federally listed endangered species and is a California Species of Special Concern. It requires slow moving (but not still) waters with high oxygen levels in estuaries, lagoons, and the lower reaches of streams before they enter the sea. The tidewater goby is found in isolated populations along the California coast from the Smith River near the Oregon border to Agua Hedionda Lagoon in San Diego County. Sandy bottom habitats are needed for the male to burrow into the sand and spawn (Swenson 1999). The closest reported occurrence of tidewater goby is approximately 0.4 miles south from the Study Area in lower Rodeo Gulch and Corcoran Lagoon (CNDDDB #32). The unnamed drainage which flows past the Study Area connects to Rodeo Gulch, which flows into Corcoran Lagoon. Corcoran Lagoon is designated as critical habitat for tidewater goby (USFWS 2013). There is no suitable habitat for tidewater goby in the unnamed drainage, and they have no potential to occur within the Study Area, but critical habitat is located directly downstream of the Study Area.

L. American badger (*Taxidea taxus*) is a California Species of Special Concern with a widespread range across the state (CDFW 2014; Brehme et al. 2015). It is a permanent but uncommon resident in all parts of California, except for forested regions of the far northwestern corner, and is more abundant in dry, open areas of most shrub and forest habitats. The American badger requires friable soil in order to dig burrows for cover and breeding. The main food source for the species is fossorial rodents, mainly ground squirrels and pocket gophers (CDFW 2014). The closest reported occurrence of the American badger is located approximately 4.3 miles northwest of the Study Area (CNDDDB #341) on the UC Santa Cruz campus. Due to the low abundance of potential prey, the small size of the grassland area, and the highly urban setting of the Study Area, badgers are unlikely to occur. No American badger or sign of badger, such as dens or dig-outs, was observed during site surveys.

The remaining 44 special status animal species that were evaluated were determined to have no potential to occur in the Study Area due to lack of suitable habitat present. However, the following four species either are listed or are candidates for listing as threatened or endangered under the FESA and/or CESA, and although they are not expected to occur, they warrant further discussion:

- A. Santa Cruz long-toed Salamander** (*Ambystoma macrodactylum croceum*) is state and federally listed endangered and a Fully Protected species. The salamander breeds in temporary or permanent ponds, which may vary greatly in size and duration of persistence. They inhabit adjacent upland coastal scrub, willow riparian, or coast live oak or pine woodlands during the nonbreeding season. They spend most of their life underground, either in burrows, under logs or leaf litter, or among tree roots. Adults may travel over 300 meters from breeding ponds to reach suitable upland habitat (USFWS 2009). The nearest known breeding population to the Study Area is the Valencia-Seascape Metapopulation, and is located over 4 miles east, near Aptos. This species does not occur in the vicinity of the Study Area and has no potential to occur within the Study Area.
- B. Coho Salmon - Central California Coast ESU** (*Oncorhynchus kisutch*) is a state and federally listed endangered Evolutionarily Significant Unit (ESU) of coho salmon. Adult salmon migrate from a marine environment to spawn in their freshwater rivers and streams of origin. Juveniles spend approximately a year and half feeding in freshwater before migrating out to sea where they mature. They require freshwater streams with stable gravel substrates to spawn. Coho salmon in the Central California ESU include naturally spawned coho salmon originating from rivers south of Punta Gorda, California to and including Aptos Creek, as well as such coho salmon originating from tributaries to San Francisco Bay. An Evolutionarily Significant Unit (ESU) is a group of coho salmon that is genetically distinct from other California coho salmon populations. Coastal streams in Santa Cruz County are considered to be critical habitat for migrating salmon (USFWS 1999). This species is not found within Rodeo Gulch or Corcoran Lagoon and has no potential to occur within the Study Area or downstream of the Study Area.
- C. Steelhead – Central California Coast DPS** (*Oncorhynchus mykiss irideus*) is a federally listed threatened Distinct Population Segment (DPS) of the anadromous form of rainbow trout. Adults spawn in freshwater, while juveniles remain in freshwater before migrating to the ocean to grow and become sexually mature prior to returning as adults to spawn in freshwater. Steelhead generally require cool, fast-flowing streams with rock and cobble substrate to spawning and rearing (Moyle 2002). Steelhead in the Central California Coast DPS include naturally-spawned *O. mykiss* occurring downstream from natural and manmade barriers from the Russian River south to Aptos Creek in Santa Cruz County, as well as the drainages of San Francisco and San Pablo Bays. A Distinct Population Segment (DPS) is a group of steelhead that is genetically distinct from other California steelhead populations. Coastal streams in Santa Cruz County are considered to be critical habitat for migrating steelhead (USFWS 2005). This species is not found within Rodeo Gulch or Corcoran Lagoon and has no potential to occur within the Study Area or downstream of the Study Area.
- D. California red-legged frog** (*Rana draytonii*) (CRLF) is a federally listed threatened species and a California Species of Special Concern. It occurs in California in the Coast Range, Sierras, the Transverse Range and south below 1,200 meters elevation (Sousa 2008; CDFW 2014). The main habitat types for the CRLF are deep, still or slow-moving sources of water in lowlands and foothills with shrubby, riparian, or vegetative shorelines for cover (Jennings and Hayes 1994; CDFW 2014). The most suitable vegetation types for cover are cattails (*Typha sp.*), arroyo willow (*Salix lasiolepis*) and bulrushes (*Scirpus sp.*) (Jennings and Hayes 1994). Along with its aquatic habitat, the CRLF also utilizes upland habitat for seeking food, shelter and as migration corridors between breeding and non-breeding sites. Bulger et al. (2003) found

that during dry summer months, CRLF were nearly always within 5 meters of a pond; however, during summer rain events and early winter rains, frogs moved up to 130 meters from their ponds, and some frogs even traveled up to 2800 meters to migrate to a different pond. When out of the water CRLF will shelter under natural or manmade debris and burrow into moist leaf litter or small animal burrows (USFWS 2010). The breeding season for the CRLF is from January to July with a peak in February (CDFW 2014). This species is not found within the Rodeo Gulch watershed or Corcoran Lagoon and has no potential to occur within the Study Area or downstream of the Study Area.

3.8 Botanical Survey Results

Botanical surveys conducted in late May 2018 identified 58 species, subspecies, and varieties of vascular plant taxa in the Study Area (Table 5). The list includes 12 species native to California and 46 introduced (naturalized or planted) species. Native plant species account for approximately 21 percent of the Study Area flora; introduced species account for approximately 79 percent. One special status plant species, Monterey cypress, was identified in the Study Area, though this species was planted there outside its naturally-occurring range. Special status plant species with potential to occur were not detected in the Study Area. Santa Cruz tarplant was also not detected at known reference sites Twin Lakes, Arana Gulch, and Pogonip Creek Nature Loop. Santa Cruz tarplant is known to flower any time between June and November and is triggered by warm to hot weather. The below average rainfall year, with an inundation of precipitation for a short two-week period in March 2018, may have contributed to an even later bloom period for this species. Due to the late bloom period of Santa Cruz tarplant, it is recommended that a late season survey be scheduled to target this special status species. Botanical nomenclature used in this document follows the Jepson Manual, Second Edition (Baldwin et al. 2012). We also provide Jepson Manual First Edition names in brackets where nomenclature has recently changed (Hickman 1993).

TABLE 5. VASCULAR PLANT LIST.

Common Name	Scientific Name	Special Status	Origin
Trees - 5 Species			
Bailey acacia	<i>Acacia baileyana</i>	None	Introduced
Blue gum	<i>Eucalyptus globulus</i>	None	Introduced
Monterey cypress	<i>Hesperocyparis macrocarpa</i>	1B.2	Native
Cherry plum	<i>Prunus cerasifera</i>	None	Introduced
Coast live oak	<i>Quercus agrifolia</i>	None	Native
Shrubs - 7 Species			
Coyote brush	<i>Baccharis pilularis</i>	None	Native
Blueblossom	<i>Ceanothus thyrsiflorus</i>	None	Native
English ivy	<i>Hedera helix</i>	None	Introduced
Himalayan blackberry	<i>Rubus armeniacus</i>	None	Introduced
Thimbleberry	<i>Rubus parviflorus</i>	None	Native

Common Name	Scientific Name	Special Status	Origin
California blackberry	<i>Rubus ursinus</i>	None	Native
Poison oak	<i>Toxicodendron diversilobum</i>	None	Native
Forbs - 35 Species			
Italian arum	<i>Arum italicum</i>	None	Introduced
Black mustard	<i>Brassica nigra</i>	None	Introduced
Sticky mouse-ear chickweed	<i>Cerastium glomeratum</i>	None	Introduced
Narrow leaved miner's lettuce	<i>Claytonia parviflora</i>	None	Native
Miner's lettuce	<i>Claytonia perfoliata</i>	None	Native
Bindweed	<i>Convolvulus arvensis</i>	None	Introduced
Cape ivy	<i>Delairea odorata</i>	None	Introduced
Longbeak stork's bill	<i>Erodium botrys</i>	None	Introduced
White stemmed filaree	<i>Erodium brachycarpum</i>	None	Introduced
Redstem filaree	<i>Erodium cicutarium</i>	None	Introduced
Greenstem filaree	<i>Erodium moschatum</i>	None	Introduced
California poppy	<i>Eschscholzia californica</i>	None	Native
Goose grass	<i>Galium aparine</i>	None	Native
Cut leaved geranium	<i>Geranium dissectum</i>	None	Introduced
Smooth cat's-ear	<i>Hypochaeris glabra</i>	None	Introduced
Rough cat's-ear	<i>Hypochaeris radicata</i>	None	Introduced
Japanese honeysuckle	<i>Lonicera japonica</i>	None	Introduced
Scarlet pimpernel	<i>Lysimachia arvensis</i>	None	Introduced
Cheeseweed	<i>Malva parviflora</i>	None	Introduced
Pineapple weed	<i>Matricaria discoidea</i>	None	Introduced
California burclover	<i>Medicago polymorpha</i>	None	Introduced
Broadleaved forget-me-not	<i>Myosotis latifolia</i>	None	Introduced
Crimson wood-sorrel	<i>Oxalis incarnata</i>	None	Introduced
Bermuda buttercup	<i>Oxalis pes-caprae</i>	None	Introduced
English plantain	<i>Plantago lanceolata</i>	None	Introduced
Jointed charlock	<i>Raphanus raphanistrum</i>	None	Introduced
Wild radish	<i>Raphanus sativus</i>	None	Introduced
Sheep sorrel	<i>Rumex acetosella</i>	None	Introduced
Curly dock	<i>Rumex crispus</i>	None	Introduced
Common chickweed	<i>Stellaria media</i>	None	Introduced
Salsify	<i>Tragopogon porrifolius</i>	None	Introduced

Common Name	Scientific Name	Special Status	Origin
Garden nasturtium	<i>Tropaeolum majus</i>	None	Introduced
Spring vetch	<i>Vicia sativa</i>	None	Introduced
Greater periwinkle	<i>Vinca major</i>	None	Introduced
Calla lily	<i>Zantedeschia aethiopica</i>	None	Introduced
Grasses - 11 Species			
Slender wild oat	<i>Avena barbata</i>	None	Introduced
Wild oat	<i>Avena fatua</i>	None	Introduced
False brome	<i>Brachypodium distachyon</i>	None	Introduced
California brome	<i>Bromus carinatus</i>	None	Native
Rescue grass	<i>Bromus catharticus</i>	None	Introduced
Ripgut grass	<i>Bromus diandrus</i>	None	Introduced
Soft chess	<i>Bromus hordeaceus</i>	None	Introduced
Rye grass	<i>Festuca perennis</i>	None	Introduced
Common velvet grass	<i>Holcus lanatus</i>	None	Introduced
Common barley	<i>Hordeum vulgare</i>	None	Introduced
Annual blue grass	<i>Poa annua</i>	None	Introduced

3.9 Wildlife Survey Results

Sixty-six animal species are listed that could potentially occur in the Study Area (Table 6). These include at least 3 amphibians, 6 reptiles, 43 birds, and 14 mammals. Small mammal trapping studies were beyond the scope of this report, although several species are likely to occur. We provide this list as a guide to the wildlife observed in the Study Area and to the species that could potentially be present at least seasonally. Other species could occur as transients, particularly avian fauna.

There were 20 bird and 5 mammal species documented in the Study Area via 2018 site visits and photographs provided by Mark Jordan, the current resident on the property. Bird activity was detected mainly in trees and shrubs around the house and garden in the northwest corner of the Study Area, and in the eucalyptus-oak woodland in the southern part of the Study Area. A potentially active red-tailed hawk nest was observed in a large eucalyptus tree in the southwest corner. Western gray squirrel was observed in the Monterey cypress trees bordering Harper Street, and many gopher mounds were observed in the annual grassland. Old, inactive squirrel and songbird nests were observed in acacia and oak trees around the house. Raccoon, striped skunk, and coyote have been observed foraging in the old garden and in the grassland.

TABLE 6. WILDLIFE LIST.

Common Name	Scientific Name	Special Status	Found On-site?	Habitat Type
Amphibians – 3 Species				
California Slender Salamander	<i>Batrachoseps attenuatus</i>	None		Moist habitats
Gabilan Mountains Slender Salamander	<i>Batrachoseps gabilanensis</i>	None		Moist habitats
Sierran Treefrog [=Pacific Chorus Frog]	<i>Pseudacris sierra</i> [formerly <i>P. regilla</i>]	None		Many habitats near water
Reptiles – 6 Species				
Northern California Legless Lizard	<i>Anniella pulchra</i>	SSC		Sandy soils in dunes, woodlands, coastal scrub
Western Yellow-bellied Racer	<i>Coluber constrictor mormon</i>	None		Grasslands, open areas
California Alligator Lizard	<i>Elgaria multicarinata multicarinata</i>	None		Open grassland, woodland, chaparral
Pacific Gopher Snake	<i>Pituophis catenifer catenifer</i>	None		Woodland, grassland, rural
Coast Range [=Western] Fence Lizard	<i>Sceloporus occidentalis bocourtii</i>	None		Wide range; variety of habitats
Coast Garter Snake	<i>Thamnophis elegans terrestris</i>	None		Many habitats near water
Birds – 43 Species				
Cooper's Hawk	<i>Accipiter cooperii</i>	Special Animal ¹ (nesting)		Oak, riparian woodland
California Scrub-Jay	<i>Aphelocoma californica</i>	None	✓	Oak, riparian woodlands
Oak Titmouse	<i>Baeolophus inornatus</i>	Special Animal (nesting)	✓	Oak woodland
Great Horned Owl	<i>Bubo virginianus</i>	None		Woodland, grassland
Red-tailed Hawk	<i>Buteo jamaicensis</i>	None	✓	Open, semi-open country
Red-shouldered Hawk	<i>Buteo lineatus</i>	None	✓	Oak, riparian woodlands
California Quail	<i>Callipepla californica</i>	None		Shrubby habitats
Anna's Hummingbird	<i>Calypte anna</i>	None	✓	Many habitats
Turkey Vulture	<i>Cathartes aura</i>	None		Open country

¹ Special Animal refers to all of the animal taxa inventoried by the CNDDDB, regardless of their legal or protection status. Refer to discussion of Special Animals in Section 3.7.

Common Name	Scientific Name	Special Status	Found On-site?	Habitat Type
Northern Flicker	<i>Colaptes auratus</i>	None		Woodlands
Rock Pigeon	<i>Columba livia</i>	None	✓	Urban areas
American Crow	<i>Corvus brachyrhynchos</i>	None	✓	Many habitats, esp. urban
White-tailed Kite	<i>Elanus leucurus</i>	FP (nesting)		Nests in dense live oaks
Pacific-slope Flycatcher	<i>Empidonax difficilis</i>	None		Riparian, oak woodlands
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	None		Open habitats
House Finch	<i>Haemorhous mexicanus</i>	None		Riparian, grasslands, chaparral, woodlands, urban
Purple Finch	<i>Haemorhous purpureus</i>	None		Riparian and woodlands
Dark-eyed Junco	<i>Junco hyemalis</i>	None	✓	Oak woodland
Song Sparrow	<i>Melospiza melodia</i>	None	✓	Oak, riparian woodland
California Towhee	<i>Melozone crissalis</i>	None	✓	Chaparral scrub, shrubby urban areas
Northern Mockingbird	<i>Mimus polyglottos</i>	None	✓	Riparian, chaparral, woodlands, urban
House Sparrow	<i>Passer domesticus</i>	None		Urban
Nuttall's Woodpecker	<i>Picoides nuttallii</i>	None		Oak, riparian woodlands
Downy Woodpecker	<i>Picoides pubescens</i>	None		Oak, riparian woodlands
Spotted Towhee	<i>Pipilo maculatus</i>	None		Dense brushy areas
Western Tanager	<i>Piranga ludoviciana</i>	None		Oak, riparian woodlands
Chestnut-backed Chickadee	<i>Poecile rufescens</i>	None	✓	Mixed woodlands
Bushtit	<i>Psaltriparus minimus</i>	None	✓	Woodlands, chaparral
Ruby-crowned Kinglet	<i>Regulus calendula</i>	None	✓	Oak, riparian woodlands
Black Phoebe	<i>Sayornis nigricans</i>	None		Near water in natural and urban settings
Yellow-rumped Warbler	<i>Setophaga coronata</i>	None	✓	Coniferous and mixed woodland (breeding); shrubby areas and parks (winter)
Western Bluebird	<i>Sialia mexicana</i>	None		Woodland near open areas
Pygmy Nuthatch	<i>Sitta pygmaea</i>	None	✓	Coniferous forest, mixed pine habitats
Lesser Goldfinch	<i>Spinus psaltria</i>	None		Riparian, oak woodlands
American Goldfinch	<i>Spinus tristis</i>	None		Weedy fields, woodlands
Eurasian Collared-Dove	<i>Streptopelia decaocto</i>	None	✓	Urban areas

Common Name	Scientific Name	Special Status	Found On-site?	Habitat Type
European Starling	<i>Sturnus vulgaris</i>	None		Agricultural, livestock areas
Bewick's Wren	<i>Thryomanes bewickii</i>	None		Riparian woodland, scrub
House Wren	<i>Troglodytes aedon</i>	None		Shrubby areas
American Robin	<i>Turdus migratorius</i>	None		Streamsides, woodlands, urban parks
Mourning Dove	<i>Zenaida macroura</i>	None	✓	Open and semi-open habitats
Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	None	✓	Dense woodlands, brushy areas
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	None	✓	Oak, riparian woodlands

Mammals – 14 Species

Pallid Bat	<i>Antrozous pallidus</i>	SSC		Riparian, woodland, urban
Coyote	<i>Canis latrans</i>	None	✓	Open woodlands, brushy areas, wide ranging.
Feral Cat	<i>Felis catus</i>	None		Varied
Hoary Bat	<i>Lasiurus cinereus</i>	Special Animal		Variety of habitats, roosts in foliage
Striped Skunk	<i>Mephitis mephitis</i>	None	✓	Mixed woods, brush, semi-open country
California Vole	<i>Microtus californicus</i>	None		Grassland meadows
California Myotis	<i>Myotis californicus</i>	None		Tunnels, hollow trees, buildings, bridges.
San Francisco Dusky-footed Woodrat	<i>Neotoma fuscipes annectens</i>	SSC		Wooded habitats
Deer Mouse	<i>Peromyscus maniculatus</i>	None		All dry land habitats
Raccoon	<i>Procyon lotor</i>	None	✓	Streams, lakes, rock cliffs, dens in trees
Western Gray Squirrel	<i>Sciurus griseus</i>	None	✓	Oak, conifer woodlands
Mexican Free-tailed Bat	<i>Tadarida brasiliensis</i>	None		Variety of habitats; roosts in bridges, buildings, caves
American Badger	<i>Taxidea taxus</i>	SSC		Open country
Valley Pocket Gopher	<i>Thomomys bottae</i>	None	✓	Variety of habitats

Abbreviations:

SSC: CDFW Species of Special Concern

FP: CDFW Fully Protected Species

4 POTENTIAL IMPACTS

4.1 Habitats

The proposed Project would result in impacts to 0.62 acres of annual grassland and 0.30 acres of ruderal habitat (Figure 7). Potential impacts are listed in Table 7. Proposed habitat restoration (Section 5.1.3) would impact eucalyptus-oak woodland, but the precise extent of the impacts has not yet been determined. Impacts to eucalyptus-oak woodland will be specified in the Habitat Restoration Plan, which will be submitted as a separate document.

TABLE 7. POTENTIAL HABITAT IMPACTS.

Habitat Type	Proposed Impact Acres
Annual brome grassland	0.62
Ruderal	0.30

4.1.1 Annual Brome Grassland

A total of approximately 0.62 acres of annual grassland would be impacted by the proposed development. The grassland is disturbed habitat dominated by non-native species, but may provide foraging habitat for songbirds, raptors, and small mammals. This is not a sensitive habitat type and does not require mitigation (see Section 5.1).

A few scattered coast live oak trees within the grassland would be impacted or removed by the proposed project, as specified in the arborist's report (Belton 2017). These oak trees are not part of an oak woodland, and do not need to be mitigated as such.

4.1.2 Ruderal

Approximately 0.30 acres of ruderal habitat would be impacted by the proposed development. This is a highly disturbed area consisting of buildings and an old garden, and is dominated by non-native species, but may provide foraging habitat for songbirds and small mammals. All buildings and plantings around the buildings would be removed, but all but one of the Monterey cypress along Harper Street would remain. One cypress was recommended for removal by a qualified arborist because the tree was damaged due to disease (Belton 2017). This is not a sensitive habitat type and does not require mitigation (see Section 5.1).

A few scattered coast live oak trees growing around the buildings in the ruderal habitat would be impacted or removed by the proposed project, as specified in the arborist's report (Belton 2017). These oak trees are not part of an oak woodland, and do not need to be mitigated as such.

4.1.3 Eucalyptus-Oak Woodland

No construction-related impacts are proposed to eucalyptus-oak woodland. Proposed habitat restoration would impact the woodland, but the exact extent of impacts has not yet been determined. The proposed restoration would entail removal of several smaller eucalyptus trees, removal of non-native understory vegetation, construction of a short walking path, and planting of

native understory vegetation. Non-native vegetation removal would be focused in the vicinity of coast live oak trees. No large eucalyptus trees which contribute significantly to the canopy would be removed, and no ground disturbing activities are proposed. See Section 5.1.3 for a more detailed description of the proposed habitat restoration.

4.2 Potential Wetlands and Jurisdictional Waters

There are no wetlands present within the Study Area, and no impacts to wetlands would occur.

As per County Code Section 16.30.040, a minimum buffer of 20 feet is required for ephemeral streams with a slope of 0-10% within 30 feet of the edge. A minimum buffer of 20 feet is also required from the dripline of woody vegetation surrounding the drainage. In addition, Section 16.30.040 states that “a 10-foot setback from the edge of the buffer is required for all structures”. The edge of the community garden is within the setback area, but it is not a structure.

Potential impacts to the unnamed ephemeral drainage may occur during construction of the project or during proposed habitat restoration due to sedimentation caused by earthmoving, changes in stormwater runoff quality or volume, or spills during construction. No alteration to the channel or work within the channel or on the banks of the arroyo is proposed. Mitigation measures are recommended to avoid impacts to jurisdictional waters (see Section 5.2).

4.3 Nesting Birds

Vegetation removal and construction activities associated with the proposed project could result in adverse impacts to nesting birds if conducted during nesting season (March 15 through August 15). Potential impacts to nesting birds can be avoided (refer to Sections 5.4 and 5.5.3).

4.4 Special Status Species

4.4.1 Plants

Special status plants were not detected in the Study Area during the spring botanical survey in 2018. One additional botanical survey is planned for July 2018 to coincide with potential special status plant bloom times, but special status plants are not expected to occur within the Study Area. The proposed project would not affect special status plants.

4.4.2 Reptiles

There is low potential for Northern California legless lizards to occur under oaks in the grassland. Ground disturbance and removal of oak trees in grassland habitat could potentially impact legless lizards. Recommendations are provided to avoid or minimize potential impacts to this special status species (Section 5.4.2).

4.4.3 Birds

Marginal potential nesting habitat is present in the eucalyptus-oak woodland habitat in the Study Area for three special status bird species: Oak titmouse, Cooper’s hawk, and white-tailed kite. Vegetation removal associated with the proposed habitat restoration could result in adverse impacts to nesting special status birds if conducted during nesting season (March 15 through

August 15). Cooper’s hawk and white-tailed kite were not detected in the Study Area during 2018 surveys, but oak titmouse was observed foraging within the Study Area. Potential impacts to nesting birds can be avoided (refer to Sections 5.3 and 5.4.3).

4.4.4 Mammals

The trimming or removal of oak trees and the removal of buildings within the Study Area could impact potential roosting habitat for two sensitive bat species: pallid bat and hoary bat. Potential impacts to special status bat species can be avoided by implementing preconstruction surveys (Section 5.4.4).

There is potential habitat for San Francisco dusky-footed woodrat in the eucalyptus-oak woodland within the Study Area. Vegetation removal associated with the proposed habitat restoration could potentially impact woodrats. Potential impacts to San Francisco dusky-footed woodrats can be avoided by implementing preconstruction surveys (Section 5.4.5).

There is marginal potential habitat for American badger in grassland habitat within the Study Area, though no badgers were detected during 2018 surveys. The grassland habitat within the Study Area is of low quality for this species due to the lack of prey and the density of the surrounding residential development, but potential impacts to badgers can be avoided by implementing preconstruction surveys (Section 5.4.5).

4.4.5 Insects

There is potential overwintering habitat for monarch butterflies in the eucalyptus-oak woodland within the Study Area. Removal of eucalyptus trees or understory vegetation during habitat restoration may impact overwintering monarch butterflies. Impacts to monarch butterflies can be avoided (Section 5.4.6).

There is potential foraging habitat for two sensitive bumblebee species in the grassland and ruderal habitats within the Study Area. The proposed project will reduce available foraging habitat for bumblebees, but impacts will not adversely affect either species. The proposed project would not impact sensitive bumblebee species, and no mitigation measures are required.

4.4.6 Fish

Tidewater goby is known to occur downstream of the Study Area in Rodeo Gulch and Corcoran Lagoon, which is critical habitat. The unnamed ephemeral drainage may be impacted by sedimentation due to earthmoving, changes in stormwater runoff quality or volume, or spills during construction, which may lead to downstream impacts to tidewater goby critical habitat. Potential impacts to tidewater goby can be avoided (Section 5.4.7).

4.5 Habitat Connectivity and Wildlife Movement

The proposed project would not impact habitat connectivity or wildlife movement. The woodland corridor on the south portion of the Study Area would not be impacted by the project. The ruderal and grassland areas which would be impacted by the proposed project do not provide a corridor for wildlife movement as they are surrounded on the east, west, and north sides by fences and/or residential development.

5 MITIGATION RECOMMENDATIONS

Biological recommendations (BR) for avoidance, minimization, and mitigation measures are provided to reduce impacts of proposed Project activities on biological resources to a less than significant level.

5.1 Habitats

5.1.1 Annual Brome Grassland

Loss of annual grassland habitat does not require mitigation except where it affects special status species or important wildlife populations, neither of which are anticipated. Up to 0.62 acres of annual grassland would be impacted by the proposed project. Mitigation for this habitat is not required.

5.1.2 Ruderal

Loss of ruderal habitat does not require mitigation except where it affects special status species or important wildlife populations, neither of which are anticipated. Up to 0.30 acres of ruderal habitat would be impacted by the proposed project. Mitigation for this habitat type is not required.

5.1.3 Eucalyptus-oak Woodland

Though no impacts are proposed to the woodland by the project, it is a degraded habitat dominated by non-native eucalyptus trees and understory vegetation. As per Santa Cruz General Plan Policy 5.1.12, habitat restoration of degraded sensitive habitat on the subject property is required as a condition of development. A Habitat Restoration Plan shall be prepared and submitted for review to the County, detailing the scope of the restoration.

- BR-1.** Prepare a Habitat Restoration Plan (HRP) which details the extent of the planned restoration activities. These activities would include removal of select eucalyptus trees which either pose a hazard, or do not contribute significant habitat value. Larger diameter eucalyptus trees would be retained but would be trimmed as necessary to reduce hazard limbs. Cut eucalyptus stumps would be treated to prevent re-sprouting. Non-native understory vegetation would be removed around the base of coast live oak trees. A walking path for use by residents of the property would be installed near the coast live oak trees, and non-native understory vegetation would be removed in the vicinity of the path. Non-native vegetation would be removed regularly as needed from around the base of the oak trees and the walking path. Locally-sourced native vegetation would be reseeded or replanted in areas where non-native vegetation was removed. The HRP will follow County guidelines for the preparation of revegetation/restoration plans.
- BR-2.** Conduct outreach to neighboring property owners to the east and west of the Study Area. Neighbors will be contacted in advance of tree and vegetation removal. Outreach to the neighbors will include an invitation to participate by engaging in or allowing habitat restoration on their own properties, or by assisting with restoration activities in the Study Area.

5.2 Potential Wetlands and Jurisdictional Waters

Potential impacts to the ephemeral drainage could occur during construction of the proposed project. Ground-disturbing construction activities could result in sediment washing into the drainage, or changes in stormwater runoff quality or volume. Spills that occur during construction could result in pollutants washing into the drainage. BMPs intended to keep sediment from entering the drainage should be incorporated into construction plans and utilized within the Study Area, including but not limited to:

- BR-3.** No ground disturbing activities will take place within the riparian corridor or within the top of bank channel.
- BR-4.** The edge of woodland vegetation will be shown on construction plans and boundaries of the work area will be shown on construction plans. Limits of grading will be clearly delineated in the field prior to initiation of construction activities.
- BR-5.** All hazardous materials required to operate and maintain equipment will be properly used in accordance with manufacturer's specifications.
- BR-6.** The contractor will follow an approved spill prevention plan, including procedures to ensure that all equipment is properly maintained and free of leaks and all necessary repairs incorporate proper spill containment.
- BR-7.** Hazardous materials will be properly stored and managed in secured areas located outside riparian corridors.
- BR-8.** Mobile equipment will be staged, repaired, and maintained 150 ft from top of bank, or on existing paved road surfaces. Fueling of equipment will be conducted in pre-designated areas at least 150 ft from the top of bank, or on existing paved road surfaces. Spill containment materials will be placed around the equipment before refueling. Standing equipment will be outfitted with drip pans and hydrocarbon absorbent pads.

5.3 Nesting Birds

Migratory non-game native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (50 C.F.R. Section 10.13). Sections 3503, 3503.5 and 3513 of the California Fish and Game Code prohibit take (as defined therein) of all native birds and their active nests, including raptors and other migratory non-game birds (as listed under the Federal MBTA).

- BR-9.** Within one week of vegetation removal and of initial ground disturbing activities, if work occurs between March 15 and August 15, nesting bird surveys shall be conducted by a qualified biologist. If surveys do not locate nesting birds, work activities may be conducted. If nesting birds are located, no work shall occur within 100 feet of non-raptor nests or within 300 feet of raptor nests until chicks are fledged or the nest is inactive. A letter report shall be submitted to the lead agency immediately upon completion of the survey. The letter report shall detail appropriate fencing or flagging of the buffer zone and make recommendations on additional monitoring requirements. A map of the Project site and nest locations shall be included with the letter report. The Project biologist conducting the nesting survey shall have the authority to reduce or increase the recommended buffer depending upon site conditions.

5.4 Special Status Species

5.4.1 Plants

Special status plants were not detected in the Study Area during an appropriately timed botanical survey in spring 2018. An additional late-season botanically timed floristic survey is planned for July 2018 to coincide with potential special status plant bloom times, but special status plant species are not expected to occur. Development of the proposed building envelopes would not affect special status plants. No mitigation is required.

5.4.2 Northern California legless lizard

Northern California legless lizards may be present in the soil and leaf litter under oaks in the Study Area. To minimize potential impacts to this species, the following mitigation measure is recommended:

BR-10. If construction disturbance cannot avoid areas within 25 feet of the canopy edge of oak trees, a preconstruction survey for legless lizards shall be conducted in proposed work areas within 25 feet of oak tree canopy edges no more than 48 hours prior to ground-breaking activities. The preconstruction survey shall be conducted by a qualified biologist familiar with legless lizard ecology and survey methods, and with approval from California Department of Fish and Wildlife to relocate legless lizards out of harm's way. The scope of the survey shall be determined by a qualified biologist and shall be sufficient to determine presence or absence in the project areas. If survey results are negative, a letter report shall be submitted to the County, and no further action shall be required. If legless lizards are found to be present in the proposed work area, they shall be captured by hand by the project biologist and relocated to an appropriate location well outside the work area. A letter report shall be submitted to the County and CDFW within 30 days of legless lizard relocation, or as directed by CDFW. The report shall document number of lizards captured and moved, individual lizard condition, and the locations where they were moved.

5.4.3 Birds

In order to reduce the potential for disturbance of special status birds that may be present during nesting season, the applicant shall implement BR-9 one week prior to vegetation removal and initial ground disturbing activities (refer to Section 5.3). If nests of sensitive birds are identified in the work area, the following additional mitigation measures shall be implemented:

BR-11. Occupied nests of special status bird species shall be mapped using GPS or survey equipment. Work shall not be allowed within a 100-foot buffer (for non-raptors) or 300-foot buffer (for raptors) while the nest is in use. The buffer zone shall be delineated on the ground with orange construction fencing where it overlaps work areas.

BR-12. Occupied nests of special status bird species that are within 100 feet (for non-raptors) or 300 feet (for raptors) of project work areas shall be monitored at least every two weeks through the nesting season to document nest success and check for project compliance with buffer zones. Once nests are deemed inactive and/or chicks have fledged and are no longer dependent on the nest, work may commence in these areas.

5.4.4 Bats

Pallid bats may be present in trees with appropriate cavities, or in buildings. Hoary bats may be present in trees with sufficiently dense canopies.

BR-13. Prior to removal of any trees over 20 inches DBH, any trees with suitable hollows for roosting, or any buildings, a survey shall be conducted by a qualified biologist to determine if any of the trees or buildings proposed for removal harbor sensitive bat species or maternal bat colonies. If a non-maternal roost is found, the qualified biologist, with prior approval from California Department of Fish and Wildlife, will install one-way valves or other appropriate passive relocation method. For each occupied roost removed, one bat box shall be installed in similar habitat and should have similar cavity or crevices properties to those which are removed, including access, ventilation, dimensions, height above ground, and thermal conditions. Maternal bat colonies may not be disturbed.

5.4.5 Other Mammals

San Francisco dusky-footed woodrat could occur in the eucalyptus-oak woodland within the Study Area. Vegetation removal associated with proposed habitat restoration could result in impacts to woodrats. To reduce impacts to less than significant, the following measure is recommended.

BR-14. A survey shall be conducted within the eucalyptus-oak woodland in the Study Area to locate San Francisco dusky-footed woodrat nests within 50 feet of proposed vegetation removal areas. The survey shall be conducted within 30 days of starting any eucalyptus tree or understory vegetation removal. If a woodrat nest is located, the nest will not be disturbed, and fencing shall be installed under the direction of a project biologist in a manner sufficient to protect the nests from workers and equipment.

American badger could occur in grassland areas within the Study Area. Activities undertaken during the proposed project including grading and other excavation work could result in take of American badger or disturbance of dens. To reduce this potential impact to a less than significant level the following measure is recommended.

BR-15. A pre-construction survey shall be conducted within 30 days of ground disturbing activities to identify if badgers are using the site. The results of the survey shall be sent to the County. If the preconstruction survey finds potential badger dens, they shall be inspected to determine whether they are occupied. The survey shall cover the entire property and shall examine both old and new dens. If potential badger dens are too long to completely inspect from the entrance, a fiber optic scope shall be used to examine the den to the end. Inactive dens may be excavated by hand with a shovel to prevent re-use of dens during construction. If badgers are found in dens on the property between February and July, nursing young may be present. To avoid disturbance and the possibility of direct take of adults and nursing young, and to prevent badgers from becoming trapped in burrows during construction activity, no grading shall occur within 100 feet of active badger dens between February and July. Between July 1 and February 1 all potential badger dens shall be inspected to determine if badgers are present. During the winter badgers do not truly hibernate but are inactive and asleep in their dens for

several days at a time. Because they can be torpid during the winter, they are vulnerable to disturbances that may collapse their dens before they rouse and emerge. Therefore, surveys shall be conducted for badger dens throughout the year. If badger dens are found on the property during the preconstruction survey, the CDFW wildlife biologist for the area shall be contacted to review current allowable management practices.

5.4.6 Monarch Butterflies

Monarch butterflies may overwinter in eucalyptus trees in the eucalyptus-oak woodland. To avoid impacts to overwintering monarchs due to the proposed habitat restoration, the following measure is recommended.

BR-16. If vegetation trimming/removal activities that affect eucalyptus trees within the eucalyptus-oak woodland occur during the overwintering season from October 1 through March 31, overwintering monarch surveys shall be conducted by a qualified biologist within one week of habitat disturbance. If surveys do not locate clustering monarchs, vegetation trimming/removal activities may be conducted. If clustering monarchs are located, no vegetation trimming/removal activities shall occur within 100 feet of cluster trees.

5.4.7 Tidewater Goby

The federally listed endangered tidewater goby has been documented in Rodeo Gulch and Corcoran Lagoon, downstream of the Study Area. Impacts to tidewater gobies and their critical habitat may be avoided by implementing BR-3 through BR-8 listed above.

5.5 Habitat Connectivity and Wildlife Movement

Impacts to habitat corridors are not expected to occur. No mitigation is required.

6 PHOTOGRAPHS



Photo 1. Row of Monterey cypress trees at north edge of Study Area, bordering Harper Street. One tree is recommended for removal due to disease. View facing west. Photo taken January 31, 2018.



Photo 2. Single-story house located on the north side of the Study Area, surrounded by non-native acacia trees and plantings. Photo taken from driveway area. View facing southeast. Photo taken January 31, 2018.



Photo 3. Shed located southwest of the house. Photo taken from driveway area. View facing south. Photo taken January 31, 2018.



Photo 4. East side of house and old garden, dominated by invasive Cape ivy. View facing west. Photo taken January 31, 2018.



Photo 5. View of annual grassland with scattered coast live oaks. Photo taken from northeast corner of Study Area looking south. Fence around old garden visible right of center. Photo taken January 31, 2018.



Photo 6. View of annual grassland less than one month after spring mowing by County showing shrubs and small coast live oaks at the edge of the grassland. Photo taken from center of Study Area looking southeast on May 20, 2018.



Photo 7. The annual grassland has several large scattered shrubs, such as this coyote brush, which are gradually spreading. Note the young coyote brush growing in the lower left, and Himalayan blackberry on the lower right.



Photo 8. The eucalyptus-oak woodland is bordered by a dense patch of California blackberry. View facing south. Photo taken January 31, 2018.



Photo 9. The understory of the eucalyptus oak woodland is dominated by non-natives, including cape ivy and Himalayan blackberry, shown here. View facing east. Photo taken January 31, 2018.



Photo 10. The ephemeral drainage which forms the southern boundary of the property. Water was present in the drainage in January. Note downed trees and other woody debris in channel. View facing west. Photo taken January 31, 2018.



Photo 11. Potentially active red-tailed hawk nest in a blue gum eucalyptus in the southwest corner of the property. One adult red-tailed hawk was observed perched near the nest. View facing southwest. Photo taken January 31, 2018.

7 FIGURES

- **Figure 1. USGS Topographic Map**
- **Figure 2. Aerial Photograph**
- **Figure 3. Biological Resource Map**
- **Figure 4. CNDDDB Plant Records**
- **Figure 5. CNDDDB Animal Records**
- **Figure 6. USFWS Critical Habitat**
- **Figure 7. Impact Map**

Figure 1. United States Geological Survey Topographic Map



Legend

★ Project Location



0 1,000 2,000 4,000 Feet

Habitat for Humanity
Map Center: 121.97805°W 36.96707°N
Santa Cruz, California

USGS Quadrangle: Soquel

Figure 2. Aerial Photograph



Legend

 Study Area (1.6 acres)



0 25 50 100 150 200 Feet



Habitat for Humanity
Map Center: 121.97871°W 36.97253°N
Santa Cruz, California

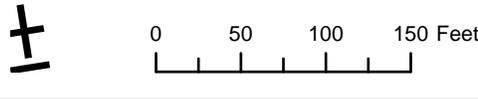
Imagery Date: 06/14/2017

Figure 3. Biological Resources



Legend

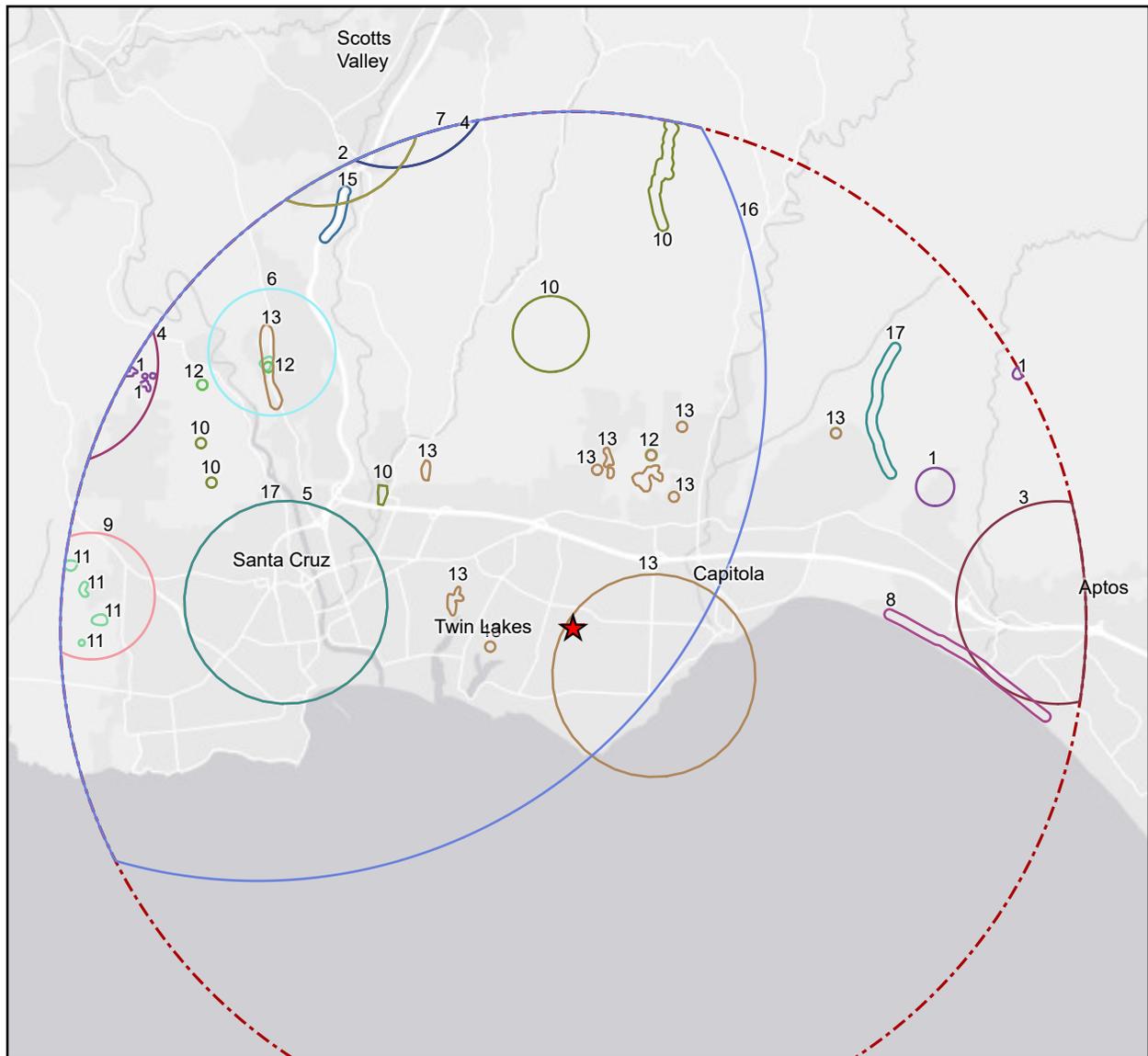
- Study Area (1.6 acres)
- Annual Brome Grassland (0.75 acre)
- Eucalyptus-Oak Woodland (0.52 acre)
- Ruderal (0.3 acre)
- Dripline of Woody Vegetation
- 20-Foot Buffer From Woody Vegetation
- 10-Foot Setback
- Ephemeral Drainage



Habitat for Humanity
 Map Center: 121.97871°W 36.97253°N
 Santa Cruz, California

Biological Survey Date: 05/20/2018

Figure 4. California Natural Diversity Database Plant Records

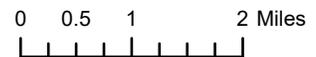


Label Common Name

- 1 Anderson's manzanita
- 2 Deceiving sedge
- 3 Dudley's lousewort
- 4 Kellogg's horkelia
- 5 Maple-leaved checkerbloom
- 6 Marsh microseris
- 7 Northern curly-leaved monardella
- 8 Perennial goldfields
- 9 Point Reyes horkelia
- 10 Robust spineflower
- 11 San Francisco popcornflower
- 12 Santa Cruz clover
- 13 Santa Cruz tarplant
- 14 Santa Cruz wallflower
- 15 Swamp harebell
- 16 White-rayed pentachaeta
- 17 Woodland woollythreads

Legend

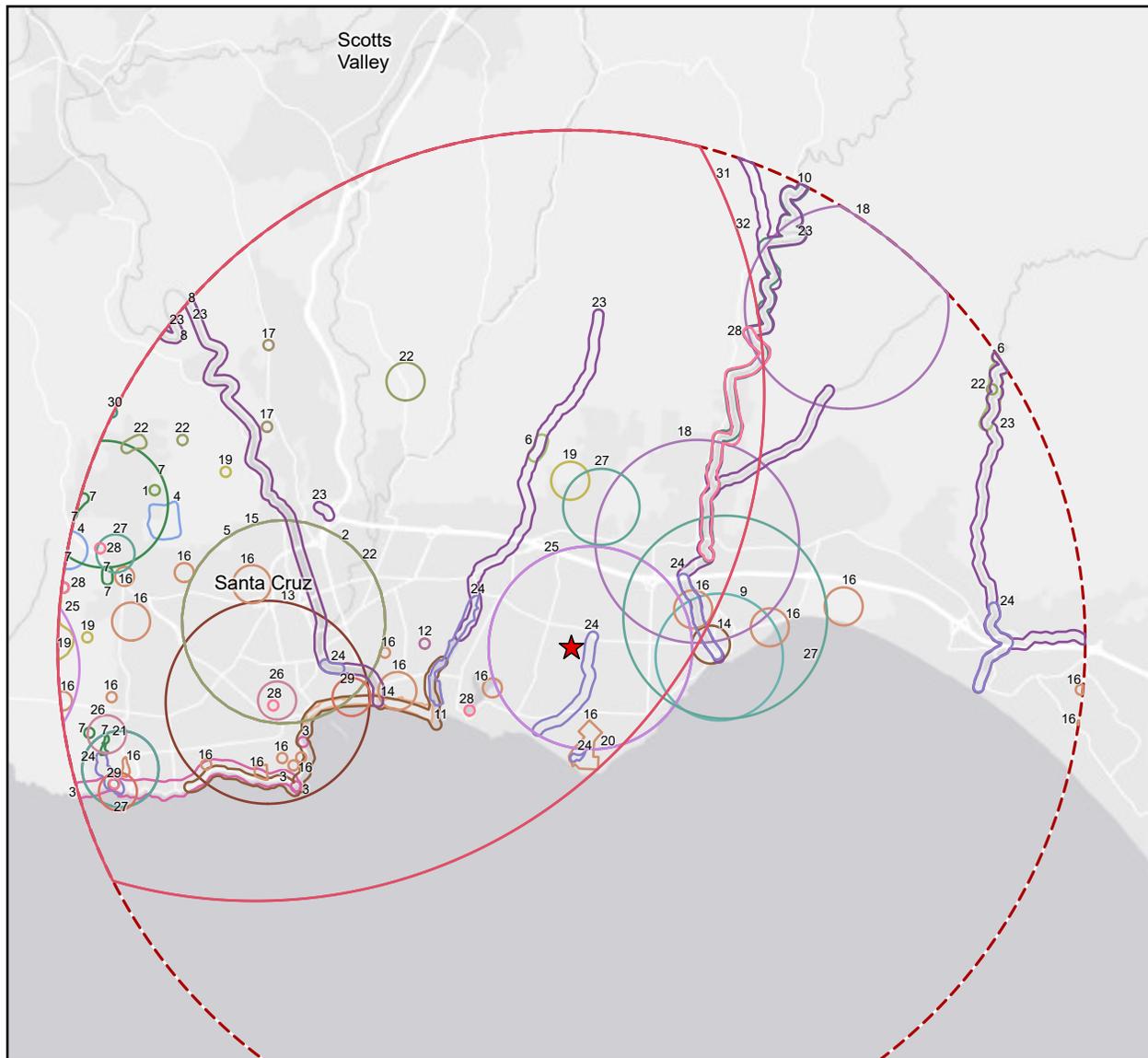
-  Project Location
-  5-Mile Radius



Habitat for Humanity
 Map Center: 121.97852°W 36.98592°N
 Santa Cruz, California

CNDDDB GIS Data Last Updated: May 2018

Figure 5. California Natural Diversity Database Animal Records



Label Common Name Label Common Name

- | | |
|--|---|
| 1 American badger | 17 Mount Hermon (=barbate) June beetle |
| 2 Bank swallow | 18 Obscure bumble bee |
| 3 Black swift | 19 Ohlone tiger beetle |
| 4 Burrowing owl | 20 Pallid bat |
| 5 California black rail | 21 Sandy beach tiger beetle |
| 6 California giant salamander | 22 Santa Cruz black salamander |
| 7 California red-legged frog | 23 Steelhead - central California coast DPS |
| 8 Coho salmon - central California coast ESU | 24 Tidewater goby |
| 9 Eulachon | 25 Townsend's big-eared bat |
| 10 Foothill yellow-legged frog | 26 Tricolored blackbird |
| 11 Globose dune beetle | 27 Western bumble bee |
| 12 Great blue heron | 28 Western pond turtle |
| 13 Hoary bat | 29 Western snowy plover |
| 14 Mimic tryonia (=California brackishwater snail) | 30 White-tailed kite |
| 15 Moestan blister beetle | 31 Yellow rail |
| 16 Monarch - California overwintering population | 32 Zayante band-winged grasshopper |

Legend

★ Project Location

▭ 5-Mile Radius

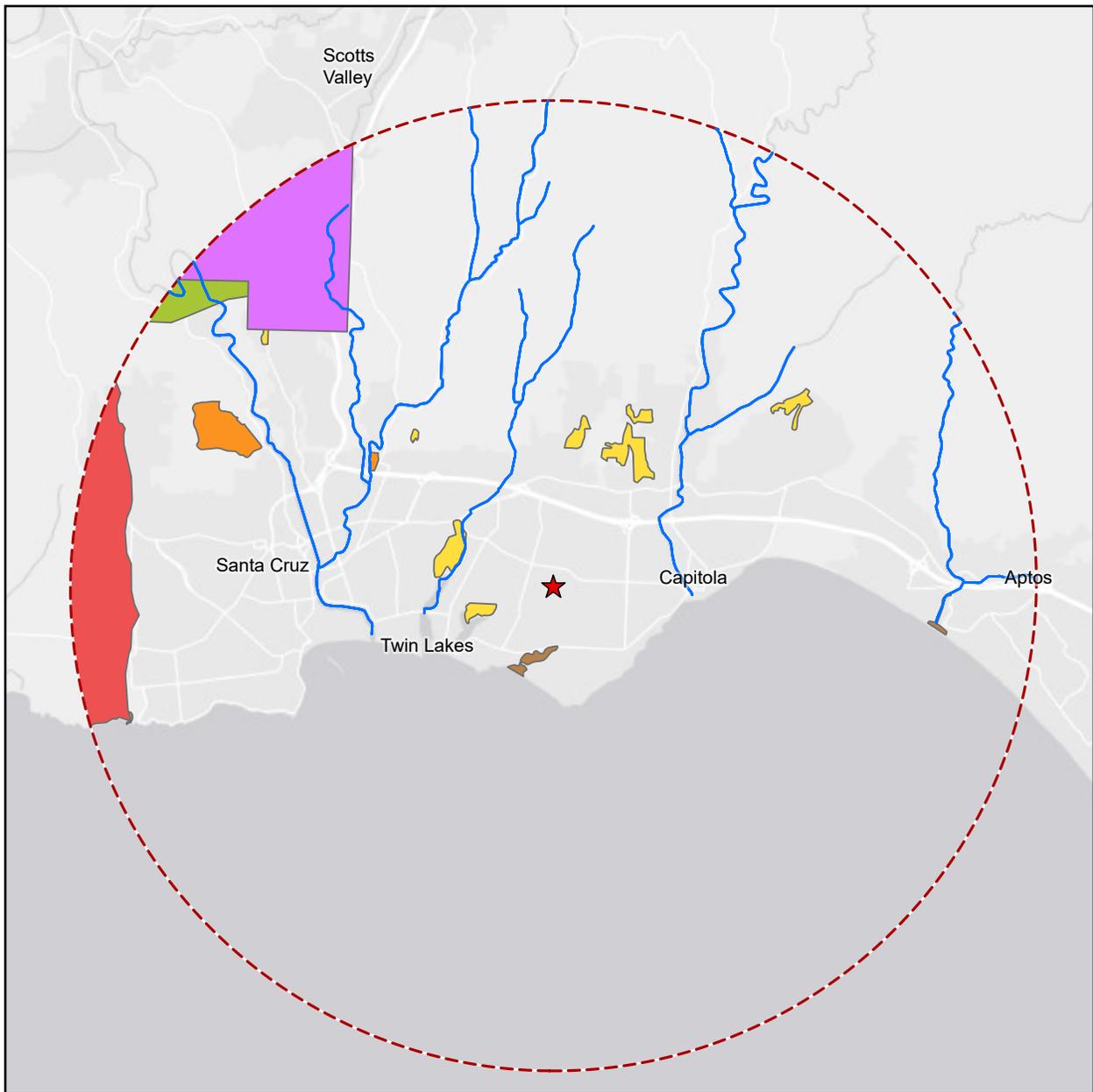


0 0.5 1 2 Miles

Habitat for Humanity
Map Center: 121.97817°W 36.98854°N
Santa Cruz, California

CNDDDB GIS Data Last Updated: May 2018

Figure 6. United States Fish and Wildlife Service Critical Habitat



Legend

- Critical Habitat**
- California red-legged frog
 - Marbled murrelet
 - Robust spineflower
 - Santa Cruz tarplant
 - Tidewater goby
 - Zayante band-winged grasshopper
- Steelhead

5-Mile Radius

Project Location



0 0.5 1 2 Miles

Habitat for Humanity
 Map Center: 121.97971°W 36.97792°N
 Santa Cruz, California

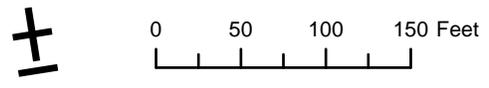
CNDDB GIS Data Last Updated: May 2018

Figure 7. Impacts



Legend

- Study Area (1.6 acres)
- Impact Area (0.95 acre)
- Annual Brome Grassland (0.72 acre)
- Eucalyptus-Oak Woodland (0.53 acre)
- Ruderal (0.3 acre)
- Dripline of Woody Vegetation
- 20-Foot Buffer From Woody Vegetation
- 10-Foot Setback
- Ephemeral Drainage



Habitat for Humanity
 Map Center: 121.97871°W 36.97253°N
 Santa Cruz, California

Imagery Date: 06/14/2017

8 REFERENCES

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9 APPENDICES

- Appendix A. Proposed Site Plans
- Appendix B. USDA Custom Soil Resource Report
- Appendix C. California Natural Diversity Database and California Native Plant Society Plant Records (Full)
- Appendix D. California Natural Diversity Database Animal Records (Full)



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Santa Cruz County, California**

Harper Street and Critical Habitat Unit E



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map (Harper Street Soils and Unit E of Critical Habitat).....	9
Legend.....	10
Map Unit Legend (Harper Street Soils and Unit E of Critical Habitat).....	11
Map Unit Descriptions (Harper Street Soils and Unit E of Critical Habitat).....	11
Santa Cruz County, California.....	14
103—Aquents, flooded.....	14
124—Danville loam, 0 to 2 percent slopes.....	15
133—Elkhorn sandy loam, 2 to 9 percent slopes.....	16
135—Elkhorn sandy loam, 15 to 30 percent slopes.....	18
161—Pinto loam, 0 to 2 percent slopes.....	19
162—Pinto loam, 2 to 9 percent slopes.....	20
176—Watsonville loam, 0 to 2 percent slopes.....	22
177—Watsonville loam, 2 to 15 percent slopes.....	23
178—Watsonville loam, thick surface, 0 to 2 percent slopes.....	25
179—Watsonville loam, thick surface, 2 to 15 percent slopes.....	26
185—Water.....	27
References	28

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report

Soil Map (Harper Street Soils and Unit E of Critical Habitat)



Map Scale: 1:9,730 if printed on A landscape (11" x 8.5") sheet.

0 100 200 400 600 Meters

0 450 900 1800 2700 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Santa Cruz County, California
 Survey Area Data: Version 11, Sep 13, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (Harper Street Soils and Unit E of Critical Habitat)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
103	Aquents, flooded	6.1	1.2%
124	Danville loam, 0 to 2 percent slopes	9.4	1.9%
133	Elkhorn sandy loam, 2 to 9 percent slopes	159.9	32.6%
135	Elkhorn sandy loam, 15 to 30 percent slopes	8.5	1.7%
161	Pinto loam, 0 to 2 percent slopes	4.2	0.9%
162	Pinto loam, 2 to 9 percent slopes	6.3	1.3%
176	Watsonville loam, 0 to 2 percent slopes	91.4	18.6%
177	Watsonville loam, 2 to 15 percent slopes	64.7	13.2%
178	Watsonville loam, thick surface, 0 to 2 percent slopes	111.3	22.7%
179	Watsonville loam, thick surface, 2 to 15 percent slopes	18.0	3.7%
185	Water	11.5	2.3%
Totals for Area of Interest		491.3	100.0%

Map Unit Descriptions (Harper Street Soils and Unit E of Critical Habitat)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Custom Soil Resource Report

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion

Custom Soil Resource Report

of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Santa Cruz County, California

103—Aquents, flooded

Map Unit Setting

National map unit symbol: h9cs
Elevation: 7,840 to 8,000 feet
Mean annual precipitation: 30 to 40 inches
Mean annual air temperature: 39 to 43 degrees F
Frost-free period: 245 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

Aquents, flooded, and similar soils: 85 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aquents, Flooded

Setting

Landform: Beaches, valleys
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Concave
Across-slope shape: Convex, linear
Parent material: Organic material and/or alluvium

Typical profile

C - 0 to 60 inches: clay, sand, muck, peat
C - 0 to 60 inches:
C - 0 to 60 inches:
C - 0 to 60 inches:

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 99.90 in/hr)
Depth to water table: About 10 to 39 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water storage in profile: Very high (about 43.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Fluventic haploxerolls

Percent of map unit: 5 percent

Custom Soil Resource Report

Hydric soil rating: No

Aquic xerofluvents

Percent of map unit: 4 percent

Hydric soil rating: No

Unnamed, organic soils

Percent of map unit: 2 percent

Landform: Drainageways

Hydric soil rating: Yes

Soquel

Percent of map unit: 2 percent

Hydric soil rating: No

124—Danville loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: h9dg

Elevation: 20 to 1,500 feet

Mean annual precipitation: 12 to 25 inches

Mean annual air temperature: 57 to 63 degrees F

Frost-free period: 245 to 275 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Danville and similar soils: 85 percent

Minor components: 12 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Danville

Setting

Landform: Alluvial fans, valleys

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread, talf

Down-slope shape: Linear, concave

Across-slope shape: Linear

Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 17 inches: loam

H2 - 17 to 29 inches: clay, sandy clay, silty clay

H2 - 17 to 29 inches: gravelly sandy clay loam, clay loam, sandy clay loam

H2 - 17 to 29 inches:

H3 - 29 to 65 inches:

H3 - 29 to 65 inches:

H3 - 29 to 65 inches:

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Custom Soil Resource Report

Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very high (about 21.7 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Conejo, loam

Percent of map unit: 5 percent
Hydric soil rating: No

Elder, sandy loam

Percent of map unit: 4 percent
Hydric soil rating: No

Elkhorn, sandy loam

Percent of map unit: 2 percent
Hydric soil rating: No

Soquel, loam

Percent of map unit: 1 percent
Hydric soil rating: No

133—Elkhorn sandy loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: h9dr
Elevation: 50 to 5,000 feet
Mean annual precipitation: 14 to 22 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 245 to 275 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Elkhorn and similar soils: 85 percent
Minor components: 11 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elkhorn

Setting

Landform: Terraces, alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Marine deposits

Typical profile

H1 - 0 to 21 inches: sandy loam
H2 - 21 to 61 inches: sandy clay loam, clay loam
H2 - 21 to 61 inches:

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 15.8 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: FINE LOAMY (R014XD034CA)
Hydric soil rating: No

Minor Components

Elder, sandy loam

Percent of map unit: 5 percent
Hydric soil rating: No

Baywood, loamy sand

Percent of map unit: 2 percent
Hydric soil rating: No

Pinto, loam

Percent of map unit: 1 percent
Hydric soil rating: No

Elkhorn

Percent of map unit: 1 percent
Hydric soil rating: No

Soquel, loam

Percent of map unit: 1 percent
Hydric soil rating: No

Watsonville

Percent of map unit: 1 percent

Custom Soil Resource Report

Landform: Marine terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Hydric soil rating: Yes

135—Elkhorn sandy loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: h9dt
Elevation: 50 to 5,000 feet
Mean annual precipitation: 14 to 22 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 245 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

Elkhorn and similar soils: 85 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elkhorn

Setting

Landform: Terraces, alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Marine deposits

Typical profile

H1 - 0 to 21 inches: sandy loam
H2 - 21 to 61 inches: sandy clay loam, clay loam
H2 - 21 to 61 inches:

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 15.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Baywood, loamy sand

Percent of map unit: 5 percent

Hydric soil rating: No

Tierra, sandy loam

Percent of map unit: 4 percent

Hydric soil rating: No

Pfeiffer, sandy loam

Percent of map unit: 2 percent

Hydric soil rating: No

Watsonville

Percent of map unit: 1 percent

Landform: Marine terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Hydric soil rating: Yes

161—Pinto loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: h9fn

Elevation: 20 to 1,000 feet

Mean annual precipitation: 20 to 35 inches

Mean annual air temperature: 59 degrees F

Frost-free period: 245 to 275 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Pinto and similar soils: 85 percent

Minor components: 7 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pinto

Setting

Landform: Terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium and/or marine deposits

Typical profile

H1 - 0 to 21 inches: loam

H2 - 21 to 51 inches: sandy clay loam, clay loam, loam

H2 - 21 to 51 inches: sandy clay loam, clay loam

Custom Soil Resource Report

H2 - 21 to 51 inches:

H3 - 51 to 65 inches:

H3 - 51 to 65 inches:

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Very high (about 14.2 inches)

Interpretive groups

Land capability classification (irrigated): 2s

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Elkhorn, sandy loam

Percent of map unit: 5 percent

Hydric soil rating: No

Watsonville

Percent of map unit: 1 percent

Landform: Marine terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Hydric soil rating: Yes

Pinto

Percent of map unit: 1 percent

Hydric soil rating: No

162—Pinto loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: h9fp

Elevation: 20 to 1,000 feet

Mean annual precipitation: 20 to 35 inches

Mean annual air temperature: 59 degrees F

Frost-free period: 245 to 275 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Pinto and similar soils: 85 percent

Minor components: 10 percent

Custom Soil Resource Report

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pinto

Setting

Landform: Alluvial fans, terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 21 inches: loam
H2 - 21 to 51 inches: sandy clay loam, clay loam, loam
H2 - 21 to 51 inches: sandy clay loam, clay loam
H2 - 21 to 51 inches:
H3 - 51 to 65 inches:
H3 - 51 to 65 inches:

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 14.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Watsonville

Percent of map unit: 5 percent
Landform: Marine terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Hydric soil rating: Yes

Elkhorn, sandy loam

Percent of map unit: 5 percent
Hydric soil rating: No

176—Watsonville loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: h9g4
Elevation: 20 to 1,200 feet
Mean annual precipitation: 28 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 245 to 275 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Watsonville and similar soils: 85 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Watsonville

Setting

Landform: Marine terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 18 inches: loam
H2 - 18 to 39 inches: clay, clay loam
H2 - 18 to 39 inches: sandy clay loam, clay loam
H3 - 39 to 63 inches:
H3 - 39 to 63 inches:

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: About 18 inches to abrupt textural change
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: CLAYPAN (R014XD089CA)

Hydric soil rating: Yes

Minor Components

Elkhorn, sandy loam

Percent of map unit: 5 percent

Hydric soil rating: No

Pinto, loam

Percent of map unit: 4 percent

Hydric soil rating: No

Watsonville, thick surface

Percent of map unit: 3 percent

Landform: Marine terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Hydric soil rating: Yes

177—Watsonville loam, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: h9g5

Elevation: 20 to 1,200 feet

Mean annual precipitation: 28 inches

Mean annual air temperature: 57 degrees F

Frost-free period: 245 to 275 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Watsonville and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Watsonville

Setting

Landform: Marine terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium

Typical profile

H1 - 0 to 18 inches: loam

H2 - 18 to 39 inches: clay, clay loam

H2 - 18 to 39 inches: sandy clay loam, clay loam

H3 - 39 to 63 inches:

H3 - 39 to 63 inches:

Custom Soil Resource Report

Properties and qualities

Slope: 2 to 15 percent

Depth to restrictive feature: About 18 inches to abrupt textural change

Natural drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D

Ecological site: CLAYPAN (R014XD089CA)

Hydric soil rating: Yes

Minor Components

Elkhorn, sandy loam

Percent of map unit: 5 percent

Hydric soil rating: No

Pinto, loam

Percent of map unit: 4 percent

Hydric soil rating: No

Watsonville, thick surface

Percent of map unit: 3 percent

Landform: Marine terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Hydric soil rating: Yes

Cropley, silty clay

Percent of map unit: 1 percent

Hydric soil rating: No

Danville

Percent of map unit: 1 percent

Hydric soil rating: No

Elder

Percent of map unit: 1 percent

Hydric soil rating: No

178—Watsonville loam, thick surface, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: h9g6

Elevation: 20 to 1,200 feet

Mean annual precipitation: 28 inches

Mean annual air temperature: 57 degrees F

Frost-free period: 245 to 275 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Watsonville and similar soils: 85 percent

Minor components: 14 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Watsonville

Setting

Landform: Marine terraces

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium

Typical profile

H1 - 0 to 18 inches: loam

H2 - 18 to 39 inches: clay, clay loam

H2 - 18 to 39 inches: sandy clay loam, clay loam

H3 - 39 to 63 inches:

H3 - 39 to 63 inches:

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: About 18 inches to abrupt textural change

Natural drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: D

Hydric soil rating: Yes

Minor Components

Elkhorn, sandy clay

Percent of map unit: 5 percent
Hydric soil rating: No

Pinto, loam

Percent of map unit: 4 percent
Hydric soil rating: No

Watsonville,, thick surface

Percent of map unit: 3 percent
Landform: Marine terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Hydric soil rating: Yes

Danville, loam

Percent of map unit: 2 percent
Hydric soil rating: No

179—Watsonville loam, thick surface, 2 to 15 percent slopes

Map Unit Setting

National map unit symbol: h9g7
Elevation: 20 to 1,200 feet
Mean annual precipitation: 28 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 245 to 275 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Watsonville and similar soils: 85 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Watsonville

Setting

Landform: Marine terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 18 inches: loam
H2 - 18 to 39 inches: clay, clay loam
H2 - 18 to 39 inches: sandy clay loam, clay loam
H3 - 39 to 63 inches:

Custom Soil Resource Report

H3 - 39 to 63 inches:

Properties and qualities

Slope: 2 to 15 percent

Depth to restrictive feature: About 18 inches to abrupt textural change

Natural drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D

Hydric soil rating: Yes

Minor Components

Danville, loam

Percent of map unit: 5 percent

Hydric soil rating: No

Elder, sandy loam

Percent of map unit: 4 percent

Hydric soil rating: No

Elkhorn, sandy loam

Percent of map unit: 2 percent

Hydric soil rating: No

Pinto, loam

Percent of map unit: 2 percent

Hydric soil rating: No

185—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
1.	Blasdale's Bent Grass <i>Agrostis blasdalei</i>	None/None G2/S2 1B.2	May – July	Dunes, gravelly soils, coastal bluffs, scrub; < 100 m. s NCo, n CCo, n SnFrB	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
2.	Bent-flowered Fiddleneck <i>Amsinckia lunaris</i>	None/None G2G3/S2S3 1B.2	February – May	Semi-barren, loose, shaly slopes; 50-1000 m. w SnJV, SCoRI	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
3.	Slender Silver Moss <i>Anomobryum julaceum</i>	None/None G5?/S2 4.2	n/a	Broadleaf upland forest, lower montane and north coast coniferous forests. On damp rocks and soil, acidic substrate; 100-1000 m.	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
4.	Coast Rockcress <i>Arabis blepharophylla</i>	None/None G4/S4 4.3	March – April	Rocky outcrops, bluffs, grassy slopes; 50--300 m. CCo, SnFrB.	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
5.	Anderson's manzanita <i>Arctostaphylos andersonii</i>	None/None G2/S2 1B.2	January – March	Open sites or forest edge, redwood or mixed-evergreen forest, occasionally in chaparral near coast; < 800 m. w SnFrB (Santa Cruz Mtns).	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
6.	Hooker's Manzanita <i>Arctostaphylos hookeri ssp. hookeri</i>	None/None G3T2/S2 1B.2	January – June	Chaparral, closed-cone pine forest; < 200 m. n CCo, s SnFrB (s Santa Cruz Mtns)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
7.	Pajaro Manzanita <i>Arctostaphylos pajaroensis</i>	None/None G1/S1 1B.1	December – March	Sandstone outcrops, chaparral; < 755 m. n-c CCo, s SnFrB (Pajaro Hills)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
8.	Bonny Doon Manzanita <i>Arctostaphylos silvicola</i>	None/None G1/S1 1B.2	January – March	Weathered sandstone soils in chaparral, conifer forest; < 600 m. sw SnFrB (Santa Cruz Sandhills, Santa Cruz Co.)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
9.	Marsh Sandwort <i>Arenaria paludicola</i>	Endangered/Endangered 1B.1	May – August	Boggy meadows, marshes; <300 m. s CCo (Nipomo Mesa, SLO County, Santa Ana River, SCo)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
10.	Brewer's Calandrinia <i>Calandrinia breweri</i>	None/None G4/S4 4.2	(January) March – June	Chaparral, Northern Coastal Scrub, Coastal Sage Scrub; sandy to loamy soil, disturbed sites, burns; <1200m. NCoR, c SNF, SnFrB, SCoRO, SCo, WTR; n Baja CA	Moderate. Appropriate loamy soil is present in the Study Area, with limited elements of coastal scrub habitat.	No.	No Effect.
11.	Santa Cruz Mountains Pussypaws <i>Calyptridium parryi</i> var. <i>hesseae</i>	None/None G3G4T2/S2 1B.1	May – August	Sandy or gravelly openings in chaparral and cismontane woodland. 700-1100 m.	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
12.	Swamp Harebell <i>Campanula californica</i>	None/None G3/S3 1B.2	June – October	Meadows, freshwater-marsh, bogs/fens; ± 5 - 400 m. s NCo, n CCo	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
13.	Bristly Sedge <i>Carex comosa</i>	None/None G5/S2 2B.2	May – September	Wet places, lake-margins, edges, freshwater wetlands; < 400 m. KR, NCoRI, CaRH, GV, n CCo (Bodega Bay), SnFrB, SnBr, MP (Shasta Co.)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
14.	Deceiving Sedge <i>Carex saliniformis</i>	None/None G2/S2 1B.2	June (July)	Coastal Prairie, Northern Coastal Scrub, wetland-riparian, marshes, pond shores, wet openings; < 250 m. NCo, SnFrB (extirpated)	Low. A riparian corridor borders the southern portion of the Study Area, which could potentially support Deceiving Sedge.	No.	No Effect.
15.	Johnny-nip <i>Castilleja ambigua</i> subsp. <i>ambigua</i>	None/None G4T5/S4 4.2	May – August	Grassy coastal bluffs, grassland; <500 m. NCo, s NCoR, n&c CCo	Low. Coastal grassland habitat occurs in the Study Area.	No.	No Effect.
16.	Monterey Coast Paintbrush <i>Castilleja latifolia</i>	None/None G4/S4 4.3	March – September	Coastal dunes, scrub; < 100 m. c&s CCo	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
17.	Coyote Ceanothus <i>Ceanothus ferrisiae</i>	Endangered/None G1/S1 1B.1	January – May	Rocky, serpentine slopes, chaparral; 120-320 m. se SnFrB (Santa Clara Co.)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
18.	Monterey Ceanothus <i>Ceanothus rigidus</i>	None/None G4/S4 4.2	February – April (June)	Sandy soils, closed-cone coniferous forest, chaparral, coastal scrub; <400 m. CCo	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
19.	Congdon's Tarplant <i>Centromadia parryi</i> subsp. <i>congdonii</i>	None/None G3T2/S2 1B.1	May – October (November)	Mesic grassland, open ground; <100 m. CW	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
20.	Ben Lomond Spineflower <i>Chorizanthe pungens</i> var. <i>hartwegiana</i>	Endangered/None G2T1/S1 1B/1	April – July	Coastal, Yellow Pine Forest, Sand; 90-- 500 m. sw SnFrB (Santa Cruz Sandhills, Santa Cruz Co.)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
21.	Monterey Spineflower <i>Chorizanthe pungens</i> var. <i>pungens</i>	Thretened/None G2T2/S2 1B.2	April – June (July - August)	Sandy soils in dune habitats or chaparral; 0-150 m. CCo, SnFrB	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
22.	Scotts Valley Spineflower <i>Chorizanthe robusta</i> var. <i>hartwegii</i>	Endangered/None G2T1/S1 1B.1	April – July	Valley Grassland, meadows, sand; 200--300 m. s SnFrB (Scotts Valley, Santa Cruz Co.)	No. The Study Area is below the elevational range to support Scotts Valley Spineflower.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
23.	Robust Spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i>	Endangered/None G2T1/S1 1B.1	May – September	Coastal Strand, Foothill Woodland, Northern Coastal Scrub, dunes, openings, coastal, sand or gravel; 10-300 m. n&c CCo (s Santa Cruz, n Monterey cos.), sw SnFrB (extirpated)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
24.	Brewer's Clarkia <i>Clarkia breweri</i>	None/None G4/S4 4.2	April – June	Openings in woodland, chaparral, with a strong affinity to serpentine soil (3.8, strong indicator); <1000 m. se SnFrB, SCoRI.	No. Serpentine soil does not occur in the Study Area and the most recent occurrence reported within the region was in 1929.	No.	No Effect.
25.	Santa Clara Red Ribbons <i>Clarkia concinna</i> subsp. <i>automixa</i>	None/None G5?T3/S3 4.3	(April) May – June (July)	Foothill woodland; < 1500 m. SnFrB	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
26.	San Francisco Collinsia <i>Collinsia multicolor</i>	None/None G2/S2 1B.2	March – May	Moist, ± shady scrub, forest; < 300 m. n&c CCo, SnFrB (San Mateo Co.)	Low. Moist areas of shaded woodland occur in the southern portion of the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
27.	Seaside Bird's-beak <i>Cordylanthus rigidus</i> subsp. <i>littoralis</i>	None/Endangered G5T2/S2 1B.1	April – October	Closed-cone coniferous forest, chaparral, coastal scrub, coastal dunes. Sandy, often disturbed sites; 0-215 m. s CCo, CCo	Low. Disturbed elements of coastal scrub occur in the Study Area but there are no known occurrences of this species in the county.	No.	No Effect.
28.	Clustered Lady's-slipper <i>Cypripedium fasciculatum</i>	None/None G4/S4 4.2	March – August	Mesic to moist, shady conifer forest; 100-2000 m. NW, n SN, sw SnFrB	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
29.	Mountain Lady's-slipper <i>Cypripedium montanum</i>	None/None G4/S4 4.2	March – August	Moist areas, dry slopes, mixed- evergreen or conifer forest; 200--2200 m. NW, CaR, n&c SN, sw SnFrB, MP	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
30.	Tear Drop Moss <i>Dacryophyllum falcifolium</i>	None/None G2/S2 1B.3	n/a	Vertical surfaces of shaded, calcareous rock cliffs and rock outcrops in redwood forests; of conservation concern; low to moderate elevations (50-300 m)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
31.	California Bottle-brush Grass <i>Elymus californicus</i>	None/None G4/S4 4.3	May – August (November)	Conifer forest; < 500 m. NCo, NCoRO, n CCo, SnFrB (Santa Cruz Mtns)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
32.	Ben Lomond Buckwheat <i>Eriogonum nudum</i> var. <i>decurrens</i>	None/None G5T1/S1 1B.1	June – October	Chaparral, Foothill Woodland, Yellow Pine Forest, Coastal, sand; 90--200 m. s SnFrB (Santa Cruz Sandhills, Santa Cruz Co.)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
33.	Sand-loving Wallflower <i>Erysimum ammophilum</i>	None/None G2/S2 1B.2	February – June	Coastal dunes; < 50 m. c CCo (Monterey Bay), n ChI (San Miguel, Santa Rosa islands).	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
34.	Santa Cruz Wallflower <i>Erysimum teretifolium</i>	Endangered/Endangered G1/S1 1B.1	February – July	Sandy areas in coastal-sage scrub or chaparral, Yellow Pine Forest; 100--400 m. sw SnFrB (Santa Cruz Sandhills, Santa Cruz Co.).	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
35.	Minute Pocket Moss <i>Fissidens pauperculus</i>	None/None G3?/S2 1B.2	n/a	North Coast coniferous forest, damp coastal soil; 10 - 1024 m.	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
36.	Monterey Gilia <i>Gilia tenuiflora</i> subsp. <i>arenaria</i>	Endangered/Threatened G3G4T2/S2 1B.2	April – June	Coastal sand dunes, Chaparral, Northern Coastal Scrub; < 30 m. c CCo (Monterey Bay).	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
37.	San Francisco Gumplant <i>Grindelia hirsutula</i> var. <i>maritima</i>	None/None G5T1Q/S1 3.2	June – September	Sandy or serpentine slopes, sea bluffs; <400 m. n CCo	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
38.	Santa Cruz Cypress <i>Hesperocyparis abramsiana</i> var. <i>abramsiana</i>	Threatened/Endangered G1T1/S1 1B.2		Yellow-pine, closed- cone-pine/cypress forests; 370--760 m. SnFrB (Santa Cruz Mtns, Santa Cruz Co.)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
39.	Loma Prieta Hoita <i>Hoita strobilina</i>	None/None G2/S2 1B.1	May – August (August - October)	Chaparral, oak woodland, Mixed Evergreen Forest; < 600 m. SnFrB.	Moderate. Oak woodland elements occur in the southern portion of the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
40.	Santa Cruz Tarplant <i>Holocarpha macradenia</i>	Threatened/Endangered G1/S1 1B.1	June – November	Coastal Prairie, Valley Grassland, grassy areas, clay soil; < 200 m. CCo (n&c Monterey Bay, extirpated elsewhere), sw SnFrB (introduced e SnFrB)	Moderate. Grassland elements occur but lack the clay soil characteristics necessary to support Santa Cruz Tarplant.	No.	No Effect.
41.	Kellogg's Horkelia <i>Horkelia cuneata</i> var. <i>sericea</i>	None/None G4T1?/S1? 1B.1	April – September	Old dunes, coastal sand hills; <200 m. CCo	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
42.	Point Reyes Horkelia <i>Horkelia marinensis</i>	None/None G2/S2 1B.2	May – September	Sandy coastal flats; ± 15--760 m. c NCo (Fort Bragg), n CCo (Point Reyes to Santa Cruz)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
43.	Perennial Goldfields <i>Lasthenia californica</i> subsp. <i>macrantha</i>	None/None G3T2/S2 1B.2	January – November	Grassland, coastal dunes; <500 m.	Low. Grassland habitat occurs in the Study Area.	No.	No Effect.
44.	Smooth Lessingia <i>Lessingia micradenia</i> var. <i>glabrata</i>	None/None G2T2/S2 1B.2	(April – June) July – November	Serpentine outcrops, gravelly roadcuts; 100-- 500 m. s SnFrB (Santa Clara Co.)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
45.	Arcuate Bush-mallow <i>Malacothamnus arcuatus</i>	None/None G2Q/S2 1B.2	April – September	Chaparral, slopes or canyons from the coast to well inland, especially common after fire. < 2600 m.	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
46.	Mount Diablo Cottonweed <i>Micropus amphibolus</i>	None/None G3G4/S3S4 3.2	March – May	Bare, grassy, or rocky slopes; 50-800 m. NCoR, SnFrB, s SCoRO	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
47.	Marsh Microseris <i>Microseris paludosa</i>	None/None G2/S2 1B.2	April – June (July)	Moist grassland or open woods; <300 m. CCo, SnFrB	Low. Grassland habitat in the Study Area is predominantly dry, with ephemeral moist areas near the southern riparian corridor.	No.	No Effect.
48.	Elongate Copper Moss <i>Mielichhoferia elongata</i>	None/None G5/S4 4.3	n/a	Rock substrate; CaR, CW, NW, SN	No. Appropriate rock substrate is not present in the Study Area.	No.	No Effect.
49.	Santa Cruz County Monkeyflower <i>Mimulus rattanii</i> subsp. <i>decurtatus</i>	None/None G4T1T3Q/S1S3 4.2	May – July	Chaparral, Yellow Pine Forest, edges, sandy loam soil; 90 – 190 m. NCoRI, CW, PR	No. The Study Area occurs below the elevational range known to support Santa Cruz County Monkeyflower.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
50.	Northern Curly-leaved Monardella <i>Monardella sinuata</i> subsp. <i>nigrescens</i>	None/None G3T2/S2 1B.2	(April) May – July (August - September)	Dunes, openings in coastal scrub; < 300 m. n CCo (Monterey Co. and n), SnFrB	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
51.	Woodland Woollythreads <i>Monolopia gracilens</i>	None/None G3/S3 1B.2	(February) March – July	Chaparral, serpentine grassland, cismontane woodland, sandy to rocky soils; SnFrB, SCoR	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
52.	Dudley's Lousewort <i>Pedicularis dudleyi</i>	None/Rare G2/S2 1B.2	April – June	Coastal chaparral and forest, deep shady woods of older coast redwood forest; < 350 m. CCo, SnFrB (Santa Cruz Mtns), SCoRO.	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
53.	Santa Cruz Mountains beardtongue <i>Penstemon rattanii</i> var. <i>kleei</i>	None/None G4T2/S2 1B.2	May – June	Chaparral, Yellow Pine Forest, North Coastal Coniferous Forest Redwood, hardwood forests; 400--600 m. SnFrB.	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
54.	White-rayed Pentachaeta <i>Pentachaeta bellidiflora</i>	Endangered/Endangered G1/S1 1B.1	March – May	Grassy or rocky areas, often serpentine soil; < 620 m. n CCo, SnFrB	Low. Grassland habitat is present in the Study Area, however is lacking elements of rock or serpentine soil.	No.	No Effect.
55.	White-flowered Rein Orchid <i>Piperia candida</i>	None/None G3/S3 1B.2	May – September	Open to shady sites, conifer and mixed-evergreen forest; < 1500 m. NW, sw SnFrB	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
56.	Michael's Rein Orchid <i>Piperia michaelii</i>	None/None G3/S3 4.2	April – August	Generally dry sites, coastal scrub, woodland, mixed-evergreen or closed-cone-pine forest; < 700 m. NCo, SNF, CCo, SnFrB, n SCo, WTR, S. Cruz Is.	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
57.	Yadon's Rein Orchid <i>Piperia yadonii</i>	Endangered/None G1/S1 1B.1	(February) May – August	Generally sandy soil or sandstone, coastal scrub, Monterey-pine forest; < 150 m. c CCo (n Monterey Co.)	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
58.	Choris' Popcornflower <i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	None/None G3T2Q/S2 1B.2	March – June	Grassy, moist places, ephemeral drainages, coastal scrub, chaparral; < 650 m. KR, NCoRO, n CCo, w SnFrB	Low. Grassland habitat and an ephemeral drainage occur in the Study Area.	No.	No Effect.
59.	San Francisco Popcornflower <i>Plagiobothrys diffusus</i>	None/Endangered G1Q/S1 1B.1	March – June	Coastal Prairie, Valley Grassland moist places, seeps; 30--150 m. c CCo, w-c SnFrB.	Low. Grassland habitat occurs in the Study Area, however is predominantly dry.	No.	No Effect.
60.	Scotts Valley Polygonum <i>Polygonum hickmanii</i>	Endangered/Endangered G1/S1 1B.1	May – August	Open, seasonally dry grassland; 200--300 m.: SnFrB (n end of Scotts Valley, Santa Cruz Co.).	No. The Study Area is below the elevational range known to support Scotts Valley Polygonum.	No.	No Effect.
61.	Lobb's Aquatic Buttercup <i>Ranunculus lobbii</i>	None/None G4/S3 4.2	February - May	Valley Grassland, Foothill Woodland, Redwood Forest, Freshwater Wetlands, wetland-riparian ponds; < 500 m. NCoR, SnFrB, British Columbia.	Low. Grassland and limited riparian elements occur in the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
62.	Chaparral Ragwort <i>Senecio aphanactis</i>	None/None G3/S2 2B.2	January - April(May)	Drying alkaline flats, chaparral, cismontane woodland, coastal scrub; <400 m. CW, SCo, ChI	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.
63.	Maple-leaved Checkerbloom <i>Sidalcea malachroides</i>	None/None G3/S3 4.2	(March) April - August	Coastal Prairie, Mixed Evergreen Forest, Redwood Forest, Woodland, clearings near coast; < 700 m. NCo, NCoRO, n&c CCo, SnFrB, n SCoRO, western Oregon	Moderate. Grassland habitat in the Study Area contains elements of Coastal Prairie habitat.	No.	No Effect.
64.	San Francisco Champion <i>Silene verecunda</i> subsp. <i>verecunda</i>	None/None G5T1/S1 1B.2	(February) March – June (August)	Open areas, chaparral, sagebrush, oak woodland, pinyon/juniper woodland, conifer forest; < 3400 m. c&s NCoR, CW, SW, W&I, DMtns	Low. Open grassland habitat occurs in the Study Area.	No.	No Effect.
65.	Santa Cruz Microseris <i>Stebbinsoseris decipiens</i>	None/None G2/S2 1B.2	April – May	Open areas in loose soil derived from sandstone, shale, or serpentine; 10-500 m. n & c CCo	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.

Appendix C. Special Status Plants Reported from the Region

	Common and Scientific Name	Fed/State Status Global/State Rank CRPR	Blooming Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
66.	Santa Cruz Clover <i>Trifolium buckwestiorum</i>	None/None G2/S2 1B.1	April – October	Coastal Prairie, Mixed Evergreen Forest, Grassy or disturbed areas; < 710 m. sw SnFrB (Mendocino, Monterey, Santa Cruz cos.).	Moderate. The Study Area consists of Grassland and disturbed Ruderal habitat within the elevational range known to support Santa Cruz Clover.	No.	No Effect.
67.	Saline Clover <i>Trifolium hydrophilum</i>	None/None G2/S2 1B.2	April – June	Salt marshes, open areas in alkaline soils; <300m. ScV, nw San Joaquin Valley, CW	No. Appropriate habitat is not present in the Study Area.	No.	No Effect.

California Geographic Subregion Abbreviations:

CCo: Central Coast	SnFrB: San Francisco Bay	SN: Sierra Nevada	CW: Central West
SCo: South Coast	SnBr: San Bernardino	SNF: Sierra Nevada Foothills	SW: South West
SCoRO: Outer South Coast Ranges	WTR: Western Transverse Ranges	NCo: North Coast	ChI: Channel Islands
SCoRI: Inner South Coast Ranges	SnJV: San Joaquin Valley	NCoRO: Outer North Coast Ranges	PR: Peninsular Range
CaRH: High Cascade Region	ScV: Sacramento Valley	NCoRI: Inner North Coast Ranges	CaR: Cascade Ranges
KR: Klamath Ranges	GV: Great Central Valley	MP: Modoc Plateau	
NW: North West	W&I: White & Inyo Mts	DMts: Desert Mountains	

California Rare Plant Ranks:

CRPR 1A: Plants presumed extirpated in California and either rare or extinct elsewhere
 CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere
 CRPR 2A: Plants presumed extirpated in California, but common elsewhere
 CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
 CRPR 4: Plants of limited distribution - a watch list

CRPR Threat Ranks:

0.1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
 0.2 - Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
 0.3 - Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Appendix D. Special Status Animals Reported from the Region

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
1.	Cooper's Hawk <i>Accipiter cooperii</i>	None/None G5/S4 WL	March 15 through August 15	Oak woodland, riparian, open fields. Nests in dense trees, esp. coast live oak.	Moderate. Marginally suitable nesting habitat is present in Study Area.	No.	No Effect.
2.	Opler's Longhorn Moth <i>Adela oplerella</i>	None/None G2/S2 Special Animal	n/a	Endemic to California. Has primarily been collected on creamcups (<i>Platystemon californicus</i>)	No. Creamcups are not present in Study Area.	No.	No Effect.
3.	Tricolored Blackbird <i>Agelaius tricolor</i>	None/Candidate Endangered G2G3/S1S2 SSC (Nesting)	March 15 through August 15	Requires open water, protected nesting substrate, & foraging area with insect prey near nesting colony.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
4.	California Tiger Salamander <i>Ambystoma californiense</i>	Threatened/ Threatened SSC	Rainy season	Need underground refuges, ground squirrel burrows & vernal pools or other seasonal water for breeding.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
5.	Santa Cruz Long-toed Salamander <i>Ambystoma macrodactylum croceum</i>	Endangered/Endangered G5T1T2/S1S2 FP	January through February	Breeds in temporary or permanent ponds. Inhabits adjacent upland coastal scrub, willow riparian, or coast live oak or pine woodlands during nonbreeding season.	No. Study Area is not located near any known or potential breeding ponds.	No.	No Effect.

Appendix D. Special Status Animals Reported from the Region

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
6.	Santa Cruz Black Salamander <i>Aneides niger</i>	None/None G3/S3 SSC	July through August	Mixed deciduous woodland, coniferous forests, coastal grasslands. Found under rocks near streams, in talus, under damp logs.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
7.	Northern California Legless Lizard <i>Anniella pulchra</i>	None/none G3/S3 SSC	May - September	Sandy or loose loamy soils under coastal scrub or oak trees. Soil moisture essential.	Low. Marginally suitable soils are present in the Study Area, as are coast live oaks.	No.	No Effect.
8.	Pallid Bat <i>Antrozous pallidus</i>	None/none G5/S3 SSC	Spring - Summer	Rock crevices, caves, tree hollows, mines, old buildings, and bridges.	Low. Potential roosting habitat is present in eucalyptus-oak woodland.	No.	No Effect.
9.	Golden Eagle <i>Aquila chrysaetos</i>	None/none G5/S3 WL/FP	March 15 through August 15	Nests in large, prominent trees in valley and foothill woodland. Requires adjacent food source.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
10.	Great Blue Heron <i>Ardea herodias</i>	None/none G5/S4 Special Animal (Rookery only)	March 15 through August 15	Rookeries located in tall trees near foraging areas.	No. Study Area is not located in proximity to suitable foraging areas.	No.	No Effect.

Appendix D. Special Status Animals Reported from the Region

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
11.	Short-eared Owl <i>Asio flammeus</i>	None/none SSC	March 15 through August 15	Fresh- and saltwater marshes, grasslands, ungrazed pastures. Nests on dry ground in tules/tall grasses.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
12.	Burrowing Owl <i>Athene cunicularia</i>	None/none SSC (Burrow sites and some wintering sites)	March 15 through August 15	Burrows in squirrel holes in open habitats with low vegetation.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
13.	Oak Titmouse* <i>Baeolophus inornatus</i>	None/None Special Animal (Nesting)	March 1 through August 31	Nests in cavities in oak woodland habitat. Non- migratory.	High. Potential nesting habitat is present and this species was observed in the Study Area.	Yes.	No Effect.
14.	Obscure Bumble Bee <i>Bombus caliginosus</i>	None/none G4?/S1S2 Special Animal	Spring	Open coastal grasslands and meadows.	Low. Marginal habitat is present in the Study Area.	No.	No Effect.
15.	Western Bumble Bee <i>Bombus occidentalis</i>	None/None G2G3/S1 Special Animal	n/a	Wide variety of natural, agricultural, urban, and rural habitats. Flower- rich meadows of forests and subalpine zones.	Low. Marginal habitat is present in the Study Area.	No.	No Effect.

Appendix D. Special Status Animals Reported from the Region

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
16.	Marbled Murrelet <i>Brachyramphus marmoratus</i>	Threatened/Endangered G3G4/S1 Special Animal	May 15 through September 15	Breeders require mature, coastal coniferous forest for nesting and nearby coastal waters for feeding. In nonbreeding season, often forages farther from shore.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
17.	Western Snowy Plover <i>Charadrius alexandrinus nivosus</i>	Threatened/None G3T3/S2S3 SSC	March 15 through August 15	Sandy beaches, salt pond levees, & shorelines of large alkali lakes. Needs friable soils for nesting.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
18.	Sandy Beach Tiger Beetle <i>Cicindela hirticollis gravida</i>	None/None G5T2/S2 Special Animal	n/a	Adjacent to non-brackish water near the coast from San Francisco to N. Mexico. Clean, dry, light-colored sand in the upper zone.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
19.	Ohlone Tiger Beetle <i>Cicindela ohlone</i>	Endangered/None G1/S1 Special Animal	Spring	Desert, dunes, marshes, swamps, bogs, urban, and riparian, sandy shorelines.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
20.	Globose Dune Beetle <i>Coelus globosus</i>	None/None G1G2/S1S2 Special Animal	n/a	Coastal sand dune habitat. Inhabits foredunes and sand hummocks.	No. Suitable habitat is not present in Study Area.	No.	No Effect.

Appendix D. Special Status Animals Reported from the Region

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
21.	Townsend's Big-eared Bat <i>Corynorhinus townsendii</i>	None/None G3G4/S2 SSC	Spring - Summer	Caves, buildings, and mine tunnels. Cave-like attics as day roosts. On coast roosts are normally within 100 m. of creeks.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
22.	Yellow Rail <i>Coturnicops noveboracensis</i>	None/None G4/S1S2 SSC	May through early September	Grassy marshes, wet meadows, shallow marshes with sedges and grasses, coastal salt marsh, areas with dense spartina, rice fields, damp meadows near coast.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
23.	Black Swift <i>Cypseloides niger</i>	None/ none Special Animal	June- August	Breeds on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above surf	No. Suitable habitat is not present in Study Area.	No.	No Effect.
24.	Monarch Butterfly <i>Danaus plexippus</i>	None/none G4T2T3/S2S3 Special Animal	September - March (aggregations)	Roosts located in wind-protected tree groves with nectar and water nearby.	Moderate. Study Area is in proximity to known or historic monarch overwintering sites. Potentially suitable roosting habitat is present in eucalyptus trees.	No.	No Effect.

Appendix D. Special Status Animals Reported from the Region

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
25.	California Giant Salamander <i>Dicamptodon ensatus</i>	None/None G3/S2S3 SSC	March through May	Humid coastal forests, montane and valley-foothill riparian areas, rocky streams and springs.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
26.	Santa Cruz Kangaroo Rat <i>Dipodomys venustus venustus</i>	None/None G4T1/S1 Special Animal	Spring	Chaparral habitat on substrates of sands, loams, and sandy loams.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
27.	White-tailed Kite <i>Elanus leucurus</i>	None/none G5/S3S4 FP	March 15 through August 15	Nests in dense tree canopy near open foraging areas	Low. Marginally suitable nesting habitat is present in Study Area, but Study Area is not in proximity to suitable foraging areas.	No.	No Effect.
28.	Western Pond Turtle <i>Emys marmorata</i>	None/none G3G4/S3 SSC	April - August	Permanent or semi-permanent streams, ponds, lakes.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
29.	Tidewater Goby <i>Eucyclogobius newberryi</i>	Endangered/none G3/S3 SSC	n/a	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Low. No habitat in the drainage adjacent to the Study Area, but this species is present in Rodeo Gulch and Corcoran Lagoon, downstream of the Study Area.	No.	No Effect.

Appendix D. Special Status Animals Reported from the Region

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
30.	American Peregrine Falcon* <i>Falco peregrinus anatum</i>	De-listed/De-listed FP	March 15 through August 15	Nests on cliffs, banks, dunes, mounds, and human-made structures, especially near water.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
31.	Hoary Bat <i>Lasiurus cinereus</i>	None/none SSC	Spring-Fall	Forages in open habitats or habitat mosaics with trees. Roosts in dense foliage of medium to large trees. Feeds on moths. Requires water.	Moderate. Potentially suitable roosting habitat is present in the Study Area in the riparian corridor.	No.	No Effect.
32.	Empire Cave Pseudoscorpion <i>Fissilicreagris imperialis</i>	None/None G1/S1 Special Animal	n/a	Endemic to caves in Cave Gulch in Santa Cruz County.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
33.	California Black Rail <i>Laterallus jamaicensis coturniculus</i>	None/Threatened FP	March 15 through August 15	Occurs in tidal salt marsh heavily grown to pickleweed, also in freshwater and brackish marshes near the coast.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
34.	California Linderiella <i>Linderiella occidentalis</i>	None/none Special Animal	Rainy season	Seasonal pools in unplowed grasslands with alluvial soils.	No. Suitable habitat is not present in Study Area.	No.	No Effect.

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	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
35.	Molestan Blister Beetle <i>Lytta molesta</i>	None/none Special Animal	n/a	Has been collected on lupine, <i>Erodium</i> and <i>Trifolium</i> , often associated with vernal pools. Inhabits the Central Valley, from Contra Costa to Kern and Tulare Counties.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
36.	Western Pearlshell <i>Margaritifera falcata</i>	None/None G4G5/S1S2 Special Animal	n/a	Perennial rivers, streams, and creeks in cold, clear water in areas with boulders and gravel substrate.	No. Suitable habitat is not present in the Study Area, nor downstream of the Study Area. This species is not present in Rodeo Gulch or Corcoran Lagoon.	No.	No Effect.
37.	Dolloff Cave spider <i>Meta dolloff</i>	None/None G1/S1 Special Animal	n/a	Endemic to caves in Santa Cruz and Monterey Counties.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
38.	Empire Cave Pseudoscorpion <i>Neochthonius imperialis</i>	None/None G1/S1 Special Animal	n/a	Endemic to caves in Santa Cruz County.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
39.	San Francisco Dusky-Footed Woodrat <i>Neotoma fuscipes annectens</i>	None/None G5T2T3/S2S3 SSC	n/a	Grasslands, scrub, and wooded areas, especially those with live oaks or other thick-leaved trees and shrubs.	Moderate. Potentially suitable habitat is present in riparian corridor in Study Area.	No.	No Effect.

Appendix D. Special Status Animals Reported from the Region

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
40.	Coho Salmon - Central California Coast ESU <i>Oncorhynchus kisutch</i>	Endangered/Endangered G4/S2? Special Animal	November - March	Fed listing refers to populations from Punta Gorda south to the San Lorenzo River in Santa Cruz.	No. Suitable habitat is not present in the Study Area, nor downstream of the Study Area. Salmon are not present in Rodeo Gulch or Corcoran Lagoon.	No.	No Effect.
41.	Steelhead - Central California Coast DPS <i>Oncorhynchus mykiss irideus</i>	Threatened/None SSC	February - April	Fed listing refers to populations from the Russian River south to Aptos Creek in Santa Cruz County. Includes drainages of San Francisco and San Pablo Bays.	No. Suitable habitat is not present in the Study Area, nor downstream of the Study Area. Steelhead are not present in Rodeo Gulch or Corcoran Lagoon.	No.	No Effect.
42.	Steelhead - South/Central California Coast DPS <i>Oncorhynchus mykiss irideus</i>	Threatened/None SSC	February - April	Fed listing refers to runs in coastal basins from Pajaro River south to, but not including, the Santa Maria River.	No. Study Area is north of the Pajaro River.	No.	No Effect.
43.	Osprey <i>Pandion haliaetus</i>	None/None G5/S4 WL	March- September	Uses large trees, snags, and dead- topped trees in open forest habitats for cover and nesting. Requires clear, open waters for foraging.	No. Suitable habitat is not present in Study Area.	No.	No Effect.

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44.	Antioch Sphecid Wasp <i>Philanthus nasalis</i>	None/None G1/S1 Special Animal	n/a	Inland marine sand hills. Adults nest in sandy ground.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
45.	Mount Hermon June Beetle <i>Polyphylla barbata</i>	Endangered/None G1/S1 Special Animal	n/a	Known only from the Zayante sandhills of Santa Cruz County.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
46.	California Ridgway's Rail <i>Rallus obsoletus obsoletus</i>	Endangered/Endangered G5T1/S1 FP	March 1 through August 15	Saltwater & brackish marshes traversed by tidal sloughs.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
47.	Foothill Yellow-legged Frog <i>Rana boylei</i>	None/Candidate Threatened G3/S3 SSC	March - September	Partly shaded, shallow streams and riffles with rocky substrate. Min. 15 weeks for larval development.	No. Suitable habitat is not present in the Study Area, nor up or downstream of the Study Area. This species is not known to be present in Rodeo Gulch.	No.	No Effect.
48.	California Red-legged Frog <i>Rana draytonii</i>	Threatened/none G2G3/S2S3 SSC	January - September	Lowlands and foothills in or near sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks for larval development.	No. Suitable habitat is not present in the Study Area, nor up or downstream of the Study Area. This species is not known to be present in Rodeo Gulch.	No.	No Effect.

Appendix D. Special Status Animals Reported from the Region

	Common Name <i>Scientific Name</i>	Fed/State Status Global/State Rank CDFW Rank	Nesting- Breeding Period	Habitat Preference	Potential to Occur	Detected within Study Area?	Effect of Proposed Activity
49.	Salinas Harvest Mouse <i>Reithrodontomys megalotis distichlis</i>	None/None G5T1/S1 Special Animal	n/a	Coastal salt marshes, freshwater wetlands, and sandhill grasslands in the vicinity of the Salinas River mouth. May no longer be a valid taxon.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
50.	Bank Swallow <i>Riparia riparia</i>	None/Threatened G5/S2 Special Animal	March 15 through August 15	Nests colonially in riparian and other lowland habitats west of the desert. Requires vertical banks or cliffs with sandy soils (to dig cavities) near streams, lakes, or the ocean.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
51.	Longfin Smelt <i>Spirinchus thaleichthys</i>	Candidate/Threatened G5/S1 SSC	n/a	Estuaries and lakes along the Pacific coast.	No. Suitable habitat is not present in the Study Area, nor downstream of the Study Area. This species is not present in Rodeo Gulch or Corcoran Lagoon.	No.	No Effect.
52.	Mackenzie's Cave amphipod <i>Stygobromus mackenziei</i>	None/None G1/S1 Special Animal	n/a	Caves in Santa Cruz County.	No. Suitable habitat is not present in Study Area.	No.	No Effect.

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53.	American Badger <i>Taxidea taxus</i>	None/none G5/S3 SSC	February – May	Needs friable soils in open ground with abundant food source such as California ground squirrels.	Low. Only marginally suitable habitat is present. Ground squirrels are not abundant within Study Area.	No.	No Effect.
54.	Eulachon <i>Thaleichthys pacificus</i>	Threatened/None G5/S3 Special Animal	n/a	Spawn in coastal rivers and streams, typically in the lower reaches of snowmelt-fed rivers.	No. Suitable habitat is not present in the Study Area, nor downstream of the Study Area. This species is not present in Rodeo Gulch or Corcoran Lagoon.	No.	No Effect.
55.	Zayante band-winged grasshopper <i>Trimerotropis infantilis</i>	Endangered/None G1/S1 Special Animal	n/a	Known only from the Zayante sandhills of Santa Cruz County.	No. Suitable habitat is not present in Study Area.	No.	No Effect.
56.	Mimic Tryonia <i>Tryonia imitator</i>	None/none G2/S2 Special Animal	n/a	Inhabits coastal lagoons, estuaries, salt marshes from Sonoma to San Diego Counties.	No. Suitable habitat is not present in Study Area.	No.	No Effect.

Habitat characteristics are from the Jepson Manual and the CDNNB.

*not listed in the CNDDDB or CNPS for the search area, but possibly for the location.

Abbreviations:

SSC: CDFW Species of Special Concern

FP: CDFW Fully-Protected

WL: CDFW Watch List Species